

# **Axitom-5/400**

# **Axitom-5**

## **Instruction Manual**

**Original Instructions**



**CE**

Doc. no.: 15487025-02\_A\_en  
Date of release: 2024.08.15

---

**Copyright**

The contents of this manual are the property of Struers ApS. Reproduction of any part of this manual without the written permission of Struers ApS is not allowed.

All rights reserved. © Struers ApS.

---

# Table of Contents

<b>1 About this manual</b> .....	<b>6</b>
1.1 Accessories and consumables .....	6
<b>2 Safety</b> .....	<b>6</b>
2.1 Intended use .....	6
2.2 Axitom-5, -5/400 safety precautions .....	7
2.2.1 Read carefully before use .....	7
2.3 Safety messages .....	8
2.3.1 Safety messages in this manual .....	9
<b>3 Get started</b> .....	<b>12</b>
3.1 Device description .....	12
3.2 Overview .....	14
3.3 Dimensions .....	16
3.4 Control panel .....	17
3.5 Sleep mode .....	18
<b>4 Installation</b> .....	<b>18</b>
4.1 Unpack the machine .....	18
4.2 Check the packing list .....	19
4.3 Lift the machine .....	19
4.4 Location .....	21
4.5 Power supply .....	22
4.5.1 Connection to the machine .....	22
4.5.2 Power supply cable - recommended specifications .....	23
4.5.3 External short circuit protection .....	23
4.5.4 Residual Current Circuit Breaker (RCCB) .....	23
4.6 Recirculation cooling unit .....	24
4.6.1 Connect Coolimat-2000 .....	24
4.6.2 Connect other cooling systems .....	25
4.6.3 Connect other external filter units .....	25
4.7 Exhaust (optional) .....	25
4.8 Noise .....	26
<b>5 Transport and storage</b> .....	<b>26</b>
5.1 Transport .....	27
5.2 Storage .....	27

---

<b>6 Operate the device</b> .....	<b>28</b>
6.1 Change the cut-off wheel .....	28
6.2 Clamp the workpiece .....	29
6.3 Position the cutting tables .....	29
6.4 Line laser (option) .....	30
6.5 Basic operation .....	30
6.5.1 Cutting tables .....	31
6.5.2 Display .....	31
6.5.3 Change the settings .....	32
6.5.4 Operation mode .....	32
6.5.5 Cutting display .....	33
6.5.6 Cutting method .....	34
6.5.7 Cutting modes .....	35
6.5.8 Cutting parameters .....	44
6.5.9 Stop modes .....	46
6.5.10 Motor information .....	48
6.5.11 Start the cutting process .....	49
6.5.12 Stop the cutting process .....	50
6.5.13 Additional cooling .....	50
6.5.14 Lock or unlock protective hood .....	51
6.6 Configuration .....	51
6.6.1 Configuration menu .....	51
6.6.2 Laser configuration .....	53
6.7 Optimize cutting results .....	54
<b>7 Maintenance and service</b> .....	<b>54</b>
7.1 General cleaning .....	55
7.1.1 Recirculation unit .....	55
7.1.2 AxioWash .....	55
7.1.3 Flushing gun .....	56
7.2 Daily .....	57
7.2.1 The machine .....	57
7.2.2 Protective hood .....	58
7.2.3 Wheel guard .....	58
7.2.4 Safety lock .....	58
7.2.5 Cleaning the cutting chamber using AxioWash .....	58
7.3 Weekly .....	59
7.3.1 The machine .....	59
7.3.2 Cutting chamber .....	59
7.3.3 Recirculation unit .....	59

---

7.4	Monthly .....	60
7.4.1	Coolant .....	60
7.5	Annually .....	60
7.5.1	In-line filter .....	60
7.6	Test the safety devices .....	60
7.6.1	Emergency stop .....	61
7.6.2	Protective hood .....	61
7.6.3	Fluid system .....	61
7.6.4	Hold-to-run button .....	62
7.7	Cutting table .....	62
7.7.1	Lubricate the guide shafts .....	62
7.7.2	Lubricate the spindles .....	63
7.8	Cut-off wheels .....	66
<b>8</b>	<b>Spare parts .....</b>	<b>67</b>
<b>9</b>	<b>Service and repair .....</b>	<b>67</b>
<b>10</b>	<b>Disposal .....</b>	<b>68</b>
<b>11</b>	<b>Troubleshooting .....</b>	<b>68</b>
11.1	The machine .....	68
11.2	Cutting problems .....	69
11.3	Error messages .....	72
<b>12</b>	<b>Technical data .....</b>	<b>85</b>
12.1	Technical data - Axitom-5 .....	85
12.2	Technical data - Axitom-5/400 .....	90
12.3	Cutting capacity .....	94
12.4	Safety Related Parts of the Control System (SRP/CS) .....	95
12.5	Diagrams .....	97
<b>13</b>	<b>Legal and regulatory information .....</b>	<b>100</b>
<b>14</b>	<b>Manufacturer .....</b>	<b>100</b>
	<b>Declaration of Conformity .....</b>	<b>101</b>

# 1 About this manual

**CAUTION**

Struers equipment must only be used in connection with and as described in the Instruction Manual supplied with the equipment.

**Note**

Read the Instruction Manual carefully before use.

**Note**

If you want to view specific information in detail, see the online version of this manual.

## 1.1 Accessories and consumables

**Accessories**

For information about the available range, see the Axitom-5, -5/400 brochure:

- [The Struers Website](http://www.struers.com) (<http://www.struers.com>)

**Consumables**

The machine is designed to be used only with Struers consumables specifically designed for this purpose and this type of machine.

Other products may contain aggressive solvents, which dissolve e.g. rubber seals. The warranty may not cover damaged machine parts (e.g. seals and tubes), where the damage can be directly related to the use of consumables not supplied by Struers.

For information about the available range, see: [The Struers Website](http://www.struers.com) (<http://www.struers.com>).

## 2 Safety

### 2.1 Intended use

For professional semi-automatic or manual materialographic preparation (wet abrasive cutting) of materials for further materialographic inspection and only to be operated by skilled/trained personnel. The machine is designed to be used with Struers consumables specially developed for this purpose and this type of machine.

The machine is for use in a professional working environment (e.g. a metallographic laboratory).

**Do not use the machine for the following** Cutting of materials other than solid materials suitable for materialographic studies. In particular, the machine must not be used for any type of explosive and/or flammable material (e.g. magnesium or aluminum), or materials which are not stable during machining, heating or pressure.

### Models

Axitom-5 with X-table, Y-table

Axitom-5 with X-table

Axitom-5 with fixed table

Axitom-5/400 with X-table, Y-table

Axitom-5/400 with X-table, Y-table and laser guide

Further models may be available as customized machines.

## 2.2 Axitom-5, -5/400 safety precautions



### 2.2.1 Read carefully before use

1. Ignoring this information and mishandling of the equipment can lead to severe bodily injuries and material damage.
2. The machine must be installed in compliance with local safety regulations. All functions on the machine and any connected equipment must be in working order.
3. The operator must read the safety precautions and Instruction Manual, as well as relevant sections of the manuals for any connected equipment and accessories. The operator must read the Instruction Manual and, where applicable, the Safety Data Sheets for the applied consumables.
4. The machine must be placed against a wall and on a floor suitable for the machine's weight and for its use. The machine must be levelled by means of the adjustable legs provided.
5. Laser radiation. Do not stare into beam or expose users of telescopic optics. Class 2M laser product.
6. This machine must be operated and maintained only by skilled/trained personnel.
7. Before lifting the machine by the built-in truck lifting point, ensure that the boom is properly secured with the locking pins provided. Before transport, secure the cutting arm with the locking system provided.
8. For maximum safety and lifetime of the machine, use Struers consumables only.
9. Always use intact cut-off wheels that have been approved for a minimum of: 1950 rpm / 42 ms.
10. Do not use the machine with saw-blade type cut-off wheels.

11. Do not use the machine for cutting materials that are flammable or unstable during the cutting process (e.g. combustible or explosive materials). Do not use the machine for cutting materials that are not suitable for materialographic cutting.
12. All safety functions must be intact and in working order. If they are not, they must be replaced or repaired before the machine can be used.
13. The workpiece must be securely fixed in a clamping device or similar. Large or sharp workpieces must be handled in a safe way.
14. Wear suitable gloves to protect fingers from abrasives and warm/sharp specimens. Wear gloves when flushing and cleaning the machine.
15. Use safety shoes when handling large or heavy workpieces or moving the machine.
16. Wear safety goggles when using the flushing hose.
17. Keep your hands away from the cutting chamber when moving the cut-off wheel or the cutting table with the joystick.
18. The use of an exhaust system is recommended as the cutting liquids, materials to be cut and cut-off wheels can emit harmful gasses, fumes, or dust.
19. The machine emits moderate noise. However, the cutting process can be noisy depending on the nature of the workpiece. Use hearing protection if the exposure to noise exceeds the levels set by local regulations.
20. Observe the current safety regulations regarding handling, mixing, filling, emptying, and disposing of cooling fluids with additives. Never use flammable coolant. Always use goggles, gloves and other recommended protective clothing. Do not use any cooling liquid other than water and Struers cooling additive.
21. The machine must be disconnected from the electrical power supply before any service.
22. Make sure that the cut-off wheel is secured before you work on or around the cutting table.
23. If any unusual noise is heard when the protective hood is operated, refrain from further use of the machine, and contact Struers Service.
24. In case of fire, alert bystanders, the fire brigade and cut power. Use a powder fire extinguisher. Do not use water.
25. The machine is designed to be used only with Struers consumables specifically designed for this purpose and this type of machine.
26. Struers equipment must only be used in connection with and as described in the Instruction Manual supplied with the equipment.
27. If the equipment is subjected to misuse, incorrect installation, alteration, neglect, accident or incorrect repair, Struers will accept no responsibility for damage to the user or the equipment.
28. Dismantling of any part of the equipment, during service or repair, should always be performed by a qualified technician (electromechanical, electronic, mechanical, pneumatic, etc.).

### 2.3 Safety messages

Struers uses the following signs to indicate potential hazards.



**ELECTRICAL HAZARD**

This sign indicates an electrical hazard which, if not avoided, will result in death or serious injury.

**DANGER**

This sign indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

**WARNING**

This sign indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

**CRUSHING HAZARD**

This sign indicates a crushing hazard which, if not avoided, could result in minor, moderate or serious injury.

**HEAT HAZARD**

This sign indicates a heat hazard which, if not avoided, can result in minor, moderate or serious injury.

**CAUTION**

This sign indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

**Emergency stop**

Emergency stop

**General messages****Note**

This sign indicates that there is a risk of damage to property, or a need to proceed with special care.

**Hint**

This sign indicates that additional information and hints are available.

**2.3.1 Safety messages in this manual****ELECTRICAL HAZARD**

The machine must be earthed (grounded).  
Switch off the electrical power supply before installing electrical equipment.

**ELECTRICAL HAZARD**

Make sure that the actual electrical power supply voltage corresponds to the  
Incorrect voltage can damage the electrical circuit.



**ELECTRICAL HAZARD**

Disconnecting the unit from the electrical power supply must only be done by a qualified technician.



**ELECTRICAL HAZARD**

The machine must always be protected by external fuses. See the electrical table for details on the fuse size required.



**HEAT HAZARD**

Wear suitable gloves to protect fingers from abrasives and warm/sharp specimens.



**CRUSHING HAZARD**

Take care of your fingers when handling the machine. Wear safety shoes when handling heavy machinery.



**WARNING**

Always switch off power before you open the protective hood during power failure.



**WARNING**

The machine must not be used for any type of explosive and/or flammable material, or materials which are not stable during machining, heating or pressure.



**WARNING**

To ensure its intended safety, the PETG screen must be replaced every 5 years. A label on the screen indicates when it is due to be replaced. Replacement of the screen is required to remain compliant with the safety requirements in the European standard EN 16089.

  
Safety glass  
Sicherheitsglas  
Verre sécurité



**WARNING**

Replace the protective hood screen immediately if it has been weakened by collisions with projectile objects or if there are visible signs of deterioration or damage.



**WARNING**

If any of the following checks fail, do not use the machine until problems are resolved.



**WARNING**

Safety critical components must be replaced after a maximum lifetime of 20 years.

**WARNING**

To ensure its intended safety, the PETG screen must be replaced every 5 years. A label on the screen indicates when it is due to be replaced.

**WARNING**

Do not use the machine with defective safety devices. Contact Struers Service.

**WARNING**

In case of fire, alert bystanders, the fire brigade and cut power. Use a powder fire extinguisher. Do not use water.

**WARNING**

Never use flammable coolant.

**CAUTION**

Struers equipment must only be used in connection with and as described in the Instruction Manual supplied with the equipment.

**CAUTION**

The machine is heavy. Always use a forklift truck or a crane and 2 lifting straps.

**CAUTION**

Always wear safety shoes when handling workpieces.

**CAUTION**

Always close the safety guard carefully to avoid injuries.

**CAUTION**

The protective hood will minimize the risk of ejection but will not eliminate it completely.

**CAUTION**

Check that the protective hood is in full working condition prior to cutting.

**CAUTION**

Laser radiation. Do not stare into beam or expose users of telescopic optics. Class 2M laser product.





**CAUTION**

Read the Safety Data Sheet for the coolant additive before use.



**CAUTION**

Avoid skin contact with the coolant additive.



**CAUTION**

Wear suitable gloves and safety goggles when handling coolant.



**CAUTION**

Do not start flushing until the flushing gun points into the cutting chamber.  
Only use the flushing gun for cleaning inside the cutting chamber.



**CAUTION**

Always wear protective gloves and safety goggles when you use the flushing gun.



**CAUTION**

Using the flushing gun to clean the inside of the protective hood can cause spillage of coolant on the floor.  
Beware of slippery floor.  
Wear safety shoes with slip-resistant soles.



**CAUTION**

If you clean the protective hood directly with the flushing gun it may result in dripping cutting fluid when the hood is open. The cutting fluid may be hazardous. Ensure protection to avoid contact where needed.



**CAUTION**

Prolonged exposure to loud noises may cause permanent damage to a person's hearing.  
Use hearing protection if the exposure to noise exceeds the levels set by local regulations.

## 3 Get started

### 3.1 Device description

Axitom-5, -5/400 is an automatic cut-off machine with optional motorized XY-movements. The machine is designed for wet, abrasive cutting of all stable and non-explosive metals. It must be equipped with a re-circulation system for cooling fluid.

The cutting process starts by securing the workpiece to the cutting table with clamping tools. On models with X and Y tables, the operator can move the cutting table by pushing the Hold-to-run button and joystick simultaneously. The operator then selects the cutting parameters (e.g. feed speed and cutting length).

The operator closes the safety guard. The protective hood locks when the operator starts the machine, and it remains locked for the duration of the cutting. When the cut-off wheel stops, the lock releases and the workpiece and the specimen can be removed.

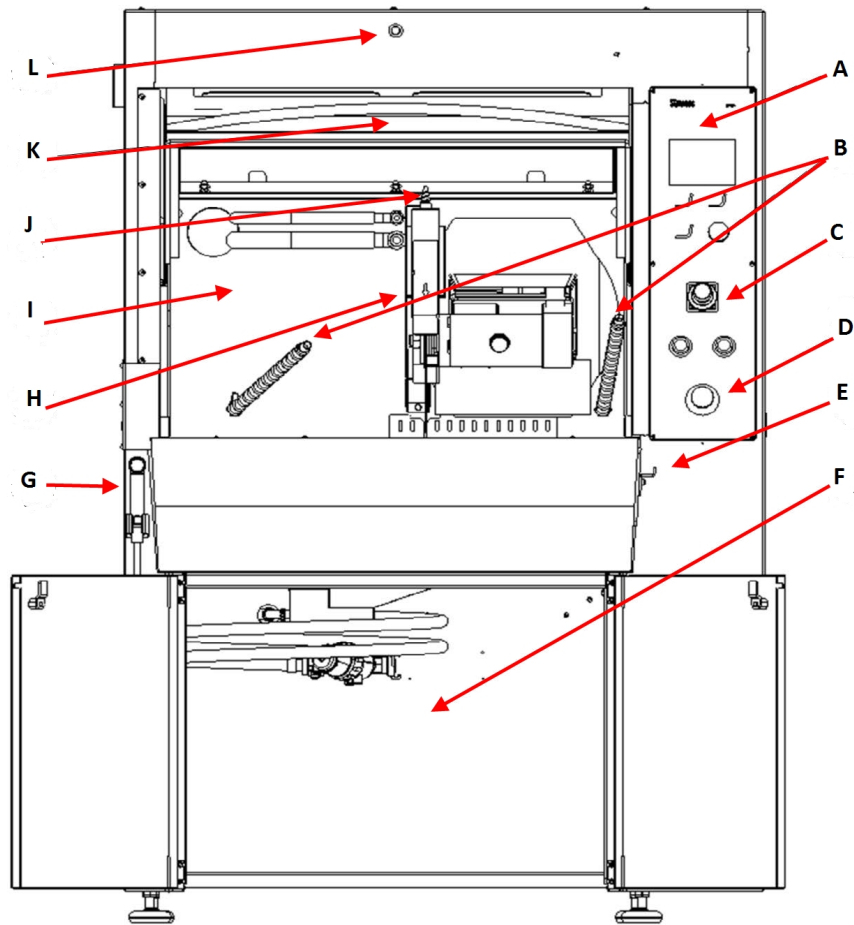
In case of a power loss during a cutting process, a release handle is used to open the power-to-open protective hood.

If activated, the emergency stop cuts the power to the motor that rotates the cut-off wheel. The protective hood can be opened once the cut-off wheel comes to a standstill.

The machine may be connected to an external exhaust system to remove fumes from the cutting process.

## 3.2 Overview

### Front view



**A** Control panel

**B** Flexible water jets

**C** Joystick

**D** Emergency stop

**E** Tool holder

**F** Cooling unit compartment

**G** Flushing gun

**H** Cut-off wheel guard

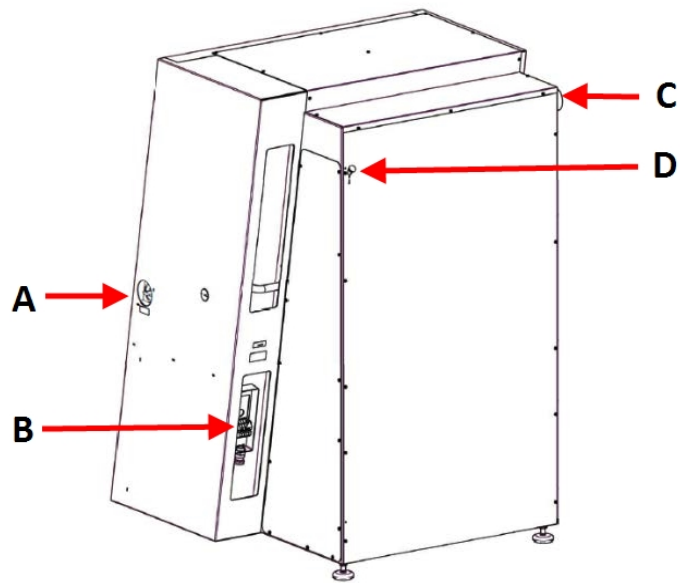
**I** Cutting chamber

**J** AxioWash valve and nozzle

**K** Protective hood

**L** Hold-to-run button

## Rear view



A Main switch

B Electrical connection box

C Exhaust flange

D Release for safety lock

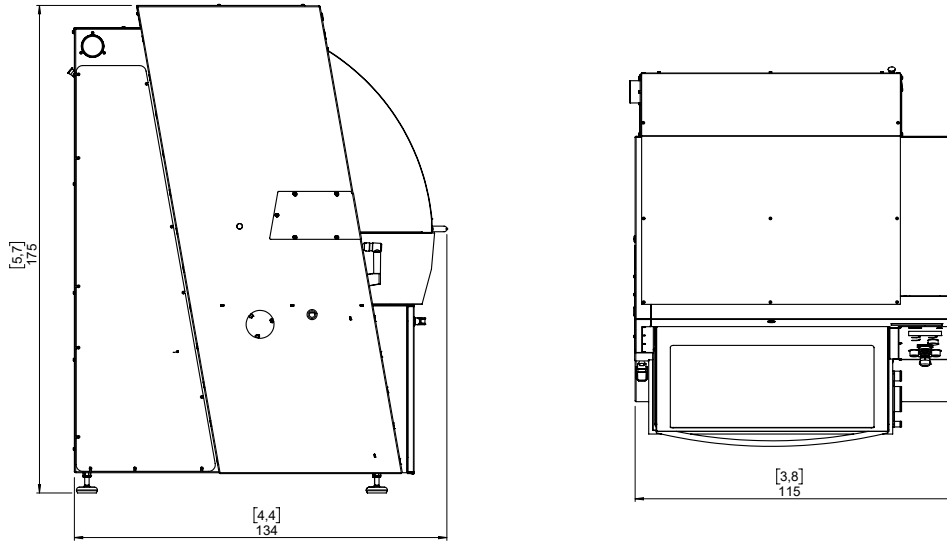
**Main switch**

- Turn the main switch clockwise to switch on the power.

**Note**

The protective hood on the machine can only be opened when the machine is connected to a power supply and the main power switch is on. See [Lock or unlock protective hood ▶ 51](#) for details on how to open the protective hood when the power is not connected.

### 3.3 Dimensions





## 3.4 Control panel

**A** Display

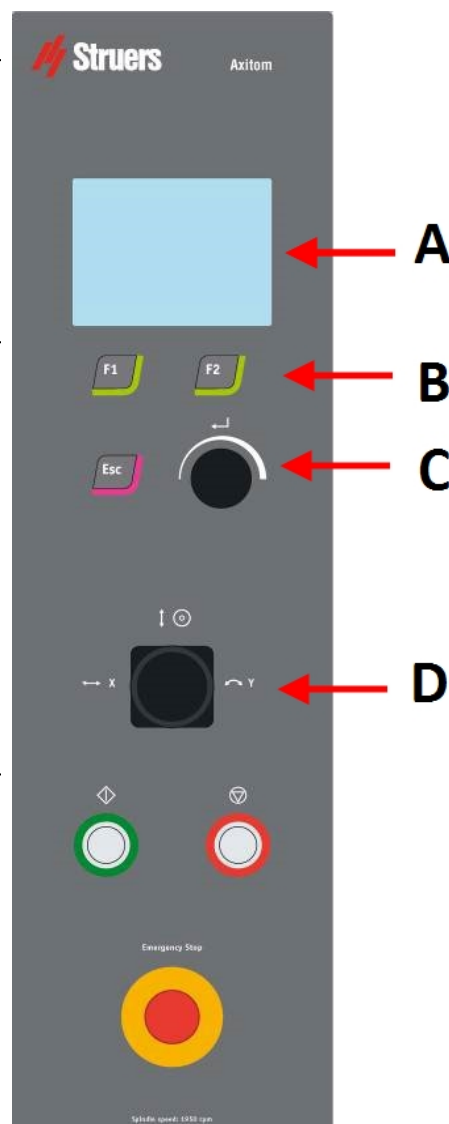
**B** F1-F2 Menu dependent multifunction keys. See the bottom line of the individual screens.  
F1: On/off of laser (for Axitom-5/400)

**C** Turn/push knob Multifunction knob.

- Push the knob to select a function.
- Turn the knob to move the cursor or to adjust settings.
- Push the knob to store modified settings.

**D** Joystick

- Move up or down to position the cut-off wheel.
- Move left or right to position the X-table (optional).
- Twist clockwise or counter-clockwise to position the Y-table (optional).



Escape

Moves one step backward in menus.



Start

Starts the machine and the recirculation unit and/or the band filter.



Stop

Stops the machine and recirculation unit and/or the band filter.



Emergency stop

- Push the red button to activate.
- Turn the red button clockwise to release.

### 3.5 Sleep mode

To increase the machine's lifetime, the backlight is dimmed, and the cutting chamber light is switched off if the machine has not been used for 15 minutes.

Push any control panel key to reactivate the backlight and the light.

## 4 Installation

### 4.1 Unpack the machine



**CRUSHING HAZARD**

Take care of your fingers when handling the machine.  
Wear safety shoes when handling heavy machinery.



**Note**

We recommend that you keep all original packaging and fittings for future use.

1. Carefully open and remove the sides and the top of the packing crate. Remove the transport brackets that secure the machine to the pallet.
2. Unscrew the nuts from the four transport brackets that fix the machine to the pallet.
3. Ensure that the boom is adequately secured with the locking pins before lifting the machine by the built-in truck lifting point.
4. Lift the machine from the pallet using a forklift truck from the front and place it in a suitable location.
5. Remove the safety springs from the front crossbar and remove the bar.

**Transportation support**

A transportation support is mounted to support the cutting arm during transport.

- Remove the transportation support before use.

## 4.2 Check the packing list

Optional accessories may be included in the packing box.

The packing box contains the following items:

Pcs.	Description
1	Axitom-5, -5/400
1	Fork spanner for cut-off wheel: 30 mm
1	Triangle key (for unlocking of the safety lock when not connected to main power)
1	Grease for maintenance/lubrication of the spindle
1	Oil for maintenance of cutting table
1	Connection set for water outlet
1	Instruction Manual set

## 4.3 Lift the machine



### CRUSHING HAZARD

Take care of your fingers when handling the machine.  
Wear safety shoes when handling heavy machinery.



### CAUTION

The machine is heavy. Always use a forklift truck or a crane and 2 lifting straps.

### Weight

Axitom-5, -5/400	758 kg (1670 lbs)
------------------	-------------------

### Transportation support

A transportation support is mounted to support the cutting arm during transport.

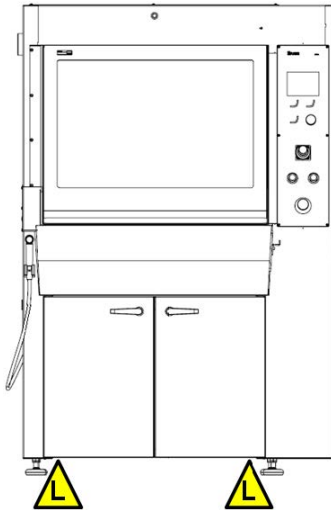
- Remove the transportation support before use.

### Using a crane

You need a crane and two lifting straps to lift the machine off the shipment pallet.

Before lifting the machine into its final position, do as follows:

1. Place the two straps under the machine.
2. Place one strap parallel to the front and one to the back. Both straps must be placed on the outer side of the adjustable legs.
3. Struers recommends the use of a lifting bar to keep the straps apart below the lifting point.

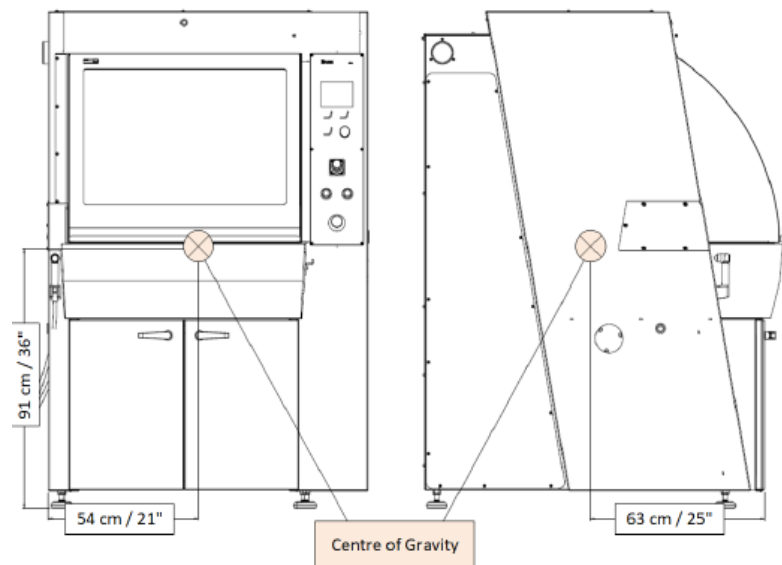


Lifting points

4. Lift the machine and place it on the floor.

**Using a forklift**

1. Ensure that the crossbar supplied with the machine is secured in position before lifting.
2. Position the forks so that the center of mass is between the forks.



3. Lift the machine from the front.
4. Remove the safety springs from the front crossbar and remove the bar.

## 4.4 Location



### CRUSHING HAZARD

Take care of your fingers when handling the machine.  
Wear safety shoes when handling heavy machinery.



### Note

Remove the transportation support before use.

Make sure that the following facilities are available:

- Power supply

The machine must be placed against a wall and on a floor suitable for the machine's weight and for its use.

Distance from floor to:	
Main switch	82 cm (32")
Emergency stop	90 cm (35.4")
Electrical connection	80 cm (31.5")
Display	141 cm (55.5")
Exhaust flange	159 cm (63")

- The machine must be placed close to the electrical power supply, recirculation unit, and waste water drain.
- Make sure that there is enough room in front of the machine: 100 cm (40").
- If very long workpieces are to be cut on the machine, more space may be required on the left side.
- The machine must be placed in a well-ventilated room or connected to an exhaust system.
- Turn the adjustable feet to make sure that the machine stands securely.
- The machine must be completely level.

### Exhaust system (option)

- Minimum capacity: 150 m<sup>3</sup>/h / 5,300 ft<sup>3</sup>/h at 0mm / 0" water gauge.

### Extension tunnel (accessory)

- Make sure there is enough room for the extension tunnel on the left side of the machine.

### Illumination

- Make sure that the work station has adequate lighting. A minimum of 300 lumens is recommended.

Ambient conditions		
Operating environment	Surrounding temperature	Operation: 5-40°C/40-105°F
		Storage: 0-60°C/32-140°F
	Humidity	Operation: 35-85% RH non-condensing
		Storage: 0-90% RH non-condensing

## 4.5 Power supply



### ELECTRICAL HAZARD

The machine must be earthed (grounded).  
Switch off the electrical power supply before installing electrical equipment.



### ELECTRICAL HAZARD

Make sure that the actual electrical power supply voltage corresponds to the voltage stated on the name plate of the machine.  
Incorrect voltage can damage the electrical circuit.

### 4.5.1 Connection to the machine

The machine is delivered without a mains cable.

A 4-lead or 5-lead cable is required.

#### Procedure

1. Open the electrical connection box.
2. Connect the 4-lead cable as described below:

PE: Earth (ground)

L1: Phase

L2: Phase

L3: Phase

The other end of the cable can be fitted with an approved plug or hard-wired into the power supply according to the electrical specifications and local regulations.

After installing the machine, make sure that the cut-off wheel rotates in the correct direction. The correct direction is indicated by the arrow on the guard for the cut-off wheel. If the direction of rotation is incorrect, switch two of the phases.

## 4.5.2 Power supply cable - recommended specifications

### Electrical data



#### ELECTRICAL HAZARD

The machine must always be protected by external fuses. See the electrical table for details on the fuse size required.

Voltage / frequency	Cutting power at constant duty, S1	Cutting power at intermittent duty, S3 15%	Max. power	Nom. load	Max. load
Axitom-5					
3 x 200 V / 50 Hz	5.5 kW	7.7 kW	11 kW	24.0 A	59.0 A
3 x 200-210 V / 60 Hz	5.5 kW	7.7 kW	11 kW	22.4 A	56.5 A
3 x 220-240 V / 60 Hz	5.5 kW	7.7 kW	11 kW	19.4 A	45.8 A
3 x 380-415 V / 50 Hz	5.5 kW	7.7 kW	11 kW	11.3 A	28.6 A
3 x 380-415 V / 60 Hz	5.5 kW	7.7 kW	11 kW	11.0 A	26.0 A
3 x 460-480 V / 60 Hz	6.5 kW	9.2 kW	13 kW	11.3 A	26.6 A
Axitom-5/400					
3 x 380-415 V / 50 Hz	7.5 kW	10.5 kW	12.8 kW	16 A	32 A
3 x 380-415 V / 60 Hz	7.5 kW	10.5 kW	12.8 kW	16 A	32 A
3 x 460-480 V / 60 Hz	9.0 kW	12.6 kW	15.0 kW	16 A	32 A
3 x 200 V / 50 Hz	7.5 kW	10.5 kW	12.8 kW	32 A	64 A
3 x 200-210 V / 60 Hz	7.5 kW	10.5 kW	12.8 kW	33 A	66 A

## 4.5.3 External short circuit protection



#### ELECTRICAL HAZARD

The machine must always be protected by external fuses. See the electrical table for details on the fuse size required.

## 4.5.4 Residual Current Circuit Breaker (RCCB)



#### Note

Local standards can override the recommendations for the main electrical power supply cable. Always contact a qualified electrician to verify which option is suitable for the local installation setup.

### Requirements for electrical installations

**Residual Current Circuit Breaker (RCCB) - Recommended (Axitom-5, -5/400)**      Type A, 30 mA (min. 32A)

**Circuit breaker (Axitom-5)**      Circuit breaker 32A, Type A is required

### Requirements for electrical installations

Circuit breaker (Axitom-5/400)

Circuit breaker 32A, Type D is required

## 4.6 Recirculation cooling unit



### ELECTRICAL HAZARD

The machine must be earthed (grounded).  
Switch off the electrical power supply before installing electrical equipment.



### ELECTRICAL HAZARD

Make sure that the actual electrical power supply voltage corresponds to the voltage stated on the name plate of the machine.  
Incorrect voltage can damage the electrical circuit.

To ensure optimal cooling, you must fit the machine with a recirculation cooling unit.

### Minimum requirements

Pump capacity

125 L/min (33 g/min) at 1 bar

Struers Coolimat-2000 is designed to be used with this type of machine. Coolimat-2000 is available as a band filter unit or a static filter unit.



### Note

Before connecting the cooling unit to the machine, follow the instructions in the cooling unit Instruction Manual to prepare it for use.



### Note Consumables

- Add a Struers anti-corrosion additive to the coolant.
- The use of Struers consumables is recommended.

Other products may contain aggressive solvents, which dissolve e.g. rubber seals. The warranty may not cover damaged machine parts (e.g. seals and tubes), where the damage can be directly related to the use of consumables not supplied by Struers.

### 4.6.1 Connect Coolimat-2000

To connect the machine to Coolimat-2000:

1. Mount an elbow pipe on the drain outlet.
2. Lead the drain pipe through the opening in the left wall of the cabinet, just underneath the cutting table, and then connect it to the elbow pipe.
3. Connect to Coolimat-2000 using the hoses and connectors supplied.
4. Connect the water inlet tube to the quick coupling in the cooling unit compartment of the machine, and connect the other end to the pump on the cooling unit.



5. Connect the 24 V / CAN control cable (supplied with Coolimat-2000) to the machine socket in the cooling unit compartment, and the other end to the Cooli control unit.

#### 4.6.2 Connect other cooling systems

1. Mount the connector pipe supplied on the water outlet of the machine. Lubricate the sealing ring with grease or soap to facilitate the insertion.
2. Assemble the drain hose/pipe and connectors so the drain outlet leads into the filter unit.
3. Slide the cooling unit under the machine (the cooling unit compartment).
4. Connect the 24 V / CAN control cable (supplied with the cooling system) to the machine socket in the cooling unit compartment and the other end to the Cooli control unit.
5. Connect the water inlet tube to the quick coupling in the cooling unit compartment of the machine, and connect the other end to the pump on the cooling unit.
6. Close the compartment doors.

#### 4.6.3 Connect other external filter units



##### Note

Always contact a qualified electrician to verify that the external filter unit can be used with the machine.

The electrical diagrams can be used to identify the different wires.

The pressure of the coolant supplied to the machine must be max. 2 bar.

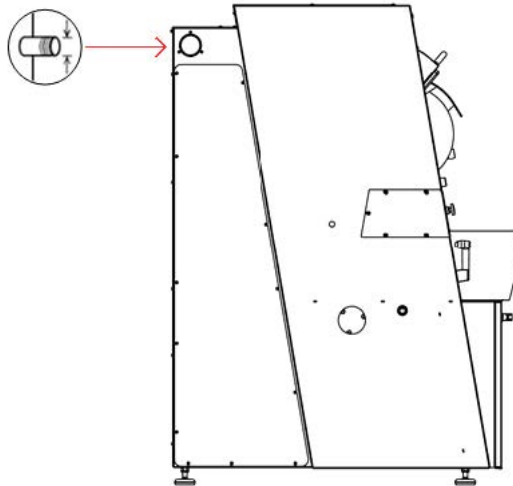
1. Mount an elbow pipe on the drain outlet.
2. Lead the drain pipe through the opening in the left wall of the cabinet, just underneath the cutting table and then connect it to the elbow pipe.
3. Connect to the external unit using the hoses and connectors supplied.
4. Connect the water inlet tube to the quick coupling in the cooling unit compartment of the machine. Connect the other end to the pump on the cooling unit.
5. Connect the 24 V electric cable supplied with the machine to the 24 V socket in the cooling unit compartment, and the other end to the external unit.

### 4.7 Exhaust (optional)

We recommend the use of an exhaust system, as workpieces can emit harmful gases when cut. The exhaust system will also reduce the level of water condensation on the sides of the hood.

Minimum capacity: 150 m<sup>3</sup>/h (5300 ft<sup>3</sup>/h)

To connect the machine to an exhaust system:



- Mount an exhaust hose from your local exhaust system onto the flange (80 mm (3.15") diameter).

## 4.8 Noise

For information on the sound pressure level value, see this section:

[Technical data - Axitom-5 ▶ 85](#)

[Technical data - Axitom-5/400 ▶ 90](#)



### CAUTION

Prolonged exposure to loud noises may cause permanent damage to a person's hearing. Use hearing protection if the exposure to noise exceeds the levels set by local regulations.

### Handling noise during operation

Different materials have different noise characteristics.

- To reduce the noise level, decrease the rotational speed and/or the force with which the cut-off wheel is pressed against the workpiece.

The processing time may increase.

# 5 Transport and storage

If, at any time after the installation, you have to move the unit or place it in storage, there is a number of guidelines we recommend that you follow.

- Package the unit securely before transportation. Insufficient packaging could cause damage to the unit and will void the warranty. Contact Struers Service.
- We recommend that you use the original packaging and fittings.

## 5.1 Transport

**ELECTRICAL HAZARD**

Disconnecting the unit from the electrical power supply must only be done by a qualified technician.

**CRUSHING HAZARD**

Take care of your fingers when handling the machine.  
Wear safety shoes when handling heavy machinery.

**Note**

We recommend that you keep all original packaging and fittings for future use.

To transport the machine safely, follow these instructions.

### Preparing for transport

1. Disconnect the unit from the electrical power supply, the recirculation unit, water and the exhaust system.
2. Remove any accessories.
3. Secure the cutting arm with the transportation support.
4. Move the recirculation cooling unit.
5. Ensure that the boom is adequately secured with the locking pins provided before lifting the machine by the built-in truck lifting point..
6. Move the machine to the new location.

### If the machine is bound for long-time storage or shipping

1. Place the machine on the original pallet.
2. Secure the machine to the pallet using the original transport brackets. Fasten the eight coach bolts with a torque bit T30 key.
3. Build the crate.
4. Place the accessories box and other loose items in the crate. To keep the machine dry, plastic-wrap the machine and place a bag of desiccant (silica gel) with the machine.

## 5.2 Storage

**ELECTRICAL HAZARD**

Disconnecting the unit from the electrical power supply must only be done by a qualified technician.

**CRUSHING HAZARD**

Take care of your fingers when handling the machine.  
Wear safety shoes when handling heavy machinery.



**Note**

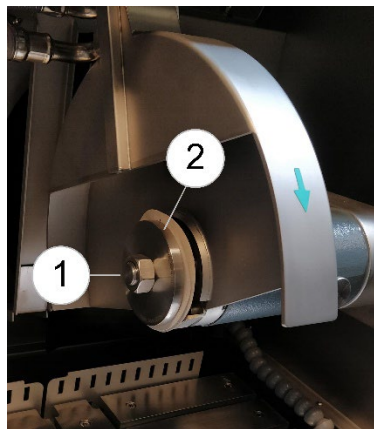
We recommend that you keep all original packaging and fittings for future use.

1. Disconnect the unit from the electrical power supply, the recirculation unit, water and the exhaust system.
2. Remove any accessories.
3. Clean and dry the unit before storage.
4. Place the machine and accessories in their original packaging.

## 6 Operate the device

### 6.1 Change the cut-off wheel

1. Press the knob for the spindle lock on the right-hand side of the cut-off wheel while turning the cut-off wheel until the spindle lock clicks.
2. Remove the nut (1) with a fork spanner (30 mm).
3. Remove the flange (2) and the cut-off wheel .



4. Mount the new cut-off wheel.
5. Mount the flanges and nut.
6. Tighten carefully. The nut should be tightened with a force of minimum 22 Nm (16 lbf-ft), maximum 27 Nm (20 lbf-ft) (equivalent to a force of minimum 130 N (29 lbf) 17 cm (6.7") from the centre.

**Note**

Place a cardboard washer between the abrasive resin cut-off wheel and the retaining flanges to ensure it is held in position.

The resin-bonded cut-off wheels, typically with  $\text{Al}_2\text{O}_3/\text{SiC}$  abrasives, have an uneven surface. The cardboard washers improve the retaining effect of the flange by compensating for the uneven surface of the cut-off wheel.

Cardboard washers in the correct size are included with Struers cut-off wheels.

For maximum precision with diamond or CBN cut-off wheels, do not use cardboard discs.

**Note**

The machine is not for use with saw-blade type cut-off wheels.

## 6.2 Clamp the workpiece

Clamp the workpiece with the clamping device of your choice. For example, a quick clamping device.

1. Place the workpiece between the clamp and the back stop.
2. Push the clamp towards the workpiece and lock the quick clamping device with the locking handle.

Ensure that only one of the quick clamping devices is tight. The other device should only press lightly. Use support tools if the geometry of the workpiece makes support necessary.

### How to clamp irregular workpieces

You must use special clamping tools to clamp irregular workpieces without flat clamping surfaces. Incorrectly clamped workpieces can move during cutting and damage the cut-off wheel or to the workpiece.

- Use the T-slots to mount the special clamping tools.
- For faster cutting, position the workpiece so that the cut-off wheel cuts the smallest possible cross-section.

## 6.3 Position the cutting tables

Before you start cutting, position the cutting tables with the joystick. The protective hood is open.

### How to cut long and protruding workpieces

To cut workpieces that exceed the width of the cutting chamber on the left side, an extension tunnel can be mounted on the left side of the machine.

## 6.4 Line laser (option)



### CAUTION

Laser radiation. Do not stare into beam or expose users of telescopic optics. Class 2M laser product.

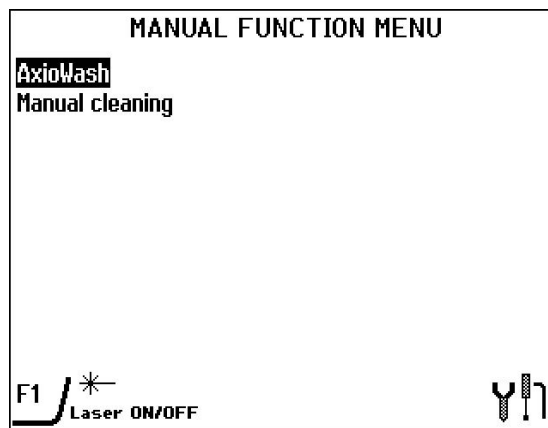


### Note

For Axitom-5/400 with laser guide.

The laser indicates the precise position of the cut-off wheel.

- Pres F1 twice to turn the laser on/off.



- The laser automatically turns on when the protective hood is lifted.
- It turns off after a predefined period (activation time). The activation time can be changed in the **Configuration** menu. See [Laser configuration](#) ► 53

## 6.5 Basic operation



### CAUTION

Always close the safety guard carefully to avoid injuries.



### CAUTION

Always wear safety shoes when handling workpieces.



### HEAT HAZARD

Wear suitable gloves to protect fingers from abrasives and warm/sharp specimens.

### 6.5.1 Cutting tables

The machine has two cutting tables: **X-table** and **Y-table**.

The X- and Y-tables are motor-driven, movable tables that can move from left to right and forward and backward when using the joystick. See: [Control panel ► 17](#)

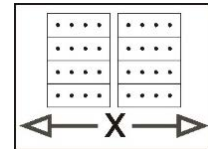
The X-table can move from left to right.

The Y-table can move backward and forward.

#### X-table

Move the X-table to the left, with a sufficient distance, so that the required number of slices or the size of the workpiece to be cut can be managed.

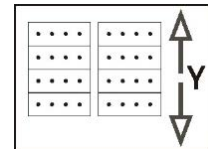
Otherwise, the tables must be kept close together to support the workpiece as much as possible during cutting.



#### Y-table

Move the Y-table to place workpieces slightly forward of the cut-off wheel center. This maximizes the cutting efficiency.

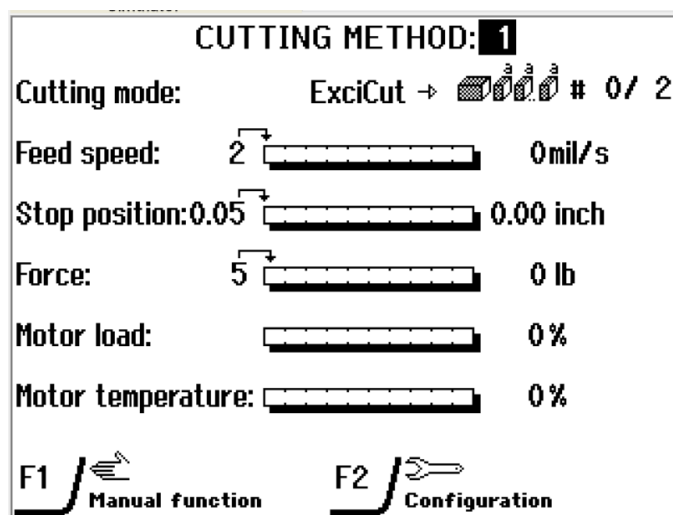
The Y-table is especially useful for cutting wider workpieces.



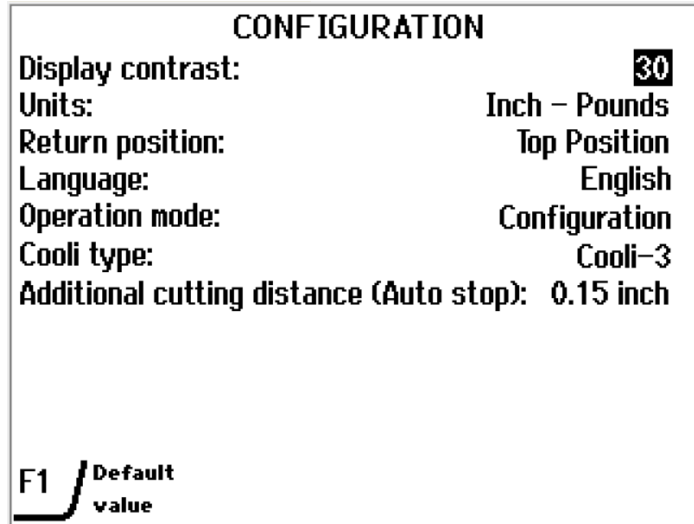
### 6.5.2 Display

The display on the front panel provides different levels of status information. For example, the total operation time, the time since the last service, and the time until the next service to ensure regular services. The display also informs you about the version of the software that is installed.

The **Cutting method** display will be shown on the control panel when the machine is switched on.



When you press F2, the **Configuration** menu will be shown. This menu will typically only be accessed during installation.



### 6.5.3 Change the settings

To change a setting, select the field for changing the setting.

1. Turn the knob to go to the field where you wish to change the setting.
2. Press the knob to enter the field.
  - **More than two options:**
    - Scrolling list:  
Turn the knob to scroll up or down in a list of values.
    - Pop-up dialog:  
Turn the knob to scroll up or down the list of options.
  - **Two options:**  
Press the knob to toggle between the options.
3. Press the knob to save the new setting.
4. Press Esc to exit the screen.

### 6.5.4 Operation mode

There are 3 different operation modes:

- **Configuration:** Full functionality, access to all parameters.
- **Development:** No access to parameters in the **Configuration** menu except for **Display contrast**.
- **Production:** Access to Start, Stop, Stop position, movement of the cut-off wheel, and to **Display contrast** in the **Configuration** menu.

#### Change the operation mode

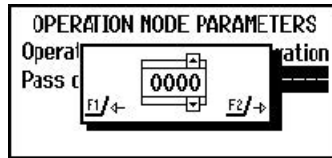
1. Go to the **Configuration** menu.
2. Select **Operation mode**.



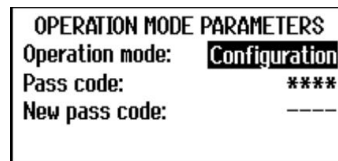
3. Select **Pass code**.

**Hint**

The default pass code: **2750**



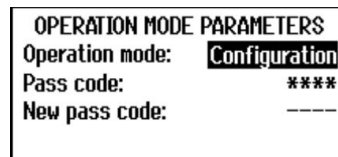
4. Use the F1 and F2 keys to select digits (F1 moves to the left, F2 moves to the right).
5. Turn the knob to change the digits and push the knob.



6. Select **Configuration**.



7. Select the desired operation mode and push the knob to confirm.

**Set a new pass code:**

1. Select **New pass code**.
2. Enter the new pass code.

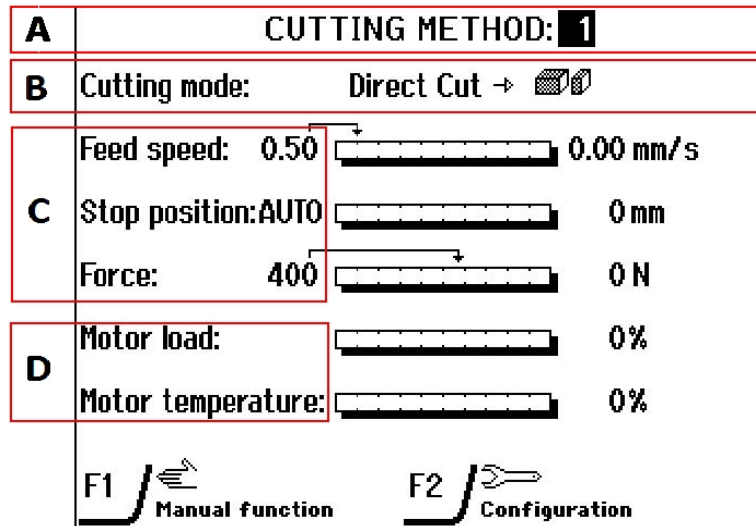
**Note**

When a pass code is set, you have 5 attempts to enter the correct pass code, after which the machine will be locked.

Restart the machine using the main switch, then enter the correct pass code.

### 6.5.5 Cutting display

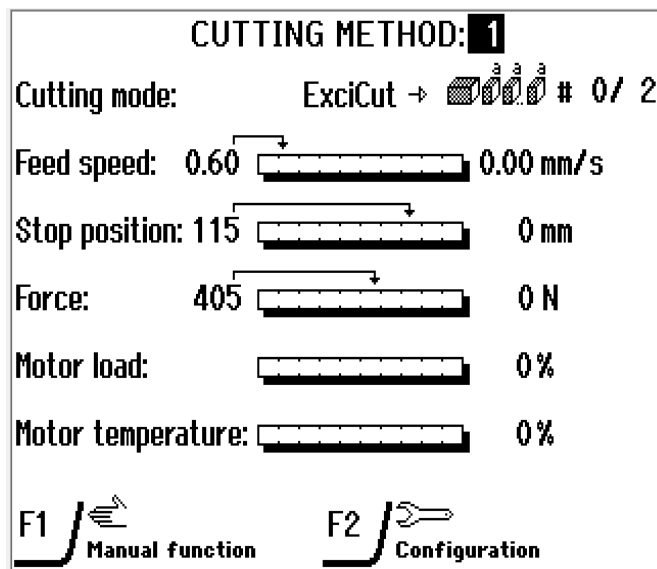
The cutting display shows four types of information:



- A Cutting method
- B Cutting mode
- C Cutting parameters
- D Motor information

### 6.5.6 Cutting method

The machine can save up to 10 cutting methods. The current method is displayed in the highlighted box in the **Cutting method** menu.



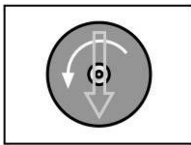
1. Use the knob to edit the cutting method
2. Turn the knob to select the cutting method you prefer.
3. Use the arrows up and down to select the number.
4. Push the knob to store the new value.

You can change all cutting parameters and cutting mode. Changes are saved automatically in a cutting method. It is not necessary to save the changes before leaving the method.

### 6.5.7 Cutting modes

The machine has three **Cutting modes**:

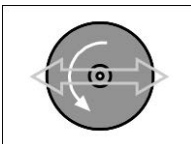
- **Direct Cut**
- **ExciCut**
- **AxioCut Step**



#### Direct Cut

**Direct Cut** is the normal cutting mode, used for ordinary materials .

The cut-off wheel is moved into the workpiece in a slightly curved, vertical movement.



#### ExciCut (option)

**ExciCut** is used for cutting very hard materials (HV>400).

The oscillating movement of the cut-off wheel has two main advantages: less risk of damage to the workpiece and less risk of the motor overheating.

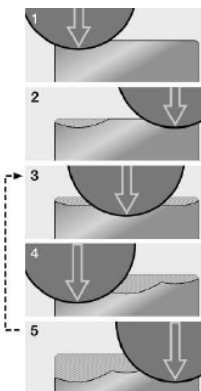
#### Cutting irregular workpieces using ExciCut:

1. Start cutting using **Direct Cut** until a small channel has been made.
2. Switch to **ExciCut** to continue cutting.



#### AxioCut Step (optional and requires a Y-table)

**AxioCut Step** is used for cutting extra-large workpieces: adding 150 mm to max. depth.



In the **AxioCut Step** mode, the cut-off wheel enters the workpiece in three alternating, pre-programmed steps of 10 mm. This method offers fast cutting of even very hard materials.

The initial cycle steps (1 and 2) are 5 mm only. The cutting depth on steps 3 to 5 is 10 mm.

After completing step 5, steps 3 to 5 are repeated until the workpiece has been cut through.



**Hint**  
**AxioCut Step** cannot be used together with **MultiCut**.




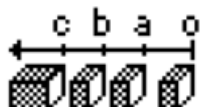

**Note**  
 When you use the **AxioCut Step** cutting mode, the cut-off wheel cover may hit the jaw of the quick clamping device if this is mounted in the forward position, i.e., using the cross-directional T-slot closest to the front of the machine.

Place the quick clamping device as far back as possible to avoid this situation, using the front-most T-slot. Test possible infringement by starting the machine with the cut-off wheel completely clear of the clamping device.

There is no danger involved should the cut-off wheel guard accidentally hit the clamping device. The machine will stop automatically and display the following messages: "Y-table position not found" or "Cutting arm position not found."

The cutting modes are used in combination with **Single cut** or **MultiCut** modes.

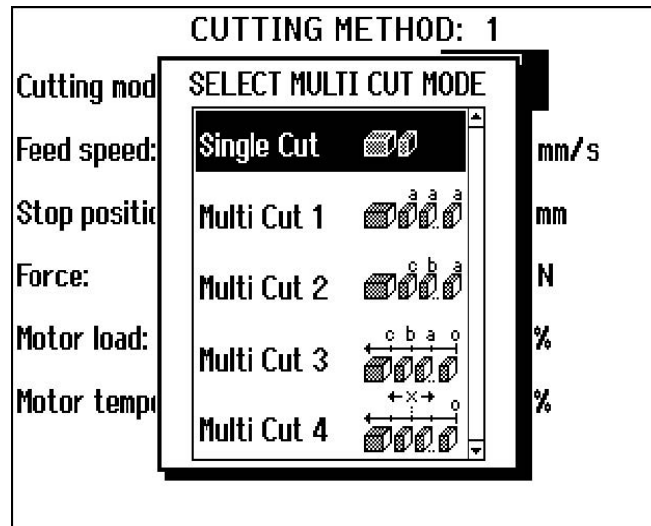
**Cutting mode icons:**

	<b>Single cut</b>
	<b>MultiCut 1</b>
	<b>MultiCut 2</b>
	<b>MultiCut 3</b>
	<b>MultiCut 4</b>

**Note**  
**MultiCut** modes are optional and require an X-table.

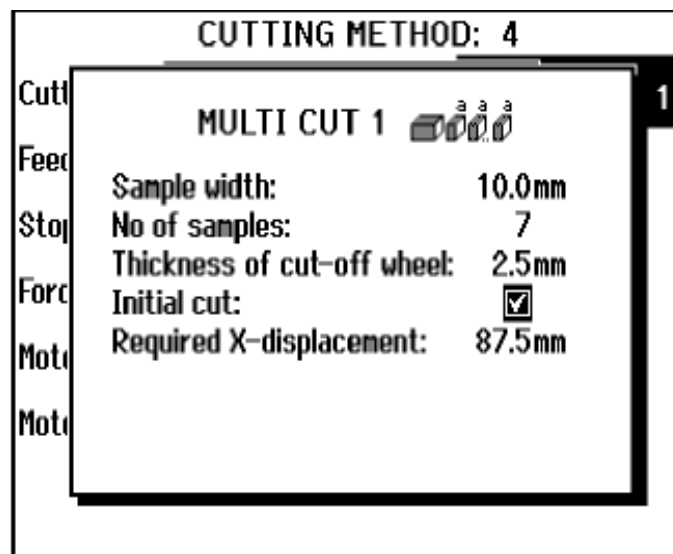
**Single cut**

With the **Single cut** mode, you can cut extra long workpieces.



### MultiCut 1

With the **MultiCut 1** mode, you can cut several samples of equal width.



### Parameters

<b>Sample width</b>	Sets the width of the samples that will be cut.
<b>No of samples</b>	Sets the number of samples that will be cut.

**Parameters**

**Thickness of cut-off wheel** Sets the thickness of the cut-off wheel being used to cut the samples with (the normal thickness is 2.5 mm). If the width of the samples differs from the preset value, the value for the thickness of the cut-off wheel can be used to compensate for this.

**Initial cut** Select this parameter if you need to make an initial cut, before you start cutting the samples. This cuts a scrap sample, which you will not use. For example, if the workpiece has an uneven edge that makes it unsuitable as a first sample.

**Req. X-displacement** This parameter is automatically calculated, and it displays the required movement of the X-table to cut the samples, based on the parameter settings.



**Hint**  
**Sample width + Thickness of cut-off wheel x No of samples.**

Initial cut :

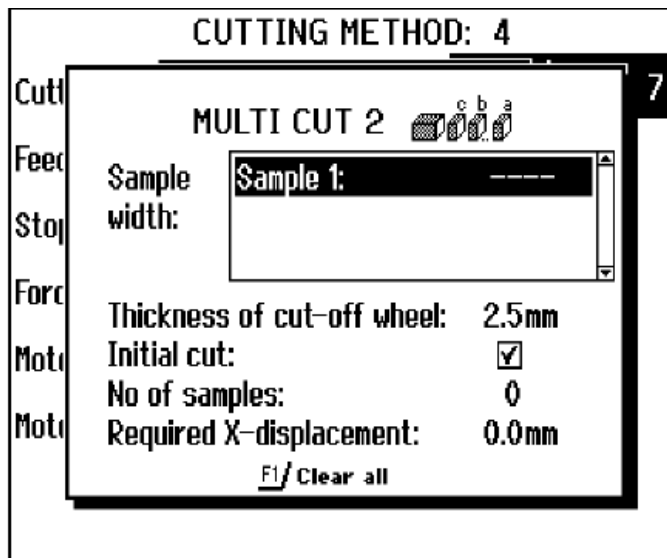
Req. X-displacement = (Sample width + Thickness of cut-off wheel) x (No of samples +1)

Initial cut

Req. X-displacement = (Sample width + Thickness of cut-off wheel) x (No of samples)

**MultiCut 2**

With the **MultiCut 2** mode, you can cut several samples of different widths.



## Parameters

<b>Sample width</b>	Sets the width of the samples that will be cut.
<b>Thickness of cut-off wheel</b>	Sets the width of the cut-off wheel being used to cut the samples (the normal thickness is 2.5 mm). If the width of the samples differs from the preset value, the value for the thickness of the cut-off wheel can be used to compensate for this.
<b>Initial cut</b>	Select this parameter if you need to make an initial cut, before you start cutting the samples. This cuts a scrap sample, which you will not use. For example, if the workpiece has an uneven edge that makes it unsuitable as a first sample.
<b>No of samples</b>	Sets the number of samples that will be cut.



### Hint

Press F1 to clear all the samples and their values and return the menu to the default settings.

<b>Req. X-displacement =</b>	This parameter is automatically calculated, and it displays the required movement of the X-table to cut the samples, based on the parameter settings.
------------------------------	---

**For samples 1 to n:**

(Sample width 1 + Thickness of cut-off wheel)

+

**Req. X-displacement =**

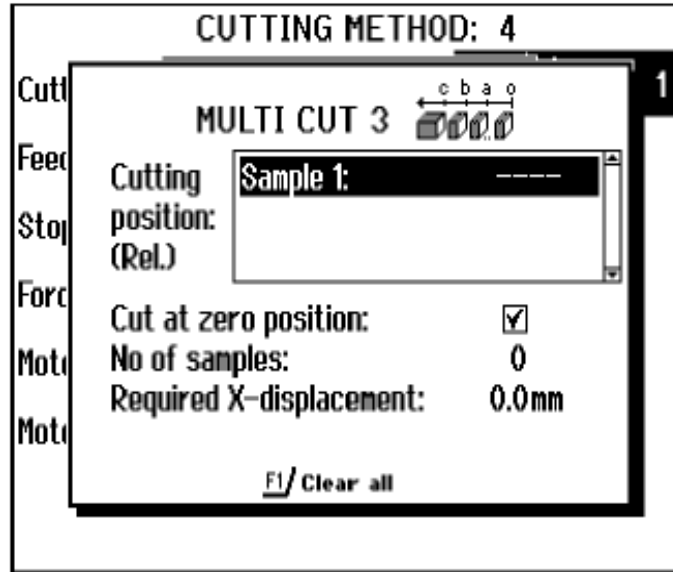
(Sample width 2 + Thickness of cut-off wheel)

+

(Sample width n + Thickness of cut-off wheel)

### MultiCut 3

With the **MultiCut 3** mode, you can cut several samples of different widths at different relative distances from the zero, or starting position. The distances are manually entered.




**Parameters**

**Cutting position (Relative)** This parameter sets the position of the cuts. The values show the relative distance to the zero position.

**Cut at zero pos.** Select this parameter to make an initial cut at zero position. Otherwise, the machine will immediately move to the position for sample 1 and start cutting at that position.

**No of samples** Sets the number of samples that will be cut.

 **Hint**  
 Press F1 to clear all the samples and their values and return the menu to the default settings.

**Req. X-displacement** This parameter is automatically calculated, and it displays the required movement of the X-table to cut the samples, based on the parameter settings.

**Req. X-displacement** = The last relative cutting position entered.

**MultiCut 4**

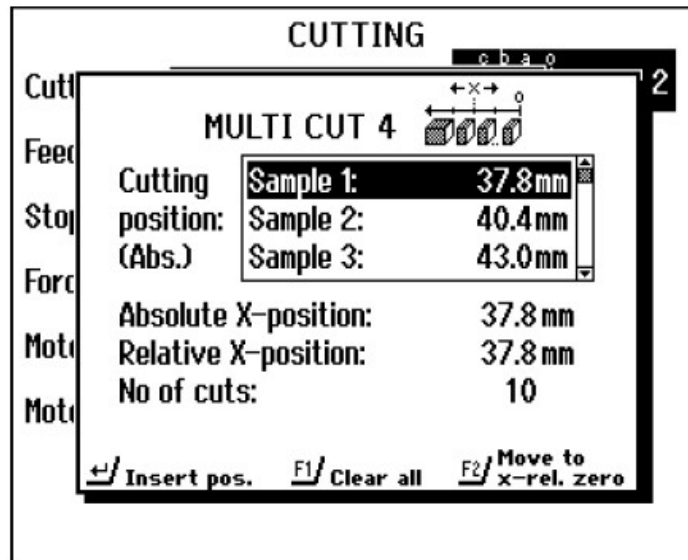
With the **MultiCut 4** mode, you can cut several samples of different widths at different relative distances from the zero, or starting position. Enter the distances by using the X-table to position the workpiece under the cut-off wheel, where you want to cut the sample, and then record this position. The cut-off wheel position is also recorded so different starting-height positions are possible.

To set up the distances:

1. Use the joystick to move the X-table to the position where the first cut is to be made.



2. Position the cut-off wheel about 2 mm above the workpiece.
3. Press the knob to insert the current position as the cutting position.
4. Repeat the steps to insert the cutting positions for all samples.



### Parameters

#### Cutting position (Xpos./Zpos.)

The different cutting positions of both the X-table and the cut-off wheel are defined in **Cutting position (Xpos./Zpos.)**.

#### Absolute X pos.

Actual absolute position of the X-table.

#### X-table start pos.

Here you can fine-tune the start position, if the work piece is slightly misaligned during clamping:

- Turn the knob and select X-table start pos.:
- Press the knob to edit the setting.
- Turn the knob left or right to move the X-table in the same direction.
- When the workpiece is in the correct position, press the knob to save the new position as start position. All other cutting positions are corrected accordingly.

#### No of cuts

Sets the number of samples that will be cut.





#### Hint

Press F1 to clear all the samples and their values and return the menu to the default settings.

#### Insert pos.

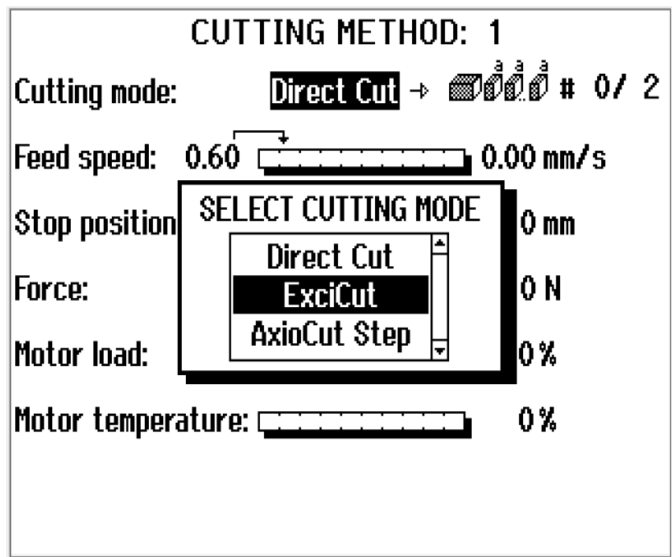
Inserts the current position as the cutting position for the sample.

 **Hint**  
Press F2 to move the X-table until the sample is in the starter position.

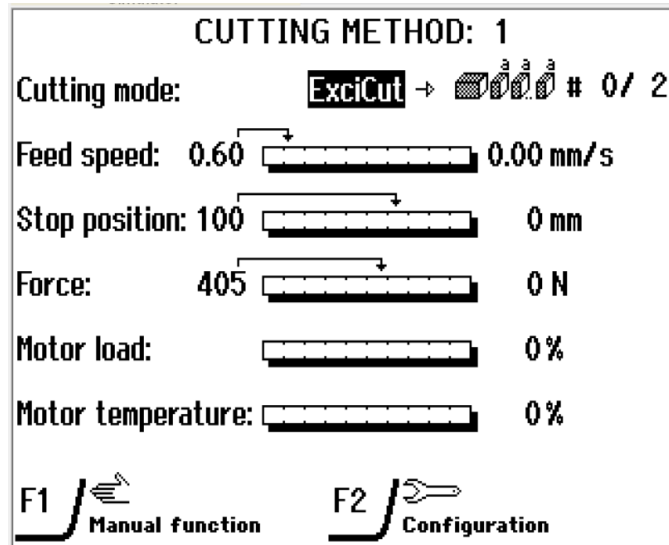
 **Hint**  
When **MultiCut 4** is selected, and you press F1, the stop position is also set to **Auto** stop.  
The stop position can be changed to a specific position which is defined from the position of the cut-off wheel at the first cutting position.  
If the cut-off wheel is in a different starting position for one of the following cuts, the movement of the cut-off wheel will be the same, and the depth of the cut will accordingly increase or decrease.  
Therefore, **Auto** stop. is recommended.

**Change the cutting modes**

1. Turn the knob until the cutting mode **Direct Cut** (in the illustration below) is highlighted.
2. Press the knob and the **Select cutting mode** menu appears.
3. Use the knob to select the cutting action.

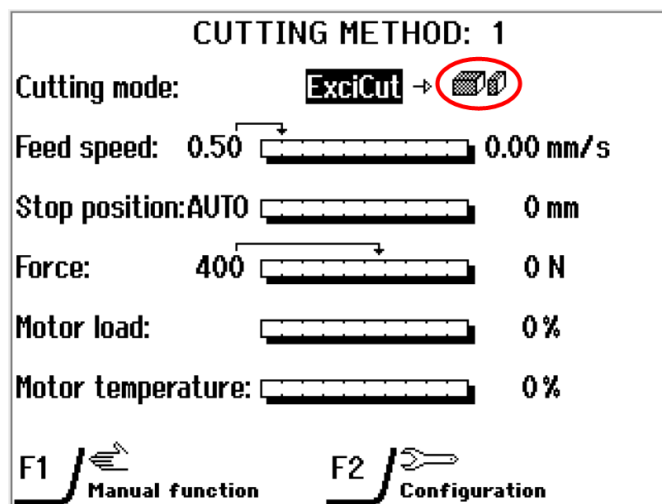


4. Press the knob to save the setting.
5. The selected cutting action **ExciCut** now appears at the top of the cutting display.

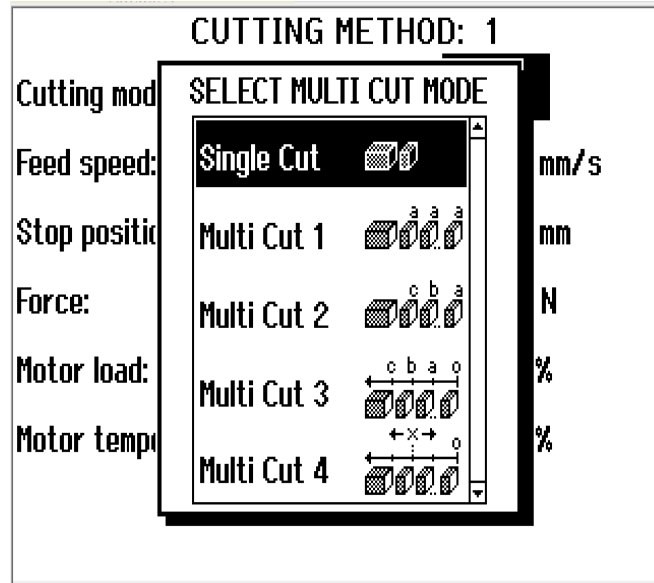


### Select Single cut or MultiCut modes

1. Turn the knob until the cutting mode icon is highlighted.



2. Press the knob and the **Select MultiCut mode** menu appears.

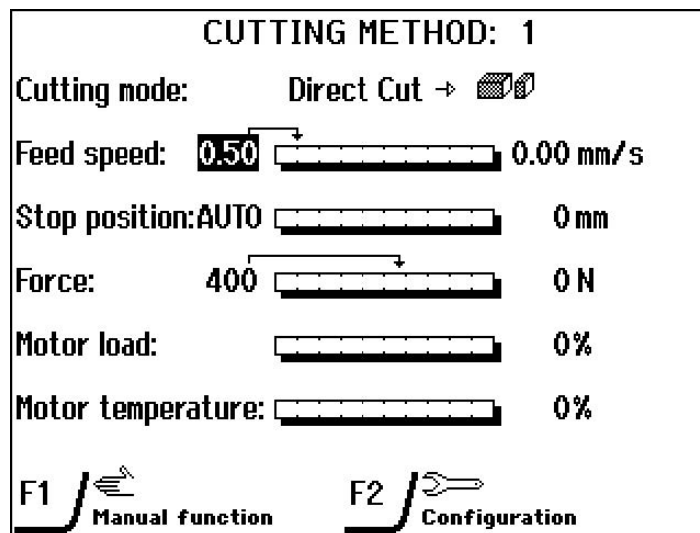


3. Use the knob to select **Single cut** or one of the **MultiCut** modes.
4. Press the knob to save the setting.

### 6.5.8 Cutting parameters

In the cutting menu, the display shows information about the cutting parameters:

- **Feed speed**
- **Stop position**
- **Force**



The cutting parameters can be set both before and during cutting.

### Feed speed

The feed speed can be set to values between 0.05-5.00 mm/sec (0.002-0.2 "/s).

### Force

The maximum permitted force between cut-off wheel and workpiece can be set to values between 50-700 N (10-150 lbs).

A built-in measuring cell constantly computes the force. If the force limit is reached, the feed speed will automatically be reduced to a value that allows the force to stay just below the set limit.

As soon as the force drops below the set limit, the speed will be increased to the original setting.

The set value is displayed to the left of the bar graph. The actual values during cutting are displayed to the right of the bar graph.

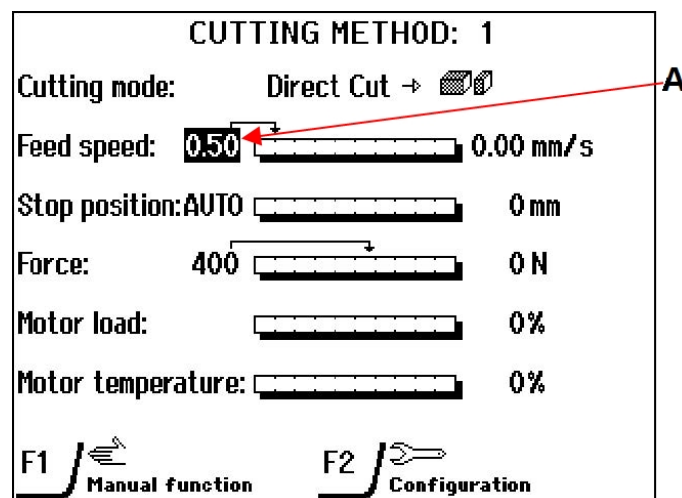
### Stop position

See [Stop modes](#) ► 46

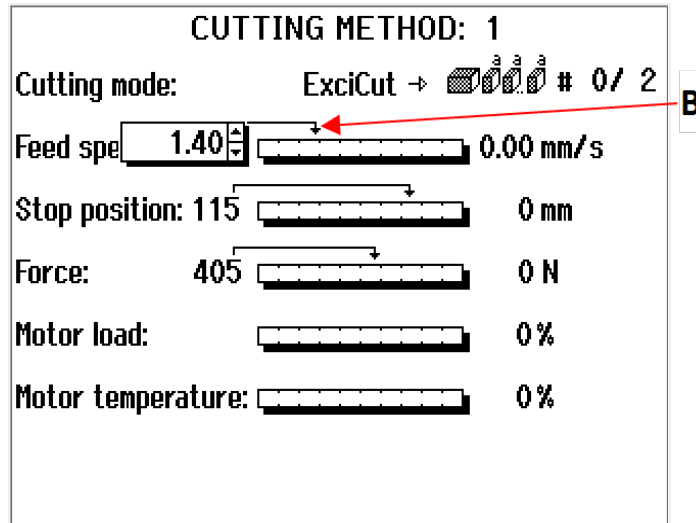
### Change the cutting parameters

Use the knob to switch between the cutting parameters (**Feed speed**, **Stop position**, and **Force**).

1. Turn the knob to select the cutting parameter.
2. Push the knob to allow editing of the selected parameter.
3. Turn the knob to change the value of the parameter.
4. Push the knob to store the new value.



The actual values of the cutting parameters are displayed to the right of the columns (**A**).



Turn the knob to change the setting of the selected cutting parameter. The arrow above the column will move to reflect the new setting (**B**).

### 6.5.9 Stop modes

You can set the stop mode to **Auto** or **Stop position**.

#### Auto

**Auto** stop mode is recommended for normal cutting. With this setting, the machine automatically stops when the workpiece has been cut through.



#### Note

When the pointer in the **Stop position** column is not on **Auto** stop, the machine will not stop until it reaches the preset stop position or you press Stop.

#### Additional cutting distance (Auto stop)

When **Auto** stop mode is used, you can set an additional distance to ensure that the workpiece is entirely cut through. This is important when **ExciCut** and **MultiCut** are used.

#### Stop position

When you cut pipes or other workpieces with changing cross sections, the cut-off wheel may retract before the workpiece has been cut through. To get around this, use the **Stop position**.

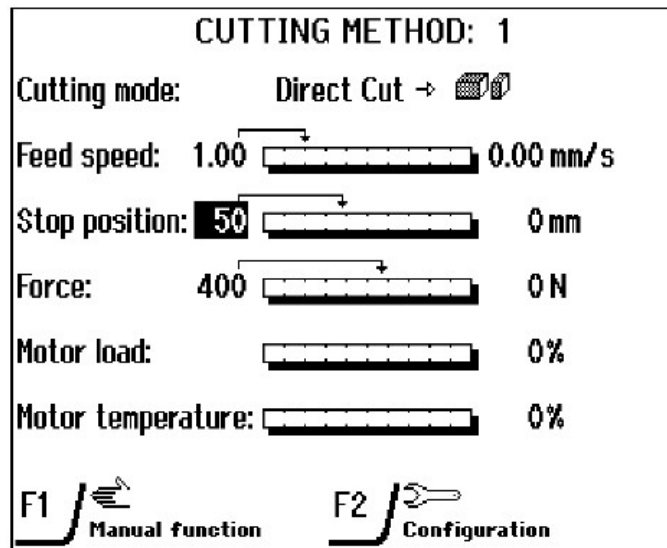
- Clamp the workpiece and position the cut-off wheel just above the workpiece.
- This position is automatically set to 0 (zero). Accordingly, as soon as you press Start, the actual position of the cut-off wheel becomes a relative starting point (zero). From here, the cutting depth is calculated.
- The actual stop position of the cut-off wheel (relative its starting position) is displayed graphically by the arrow on top of the **Stop position** column.

- Select the parameter and use the knob to set the desired stop position. The machine will stop when it reaches the preset stop position.

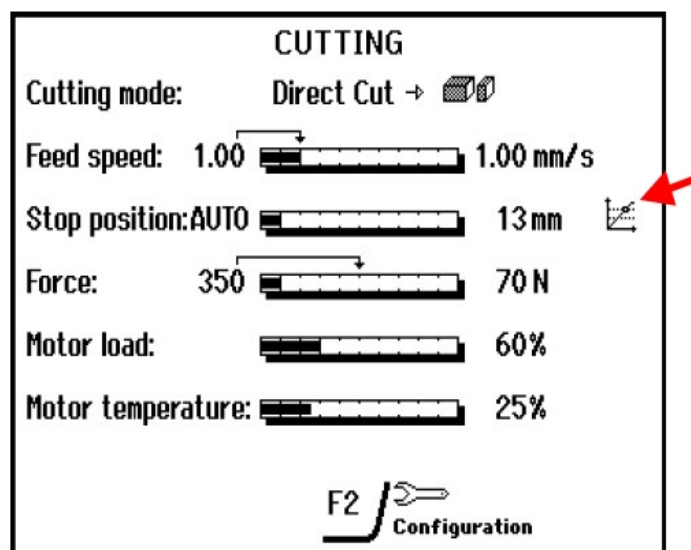
**Note**

Consider the wear of the cut-off wheel.

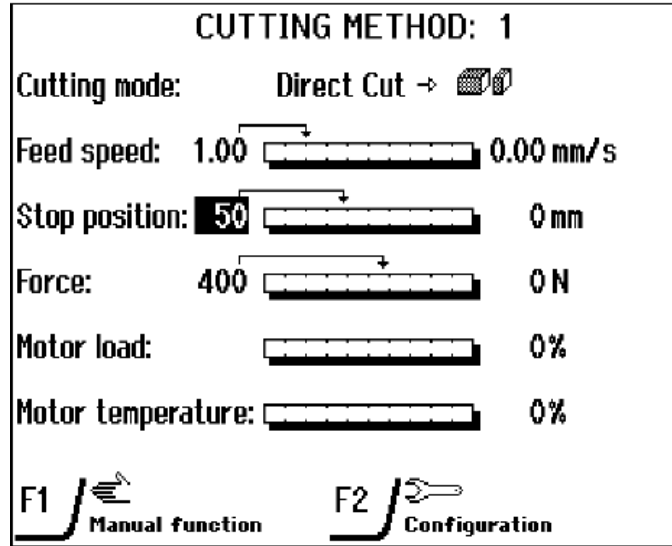
To change the stop mode to Auto stop



1. Use the knob to select **Stop position**.
2. Turn the knob clockwise until the pointer above the column has moved to the right of the column.
3. When the pointer of the **Stop position** column has reached the right side of the column, **Auto** stop is selected.

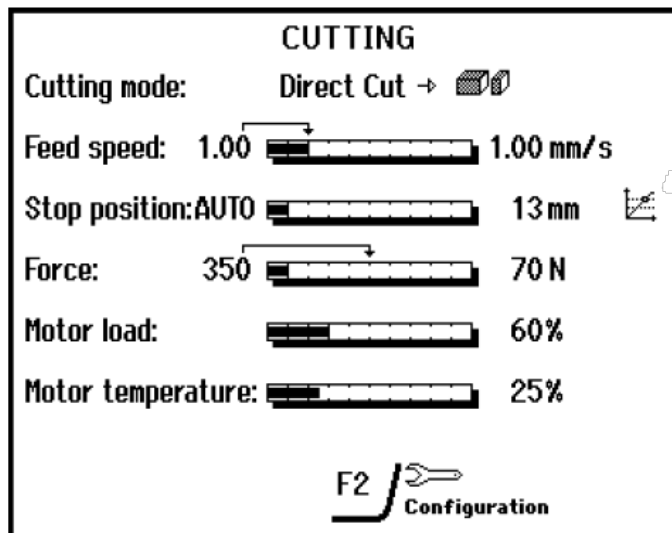


**Hint**  
 A small graph appears to the right of the **Stop position** bar to indicate that the cutting has started.  
 If this graph does not appear, then **Auto stop** will not function.



### 6.5.10 Motor information

In the cutting display the columns **Motor load** and **Motor temperature** show information about the motor during the cutting process.



**Motor load**                      Load indicator of the cutting motor (0-200%).

**Motor temperature**          Temperature indicator of the cutting motor (0-100%).

The motor load and temperature values displayed are relative percentage (%) values.



The motors are protected against overload. Should the motors overheat or overload, the motors will disengage until a normal temperature has been obtained.

### OptiFeed

The feed speed is automatically reduced on overload by the OptiFeed feature. This feature protects the machine from damage due to continuous overloading of the motor.

During the cutting process, the machine continuously measures the load on the cutting arm.

The preset feed and force values are interpreted as maximum values. The machine will stay as close to these values as possible throughout cutting.

The factors that determine the load are the shape and properties of the workpiece.

The machine will reduce the feed rate to maintain the present force whenever the set maximum force limit is reached.

### 6.5.11 Start the cutting process



#### WARNING

The machine must not be used for any type of explosive and/or flammable material, or materials which are not stable during machining, heating or pressure.



#### HEAT HAZARD

Wear suitable gloves to protect fingers from abrasives and warm/sharp specimens.



#### CAUTION

Check that the protective hood is in full working condition prior to cutting.



#### CAUTION

Laser radiation. Do not stare into beam or expose users of telescopic optics. Class 2M laser product.



1. Position the cut-off wheel by slowly lowering it to within 1 - 2 mm of the sample.
2. Close the protective hood.
3. Press Start. The cut-off wheel starts rotating and the cooling water starts to flow. The cut-off wheel will slowly move down into the workpiece at the preset feed speed.



#### Note

Take care when lowering the cut-off wheel. If you lower it too quickly and it comes into contact with the workpiece, the cut-off wheel may break.

### Fast advance

Use the joystick to rapidly advance the cut-off wheel towards the workpiece (for example, if the cut-off wheel has been changed while cutting a workpiece).

1. Press Start.
2. Push the joystick downwards. The cut-off wheel will advance towards the workpiece with reduced force and at a maximum speed of 5 mm/s.
3. Release the joystick when the cut-off wheel has contact with the workpiece. After contact with the workpiece, the cut-off wheel is automatically retracted 2 mm, to be ready for cutting.
4. The cut-off wheel will then continue to move down into the workpiece at the preset force and feed rate.

The joystick can also be used to lift the cut-off wheel away from the workpiece.



#### Note

Press the Hold-to-run button and use the joystick to position the cutting table with the protective hood open.

### 6.5.12 Stop the cutting process

The machine automatically stops cutting when the workpiece is cut through.

You can stop the cutting process at any time during the cutting process. Press Stop to manually interrupt the cutting process.



#### Note

Do not use the emergency stop for operational stop of the machine during normal operation.



#### Note

Before releasing (disengaging) the emergency stop, investigate the reason for activating the emergency stop and take any necessary corrective action.

### Restart the cutting process

When cutting is interrupted the cut-off wheel will either move out of the workpiece, return to its start position or stay in position. This depends on which return movement is selected, see [Configuration menu ▶ 51](#)

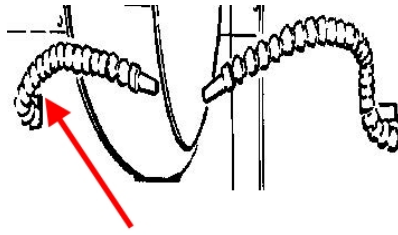
- Press Start to resume cutting.

### 6.5.13 Additional cooling

Two flexible water jets are provided for workpiece cooling when cutting hollow and thin workpieces.

#### Activate the cooling jets:

1. Position the cooling jets to the left and right of the cutting area.



2. Turn the valve on the jet to a position parallel to the hose to activate the cooling jet. The cooling water will flow as soon as the cutting starts.
3. When cutting is finished, return the valve on the jet to horizontal.

**Note**

When using the flexible water jets, cooling water is diverted from the integrated water jets positioned over the cut-off wheel.

The flexible water jets should not be used when cutting workpieces of large diameter as cooling will be less efficient. They are designed to supply a more localized cooling, e.g., the internal surface of hollow workpieces.

#### 6.5.14 Lock or unlock protective hood

**WARNING**

Always switch off power before you open the protective hood during power failure.

The protective hood remains locked if electric power is lost while cutting.

To access the cutting chamber when there is no power:

1. Switch off the machine (even though there is no power).
2. Insert the triangle key in the safety lock release.
3. Turn the triangle key clockwise to release the safety lock.
4. Remember to re-activate the safety lock release before operating the machine.

**Note**

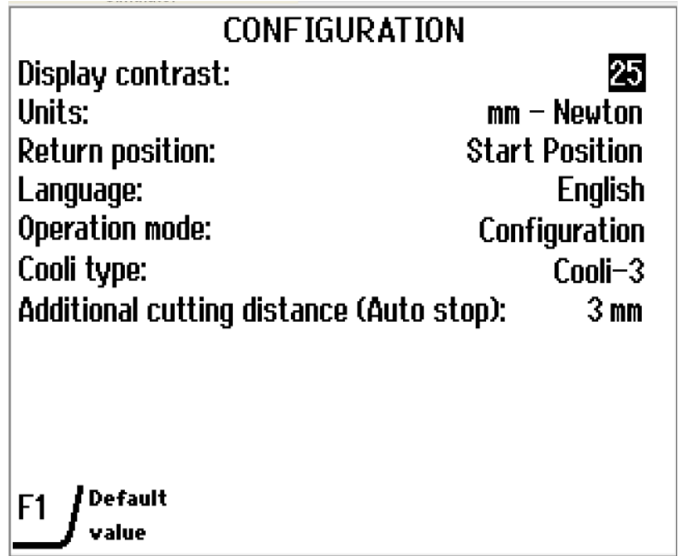
When the protective hood is locked, the software prohibits the cutting function – even if the power comes back.

## 6.6 Configuration

### 6.6.1 Configuration menu

From the **Cutting method** menu press F2 to select the **Configuration** menu.

In the **Configuration** menu you can set up general parameters.



**Parameters**

**Display contrast**

The contrast settings of the display can be adjusted to suit individual preferences (default value: 25, adjustment interval: 0-50).


**Units**


The **Feed**, **Force**, and **Stop** values in the display panel can be in either mm/Newton (default) or inches/pounds force.

**Return position**

After cutting or after pressing Stop, the return movement of the cut-off wheel can be set to three different modes:

- **Start Position:** The cut-off wheel automatically retracts to the original position of the cut-off wheel at the time you pressed Start (default).
- **Top Position:** The cut-off wheel automatically retracts to the top position.
- **Stay:** The cut-off wheel stays down.

**Note**  
 Use the **Stay** function for Bakelite bonded diamond or CBN cut-off wheels, as retraction can destroy the rim of the cut-off wheel.

**Hint**  
 When using **MultiCut**, the **Stay** function cannot be used.  
 With **MultiCut 4**, the **Top** position will always be used.

## Parameters

**Language** When switching the machine on for the first time, you will be asked to select the language you prefer.

To change the language later, see [Change the settings ▶ 32](#)

**Operation mode** There are 3 different operation modes, which provide different levels of access to parameters. See [Operation mode ▶ 32](#)

**Cooli unit** The type of Cooli control unit connected to the machine.

**Additional cutting distance** When **Auto** stop is used, you can specify an additional cutting distance, see [Stop modes ▶ 46](#)

### Change the parameters

See [Change the settings ▶ 32](#)

## 6.6.2 Laser configuration

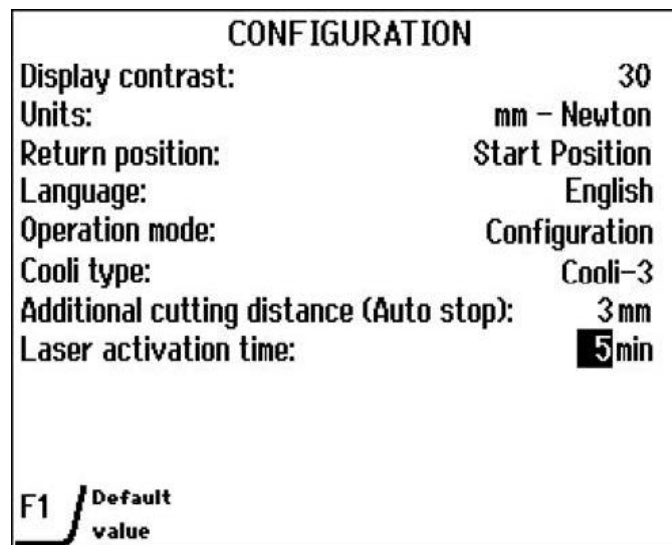


### Note

For Axitom-5/400 with laser guide.

Follow these steps to configure the laser:

1. Turn on the machine and wait for the **Cutting Method** screen to open.
2. Press F2 on the **Cutting Method** screen to open the screen.



3. Scroll to **Laser activation time** and press Enter to set the activation time.  
The activation time controls for how long the laser is turned on after the protectivehood is closed.
4. Use the knob to increase or decrease the value.
5. Press Esc to return to the **Cutting Method** screen.

## 6.7 Optimize cutting results

Question	Answer
How can I avoid discoloration or burning of the specimen?	Reduce the feed speed. Change the cut-off wheel, as the hardness of the present cut-off wheel can be inappropriate for the hardness of the specimen.
How can I avoid burrs?	Use a softer cut-off wheel. Clamp the workpiece securely at the right-hand clamping device. Tighten the left-hand clamping device so the workpiece doesn't move when being cut.
How can I prevent the cut-off wheel from wearing out too quickly?	Reduce the feed speed. Change the cutting mode. Use a harder cut-off wheel.
How can I cut faster?	Place the workpiece in a position that allows the cut-off wheel to cut the smallest possible cross-section. Increase the feed speed. If possible, due to the workpiece shape and properties, change to ExciCut or AxioCut Step (optional) cutting modes.

# 7 Maintenance and service

Proper maintenance is required to achieve the maximum up-time and operating lifetime of the machine. Maintenance is important in ensuring continued safe operation of your machine.

The maintenance procedures described in this section must be carried out by skilled or trained personnel.

### Safety Related Parts of the Control System (SRP/CS)

For specific safety related parts, see the section "Safety Related Parts of the Control System (SRP/CS)" in the section "Technical data" in this manual.

### Technical questions and spare parts

If you have technical questions or when you order spare parts, state serial number and voltage/frequency. The serial number and the voltage are stated on the name plate of the machine.

## 7.1 General cleaning



**Note**

Do not use acetone, benzol or similar solvents.



**Note**

Accumulated dirt and swarf can restrict the movement and cause damage to the cutting table.



**Note**

Do not use a dry cloth as the surfaces are not scratch resistant.

Check the machine before each use. If you see any signs of damage, do not use the machine until any damage is repaired.

To ensure a longer lifetime for your machine, we strongly recommend regular cleaning.

### If the machine is not to be used for a longer period of time

- Clean the cutting chamber thoroughly.
- Clean the machine and all accessories thoroughly.

### 7.1.1 Recirculation unit

See the Instruction Manual for this unit.

### 7.1.2 AxioWash



**CAUTION**

Avoid skin contact with the coolant additive.




**Note**

Clean the cutting chamber thoroughly if you are not going to use the machine for a longer period of time.



**Note**

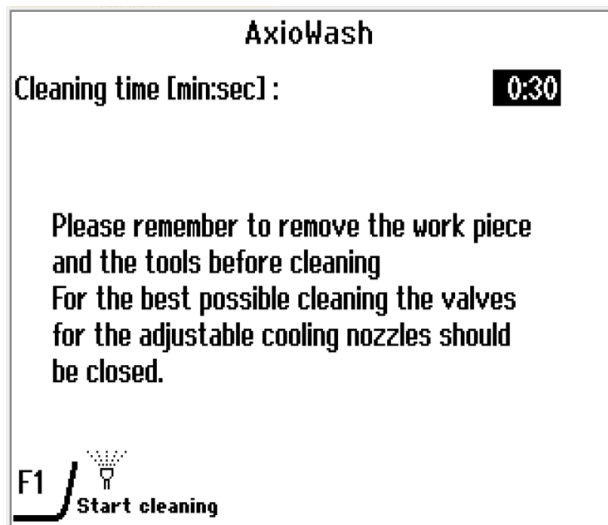
Only use AxioWash for cleaning the cutting chamber.

 **Note**  
You do not need to remove the cut-off wheel or the clamping tools while using AxioWash.

The AxioWash cleaning program is an efficient way to automatically clean the cutting chamber. You can set values between 1-30 min, in steps of 30 seconds. Default value: 3 minutes.

To start the AxioWash function:


1. Remove the workpiece and tools from the cutting chamber.
2. Close the adjustable cleaning nozzles.
3. Close the protective hood.





4. Press the AxioWash key on the control panel.
5. Press F1 to start the cleaning process.

The AxioWash program will run for the preset time.

### 7.1.3 Flushing gun

 **CAUTION**  
Avoid skin contact with the coolant additive.

 **CAUTION**  
Always wear protective gloves and safety goggles when you use the flushing gun.

 **CAUTION**  
Do not start flushing until the flushing gun points into the cutting chamber. Only use the flushing gun for cleaning inside the cutting chamber.



**CAUTION**

Using the flushing gun to clean the inside of the protective hood can cause spillage of coolant on the floor.  
Beware of slippery floor.  
Wear safety shoes with slip-resistant soles.

**CAUTION**

If you clean the protective hood directly with the flushing gun, it may result in dripping cutting fluid when the hood is open. The cutting fluid may be hazardous.  
Ensure protection to avoid contact where needed.

When AxioWash is finished:

1. Take the flushing gun from the holder and point it towards the bottom of the cutting chamber.
2. Open the valve on the flushing gun.
3. Press Flush to start the water pump.
4. Press the button on the rear of the nozzle and clean the cutting chamber thoroughly.
5. Press Stop to stop flushing.
6. Close the valve.
7. Place the flushing gun in the holder.

**Note**

To avoid corrosion, leave the protective hood open to let the cutting chamber dry completely.

## 7.2 Daily

### 7.2.1 The machine

**Note**

Do not use acetone, benzol or similar solvents.

**Note**

Do not use a dry cloth as the surfaces are not scratch resistant.

**Hint**

Grease and oil can be removed with ethanol or isopropanol.

- Clean all accessible surfaces with a soft, damp cloth.
- Clean the cutting chamber both automatically (using AxioWash) and then manually (using the flushing gun).

#### Automatic cleaning: AxioWash

See [AxioWash](#) ► 55

### Manual cleaning: Flushing gun

See [Flushing gun](#) ► 56

## 7.2.2 Protective hood



### WARNING

To ensure its intended safety, the PETG screen must be replaced every 5 years. A label on the screen indicates when it is due to be replaced. Replacement of the screen is required to remain compliant with the safety requirements in the European standard EN 16089.

  
Safety glass  
Sicherheitsglas  
Verre sécurit



### WARNING

Replace the protective hood screen immediately if it has been weakened by collisions with projectile objects or if there are visible signs of deterioration or damage.



### WARNING

If any of the following checks fail, do not use the machine until problems are resolved.



### CAUTION

The protective hood will minimize the risk of ejection but will not eliminate it completely.

The protective hood consists of a metal frame and a composite material (PETG) screen that protects the operator. In the event of damage, the screen will be weakened and offer less protection.

- Visually inspect the hood and the screen for signs of deterioration, wear or damage (for example: dents, cracks, damage to the edge sealing).

## 7.2.3 Wheel guard

Visually inspect that the cut-off wheel guard is intact.

## 7.2.4 Safety lock

Check that the hood lock is activated when the machine starts the cutting process.

## 7.2.5 Cleaning the cutting chamber using AxioWash

Clean the cutting chamber, especially the cutting table and the T-slots. Both are cleaned automatically by using AxioWash and, if necessary, manually by using the flushing gun.

See [AxioWash](#) ► 55

See [Flushing gun](#) ► 56

## 7.3 Weekly

### 7.3.1 The machine

Clean the machine regularly to avoid damaging effects to the machine and the specimens from abrasive grains or metal particles.

- Clean all painted surfaces and the control panel with a soft damp cloth and common household detergents.
- Clean the protective hood with a soft damp cloth and a common household anti-static window cleaning agent.
- Never use harsh or aggressive cleaning agents.



**Note**

Make sure that no detergent or cleaning agent is flushed into the cooling unit tank, as this will cause excess foaming.

### 7.3.2 Cutting chamber



**Note**

Leave the protective hood open to let the cutting chamber dry and to avoid corrosion.



**Note**

Clean the cutting chamber thoroughly if the machine is not used for a longer period of time.

#### Clean the cutting table

1. Remove the clamping device(s).
2. Thoroughly clean the clamping device(s).
3. Store the clamping device(s) in a dry place or replace on the cutting table after cleaning.

#### Clean the cutting chamber thoroughly

1. Clean along the length of the guide shafts with the flushing gun and a brush to remove accumulated swarf.
2. Clean under the cutting table with the flushing gun and a T-slot cleaner or brush to remove the accumulated swarf behind the cutting unit.

### 7.3.3 Recirculation unit

- Check the level of the cooling water after 8 hours of use or at least every week.
- Check, and if necessary, clean the filters.

## 7.4 Monthly

### 7.4.1 Coolant



**CAUTION**

Read the Safety Data Sheet for the coolant additive before use.



**CAUTION**

Avoid skin contact with the coolant additive.



**CAUTION**

Wear suitable gloves and safety goggles when handling coolant.

- Replace the coolant at least once a month.

## 7.5 Annually

### 7.5.1 In-line filter

To clean the in-line filter:

1. Unscrew the filter housing.
2. Clean the filter.
3. Re-assemble the filter.



**Hint**

You can also fit the in-line filter to the quick coupling on the recirculation cooling unit pump. Make sure that the in-line filter is mounted so that the flow arrows indicate the flow of water towards the cut-off machine.

## 7.6 Test the safety devices



**WARNING**

Do not use the machine with defective safety devices.  
Contact Struers Service.



**Note**

Testing should always be performed by a qualified technician (electromechanical, electronic, mechanical, pneumatic, etc.).

The protective hood has a safety switch system to prevent the cut-off wheel from starting while the hood is open.

Cutting table and arm movements are blocked if the protective hood is open. You can use the hold-to-run button to move the position of the cutting tables and feed.

A locking mechanism prevents the operator from opening the protective hood until the cut-off wheel stops spinning.

### 7.6.1 Emergency stop

#### Test 1

1. Start a cutting process.
2. Activate the emergency stop. If the machine does not stop the cutting process, press Stop and contact Struers Service.

#### Test 2

1. Activate the emergency stop.
2. Press Start. If the machine starts the cutting process, press Stop and contact Struers Service.

### 7.6.2 Protective hood

#### Test 1

1. Start a cutting process.
2. Try to open the protective hood – do not use force. If the protective hood opens during the cutting process, press Stop and contact Struers Service.

#### Test 2

1. Open the protective hood.
2. Press Start. If the machine starts the cutting process, press Stop and contact Struers Service.

#### Test 3

1. Start a cutting process.
2. Press Stop. There is a delay of 4 seconds from pressing Stop until the protective hood unlocks. If it is possible to open the hood while the cut-off wheel still rotates, contact Struers Service.

### 7.6.3 Fluid system

#### Test 1

1. Open the protective hood.
2. Start the water pump and activate the flushing gun. If the coolant starts to run from the cut-off wheel guard, press Stop and contact Struers Service.

### **Test 2**

1. Activate the emergency stop.
2. Start the water pump by releasing the flushing gun. If the coolant starts to run from the cut-off wheel guard, press Stop and contact Struers Service.

#### **7.6.4 Hold-to-run button**

1. Open the protective hood.
2. Without pressing the hold-to-run button, use the joy stick to move the cutting table. If the cutting table moves, contact Struers Service.

## **7.7 Cutting table**

The stainless steel bands are available as spare parts and must be replaced if they become worn or damaged.

### **Lubrication**

Lubricate the cutting table at regular intervals (approximately every 100 hours) to maintain optimum performance of the machine.

Check the service info on the display at start-up to monitor the actual number of hours of use.

After lubrication of both the X-table and Y-table, note the date and number of service hours on the maintenance log table.

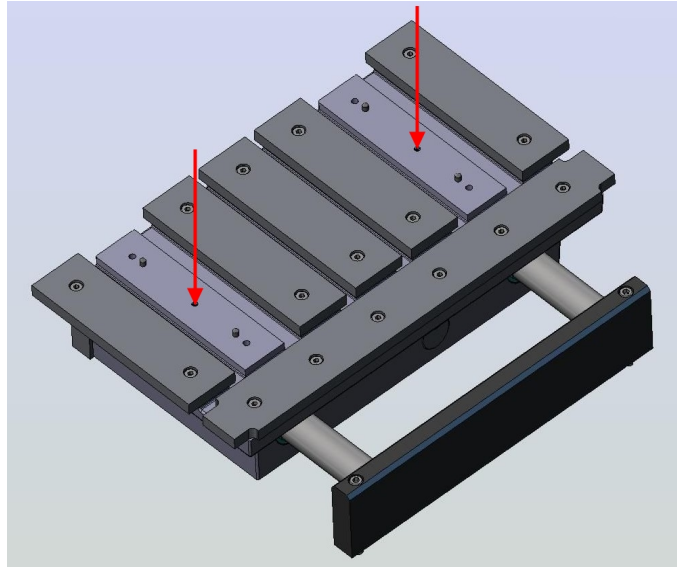
#### **7.7.1 Lubricate the guide shafts**

Oil for lubricating the guide shafts and slide bearings is supplied with the machine. When the oil has been used, refill with e.g. Shell TELLUS oil S100.

- Move the Y-table backwards and forwards to distribute the oil over the whole length of the shafts.

#### **X-table guide shafts**

1. Remove the stainless-steel bands located over the guide shafts (see illustration).
2. Remove the M6 screws.



3. Fill the holes with approx. 20 ml oil or until the reservoir is full.
4. Refit the screws

**Note**

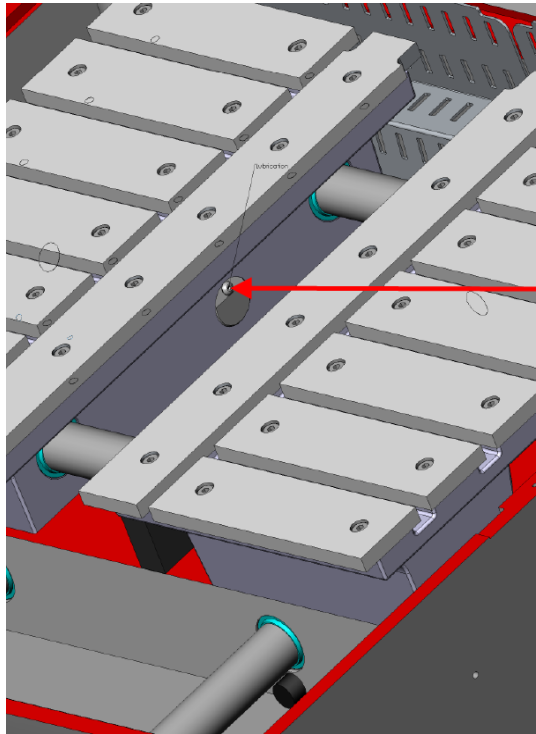
If the oil in the reservoir looks milky, it indicates that water has entered the oil reservoir.  
Contact Struers Service. to clean the reservoir.

### 7.7.2 Lubricate the spindles

A grease gun with grease for lubricating the spindles is supplied with the machine. When all the grease has been used, refill the grease gun.

**X-table**

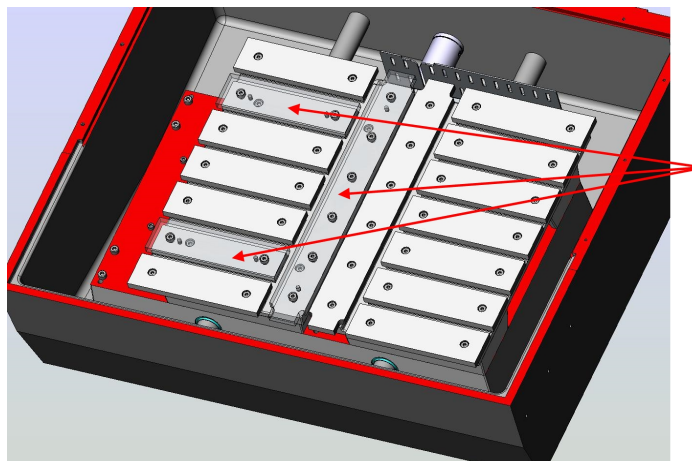
1. Move the cutting table to the far left.
2. Unscrew the Allen screw at the end of the spindle.



3. Fill the hole with 20 ml grease.
4. Move the table to the far right and check that a small amount of lubricant is deposited. If not, add more grease and check again.
5. Refit the screw.

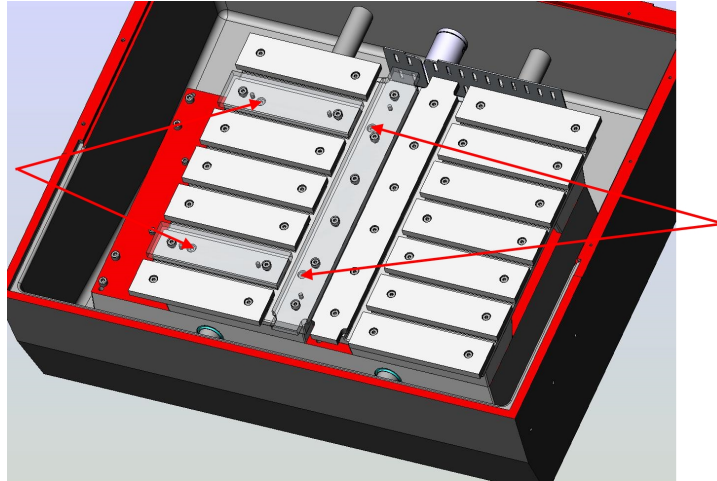
**Y-table - with a fixed left table mounted**

1. Remove the stainless steel bands.

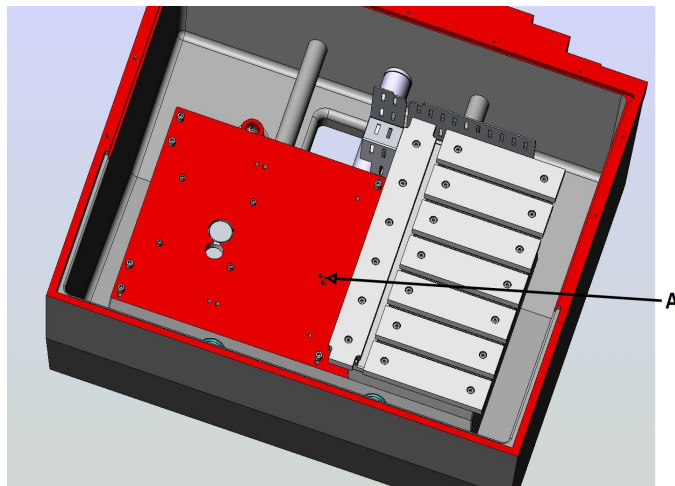


2. Remove the four screws and remove the table.





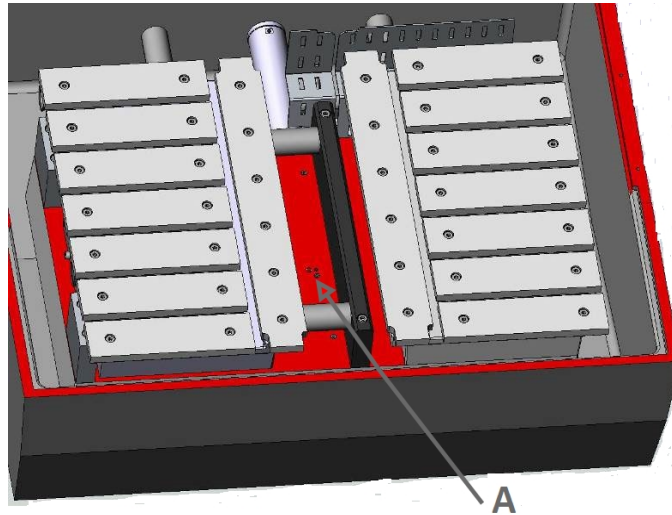
3. Unscrew the small Allen screw (**A**).



4. Fill the hole with 20 ml grease.
5. Replace the Allen screw and refit the table (the two locating pins must fit securely into the base of the cutting table).
6. Replace the stainless steel bands.

#### **Y-table - with an X-table mounted**

1. Move the cutting table to the front.
2. Unscrew the small Allen screw (**A**).



3. Fill the hole with 20 ml grease.
4. Move the table back until it can go no further, and check that a small amount of lubricant is deposited. If not, add more grease and check again..
5. Refit the screw.

## 7.8 Cut-off wheels

### **How to store bakelite bonded Al<sub>2</sub>O<sub>3</sub> cut-off wheels**

Bakelite bonded cut-off wheels are sensitive to humidity. Therefore, do not mix new, dry cut-off wheels with used damp ones. Store the cut-off wheels in a dry place, horizontally on a flat support.

### **Maintenance of diamond and CBN cut-off wheels**

Follow these instructions to maintain the precision and the quality of the cut of diamond and CBN cut-off wheels:

- Never expose the cut-off wheel to a heavy mechanical load or heat.
- Store the cut-off wheel in a dry place, horizontally on a flat support, preferably under light pressure.
- A clean and dry cut-off wheel does not corrode. Therefore, clean and dry the cut-off wheel before storing to avoid corrosion.
- Use ordinary detergents to clean the cut-off wheel.
- Dress the cut-off wheel regularly.

## 8 Spare parts

For specific safety related parts, see the section "Safety Related Parts of the Control System (SRP/CS)" in the section "Technical data" in this manual.

### Technical questions and spare parts

If you have technical questions or when you order spare parts, state the serial number and the year of production. This information is stated in the name plate on the machine.

For further information, or to check the availability of spare parts, contact Struers Service. Contact information is available on [Struers.com](https://www.struers.com).

## 9 Service and repair

We recommend that a regular service check be carried out yearly or after every 1500 hours of use.

When the machine is started up, the display shows information about total operation time and the machines service information.

After 1400 hours of operation time, the display will show a message reminding the user that a service check should be scheduled.

After the 1500 hours operation time has been exceeded, the pop-up message will change to alert you that the recommended service interval has been exceeded. Contact Struers Service.



### Note

Service must only be performed by a qualified technician (electromechanical, electronic, mechanical, pneumatic, etc.). Contact Struers Service.

### Service check

We offer a range of comprehensive maintenance plans to suit the requirements of our customers. This range of services is called ServiceGuard.

The maintenance plans include equipment inspection, replacement of wear parts, adjustments/calibration for optimal operation, and a final functional test.

# 10 Disposal



Equipment marked with a WEEE symbol contains electrical and electronic components and must not be disposed of as general waste.

Contact your local authorities for information on the correct method of disposal in accordance with national legislation.

For disposal of consumables and recirculation fluid, follow local regulations.



**WARNING**

In case of fire, alert bystanders, the fire brigade and cut power. Use a powder fire extinguisher. Do not use water.



**Note**

The recirculation fluid will contain additive and cutting or grinding swarf. Do not dispose of the recirculation fluid into a main drain. Follow the current safety regulations for handling and disposal of swarf and additive for recirculation fluid.

Keep track of which metals you cut or grind and the amount of swarf produced.

Depending on which metals you cut or grind, it is possible that the combination of the metallic swarf from metals with a large difference in electropositivity, can result in exothermic reactions when favorable conditions are present.

**Examples:**

The following are examples of combinations which can result in exothermic reactions if a large amount of swarf is produced during cutting or grinding on the same machine, and when favorable conditions are present:

- Aluminum and copper.
- Zinc and copper.

# 11 Troubleshooting

## 11.1 The machine


Error	Cause	Action
Water leaking.	Leak in a recirculation cooling unit hose.	Check the hose and tighten the hose clamp.
	Water overflow in the cooling water tank.	Remove the excess water in the tank.

Error	Cause	Action
Rusty workpieces or cutting chamber.	Insufficient additive in the coolant.	Use a coolant additive in the cooling water, at the correct concentration. Check with a refractometer.
	The machine is left with closed protective hood.	Leave the protective hood open when you are not using the machine to let the cutting chamber dry.
Quick clamping device cannot hold the workpiece.	The clamping device is not balanced.	Adjust the screw underneath the clamping column. Use a 3 mm Allen key.
	Clamping heart worn.	Contact Struers Service.
Protective hood will not close.	There is an obstruction in the cutting chamber.	Remove the obstruction.
Machine is locked.	Incorrect pass code used.	Restart the machine using the main switch. Enter the correct pass code.  If the error remains, contact Struers Service.
Electric power is shut down and need to remove / rearrange specimen.	Missing electric power to unlock protective hood.	To open the protective hood when the power is not connected, see <a href="#">Lock or unlock protective hood ▶ 51</a>
Laser positioning line not clear (Axitom-5/400 only).	The laser positioning line does not show as a clearly defined straight line.	Dry the surface of the protection glass for the laser.

## 11.2 Cutting problems

Error	Cause	Action
Discoloration or burning of the workpiece.	The hardness of the cut-off wheel is not appropriate for the hardness / dimensions of the workpiece.	Select another type of cut-off wheel.
	Inadequate cooling.	Make sure that there is enough water in the recirculation cooling unit.  Check the condition of the cooling tray.
	Feed speed too high.	Reduce the feed speed.

<b>Error</b>	<b>Cause</b>	<b>Action</b>	
Unwanted burrs.	Cut-off wheel too hard.	Select another type of cut-off wheel.	
	Insufficient support of workpiece.	Add further support to the workpiece.	
The cutting quality is different from time to time.	Cooling water tube clogged.	Clean the cooling water hose and the cooling tubes. Check the water flow by turning the cooling valve to cleaning position.	
	Insufficient cooling water.	Refill the tank with water and add cooling additive.	
The cut bends to one side.	Feed speed is too high.	Reduce the feed speed.	
The cut-off wheel breaks.	Incorrect mounting of the cut-off wheel.	<p>Make sure that the hole has the correct diameter.</p> <p>Make sure that there is a cardboard washer on both sides of the cut-off wheel (Conventional cut-off wheels only).</p> <p>Make sure that the nut is tightened securely.</p>	
	Incorrect clamping of the workpiece.	<p>Make sure that only one side of the workpiece is clamped securely. The other side should only be fixed lightly.</p> <p>Use support tools if the geometry of the workpiece makes support necessary.</p>	
	Not enough support of the workpiece.	Support the free end of the workpiece.	
	Cut-off wheel too hard.	Use a softer cut-off wheel.	
	The force on the cut-off-wheel is too high.	Apply a lower force on the cut-off wheel.	
	Inadequate cooling.		Make sure that there is enough water in the recirculation cooling unit.
			Check the cooling water hoses.

Error	Cause	Action
The cut-off wheel wears down too quickly.	The feed speed is too high.	Reduce the feed speed.
	Inadequate cooling.	Make sure that there is enough Make sure that there is enough water in the recirculation cooling unit.  Check the cooling water hoses.
	The cut-off wheel is too soft for the task.	Select a harder cut-off wheel.
	The machine vibrates.	Contact Struers Service.
The cut-off wheel does not cut through the workpiece.	Incorrect choice of cut-off wheel.	Select an appropriate cut-off wheel for your task.
	Cut-off wheel worn.	Replace the cut-off wheel.
	The cut-off wheel gets caught in the workpiece because of internal stress in the workpiece.	Support the workpiece and clamp it on both sides of the cut-off wheel allowing the cut to stay open.
	Incorrect choice of cutting mode.  <b>AxioCut Step</b> (option) is intended for large workpieces.	See <a href="#">Cutting modes ▶ 35</a>
The workpiece breaks when clamped.	The workpiece is brittle.	Place the workpiece between two polystyrene plates.  Always cut brittle workpieces very carefully.
The workpiece is corroded.	The workpiece is not resistant to water.	Use a neutral liquid as coolant or cut without using coolant at all.   <b>WARNING</b> Never use flammable coolant.
	The workpiece has been left in the cutting chamber for too long.	Leave the protective hood open when you leave the machine.
	Insufficient additive in the coolant.	Make sure that the concentration of additive is correct. Check with a refractometer, see <a href="#">Maintenance and service ▶ 54</a>

Error	Cause	Action
<b>Auto stop</b> does not stop the cutting action.	The cross-section of the workpiece is too small or irregular to detect a change in load.	Use the stop position function.

### 11.3 Error messages

Errors must be corrected before operation can be continued. In some cases, the cutting process cannot continue before an authorized technician has rectified the error. Turn the machine off at the main switch immediately. Do not attempt to operate the machine before a technician has rectified the problem.

The figures in the column "#" refer to the number shown in the upper right corner of the pop-up message on the display.

#	Messages	Cause	Action
0	<b>MESSAGE</b> <b>Start denied, process menu not selected</b>	Start not possible from the current menu.	Choose the cutting menu and make sure that all cutting parameters are set as required. Press Start.
1	<b>MESSAGE</b> <b>Manual process in progress, certain functions are not allowed !</b>	A manual process, e.g. flushing using a flushing gun, is started.	It is not possible to start a process/function during a manual process.
2	<b>MESSAGE</b> <b>Are you sure you want to change access code?</b>	A new access code is entered and you can either accept or cancel the new access code.  The access code is needed if the <b>Operation mode</b> parameters must be changed.	Press F1 to accept the chosen access code. Press ESC to cancel the access code. In this case, the old access code is still valid.
3	<b>MESSAGE</b> <b>Protection hood not closed!</b> <b>Close the hood and press F1</b>	The machine is turned on with an open protective hood. This happens as the machine must not search its reference positions while the protective hood is open.	Close the protective hood and press F1. The interrupted function will continue.



#	Messages	Cause	Action
4	<b>MESSAGE</b> <b>Axitom is searching for reference position(s), please wait</b>	The machine is switched on and the search for the reference positions starts.	Wait until the reference positions for the cutting arm, X-table and Y-table have been found.  The search for the reference positions for the tables only occurs every twenty times after the machine has been switched on, but will also occur if the emergency stop has been activated.
5	<b>MESSAGE</b> <b>The reference position(s) is/are found, Axitom is ready.</b>	The machine is switched on and the message indicates that it is ready for use.	
6	<b>MESSAGE</b> <b>Cutting finished, stop position reached</b>	This message appears when a cutting process is ended. The cutting stops because the set stop position has been reached.	
7	<b>MESSAGE</b> <b>Cutting finished, end position reached</b>	This message appears when a cutting process is ended. The cutting stops because the cutting arm has reached its limit.	
8	<b>MESSAGE</b> <b>Process in progress!</b>	A cutting process is started, and you cannot make changes, for example, changing the parameter unit setup.	Wait until the cutting process has stopped before you complete the requested function.
9	<b>MESSAGE</b> <b>Process stopped</b>	The cutting process is stopped because Stop has been pressed.	
10	<b>MESSAGE</b> <b>Cutting finished (MultiCut mode)</b>	All cutting tasks in a <b>MultiCut</b> process are completed.	
11	<b>WARNING</b> <b>Batch job cannot be executed, too small x-table workspace!</b>	Automatic correction of the batch job is not possible due to the position of the X-table.	Ensure that the X-table can move as much to the right as needed to cut at least one workpiece.

#	Messages	Cause	Action
12	<b>MESSAGE</b> <b>Editing restricted by operating mode</b>	Parameters cannot be changed in the current operation mode.	Change the operation mode to a level that allows editing of the parameter. All parameters can be changed if operation mode is set on <b>Configuration</b> . A pass code is required to change the operation mode.  <b>Note:</b> When a pass code is set, you have five attempts to enter the correct pass code.
16	<b>ERROR</b> <b>Cutting motor supervision error, contactor K1 not activated</b>	Contactor K1 is not activated when you press Start.  The same message can also be shown for K2, K3, and K4.	Restart the machine.  If the error remains, contact Struers Service.
17	<b>ERROR</b> <b>LIN-bus error during power on, please call Service Engineer.</b>	The LIN bus modules control functions as light in the cutting chamber, water valves, inductive sensors, <b>ExciCut</b> -motor, feed motor, and X- and Y-Tables.	Restart the machine.  If the error remains, contact Struers Service.  <b>Note:</b> Despite the error, using the machine might still be possible.  Some cutting operations can still be performed with a defective light module or a defective X-table or Y-table.  If the <b>ExciCut</b> module is defective, it is not possible to select <b>ExciCut</b> or accomplish an AxioWash.
18	<b>ERROR</b> <b>Cutting motor supervision error, contactor K1 not deactivated</b>	The Start button has been pressed, but contactor K1 has not been deactivated before the motor is started.  The same message can also be shown for K2, K3, and K4.	Restart the machine.  If the error remains, contact Struers Service.
19	<b>MESSAGE</b> <b>Protection hood not closed!</b>	The protective hood is open when the Start button is pressed.	Close the protective hood and restart the cutting process.

#	Messages	Cause	Action
21	<b>MESSAGE</b> <b>No cutting motor rotation!</b> <b>Please check the hood</b>	The protective hood has not been correctly closed when a cutting process is started.	Press the protective hood completely down. Restart the machine.
22	<b>MESSAGE</b> <b>Cutting motor blocked !</b> <b>Please reduce the motor load</b>	The cutting motor might suddenly stop if overloaded.	Reduce the maximum cutting force and feed speed. Check that the workpiece has adequately been clamped.
23	<b>ERROR</b> <b>Cutting motor will not stop ! Please call Service Engineer</b>	Despite deactivated contactors, the motor is still running. It might occur if several motor contactors are welded together simultaneously.	Turn the main switch to the Off position. Contact Struers Service.
26	<b>ERROR</b> <b>Feed motor not stopped!</b>	The feed motor module might be defective.	Restart the machine. If the error remains, contact Struers Service.
27	<b>ERROR</b> <b>Cutting arm position not found!</b>	The feed motor module might be defective.	Restart the machine. If the error remains, contact Struers Service.
28	<b>ERROR</b> <b>X-motor not stopped!</b>	The X-motor module might be defective.	Restart the machine. If the error remains, contact Struers Service.
29	<b>ERROR</b> <b>X-table position not found!</b>	The X-motor module might be defective.	Restart the machine. If the error remains, contact Struers Service.
30	<b>ERROR</b> <b>Y-motor not stopped!</b>	The Y-motor module might be defective.	Restart the machine. If the error remains, contact Struers Service.
31	<b>ERROR</b> <b>Y-table position not found!</b>	The Y-motor module might be defective.	Restart the machine. If the error remains, contact Struers Service.
32	<b>MESSAGE</b> <b>Emergency stop activated</b>		Correct the error that caused the emergency stop. Check that it is safe to continue operation and release the Emergency stop.

#	Messages	Cause	Action
33	<b>MESSAGE</b> <b>Cutting finished, stopped by auto stop</b>	The cutting stops because the power to the cutting motor is below the "stop limit".	If cutting has stopped before the workpiece has been entirely cut through, use a programmed stop position.
34	<b>MESSAGE</b> <b>Do you wish to continue the current batch?</b>	A <b>MultiCut</b> process stops before the batch is completed (for example, to change the cut-off wheel). The Start button has been pressed.	Press F1 to continue the <b>MultiCut</b> process . Press F2 to restart the <b>MultiCut</b> process.
35	<b>ERROR</b> <b>Don't activate joystick during power on. Please restart Axitom</b>	The joystick was activated while the machine was switched on. This must not happen since some reference values are measured during power-up.	Turn the machine off. Make sure that the joystick is not activated. Turn the machine on.  If the error remains, contact Struers Service..
36	<b>MESSAGE</b> <b>Step cutting and Multi cutting can't be combined</b>	<b>MultiCut</b> mode is selected for a cutting in <b>AxioCut Step</b> mode.	Use <b>Single cut</b> mode when cutting extra long workpieces.
37	<b>MESSAGE</b> <b>Cutting stopped by flange guard</b>	The cut-off wheel movement has been stopped for approx. 30 seconds. It might be the semicircular bracket on the right side of the cut-off wheel that hits the workpiece, but it might also be the lid for the cut-off wheel that bumps into a clamping tool.	The cut-off wheel has become too small to cut the workpiece. Replace the cut-off wheel.  If this is not the problem, check if any objects might impede the cutting arm from going down.  Also, the cut-off wheel may have come too low because the stop position was too big, or the <b>Auto</b> stop did not function.  See <a href="#">Stop modes ▶ 46</a>
38	<b>ERROR</b> <b>Cooli-5: Pump not started!</b>	The pump motor in Cooli-5 does not start when a cutting process starts.	Check the communication cable between the machine and the control box Cooli-5 and the cable connection from the control box to the pump motor.  Other error possibilities might be an overheated pump motor or a defective fuse in Cooli-5.

#	Messages	Cause	Action
39	<b>ERROR</b> <b>Cooli-5: Band motor error!</b> <b>(Overload/No connection)</b>	During the cutting process, the water in the tank exceeds a level where the belt motor should have run.  or  The Paper forward button on Cooli-5 is pressed, and the motor does not run.	Check the cable connection between the Cooli-5 control box and the band motor. Also, check whether the band motor is in any way physically impeded.
40	<b>ERROR</b> <b>Cooli-5: Emergency stop activated!</b>	The emergency stop on Cooli-5 has been activated.	Correct the error that caused the emergency stop on Cooli-5 and proceed as follows: Pull out the emergency stop button and briefly activate the button that starts the paper winding.
41	<b>ERROR</b> <b>Cooli-5: Missing paper!</b>	Cooli-5 has run out of filter paper.	Mount a new roll of filter paper in Cooli-5. For further information, see the Instructions for use for Cooli.
42	<b>ERROR</b> <b>Cooli-5: No water flow!</b>	Insufficient water flow during the cutting process. This may be due to too little water in the tank, a defective flow sensor, or a broken water hose.	Check the water level in the tank and that the cable connection from the flow sensor to the control box is functioning correctly.  Check the water pipes for breakage.  If the error remains, contact Struers Service.
43	<b>ERROR</b> <b>Cooli-5: Pump motor overloaded</b>	Overloaded pump motor during the cutting process.	Check if the pump motor is blocked.  The error may also be due to a defective thermal sensor in the motor. Contact Struers Service.
44	<b>MESSAGE</b> <b>Cooli-5: Water temperature: xx °C</b>	The water temperature exceeds 50 °C.	A water temperature above 50 °C is not necessarily a problem, but if it affects the cutting result, the water must cool down before you resume cutting.

#	Messages	Cause	Action
45	<b>MESSAGE</b> <b>Cooli-5: Water level: Below middle level</b>	The water level in the tank is below mid-level.	Cooli-5 must be connected to the water mains to ensure that the Cooli-5 tank will automatically be filled with water after the machine has been in use for a while.  For further information, see the Instructions for use for Cooli.
46	<b>ERROR</b> <b>Cooli-5: Water level: Below low level</b>	The water level in the tank is critically low.	Check the water connection. The tank in Cooli-5 should have been filled automatically.  Fill up the tank before the start of the next cutting.
48	<b>ERROR</b> <b>Load cell not calibrated!</b>	An entirely new PCB has been installed, and the measuring of the cutting force has not yet been calibrated. The cutting arm cannot move downwards because the calibration has not been performed.	Start up the machine in service mode and carry out a calibration. Before you start the calibration, you need to install an entirely new cut-off wheel, complete with flanges and nut.
49	<b>ERROR</b> <b>No cutting motor current!</b>	An idle current of less than 1.0 A detected on the cutting motor.	Restart the machine.  If the error remains, contact Struers Service.
50	<b>WARNING</b> <b>No AxioWash valve LIN-module, or module not "on line".</b>	The machine is turned on but AxioWash LIN-module is not connected or LIN bus communication has not been established.	Restart the machine.  If the error remains, contact Struers Service.
52	<b>MESSAGE</b> <b>Cutting motor overloaded! Please reduce the motor load.</b>	The cutting motor has been running under heavy load for a long time.	Press F1 to acknowledge the message and let the motor cool down.  Check the cutting speed. If possible, decrease the speed so that the motor is not overloaded.
53	<b>WARNING</b> <b>The accessory must be enabled in the "Miscellaneous" menu!</b>	The <b>ExciCut</b> motor or laser is activated by F1 or Enter but not enabled in the Miscellaneous menu.	Enable the <b>ExciCut</b> motor or laser in the Miscellaneous menu.

#	Messages	Cause	Action
54	<b>MESSAGE</b> <b>Press F2 before you edit the start position.</b>	During editing <b>MultiCut 4</b> , Enter is pressed on the X-table start position to start editing the X-table start position.	Close the protective hood and press F2 to move to the start position before editing the X-table start position.
55	<b>ERROR</b> <b>SMM is not mounted, please call Service Engineer.</b>	SMM is not detected in the SMM slot when switching on the machine.	Restart the machine. If the error remains, contact Struers Service.
100	<b>MESSAGE</b> <b>Do you wish to continue the current batch ?</b> <b>Note: Please move the cut-off wheel in a position directly above the workpiece before you press F1.</b> <b>F1:Yes F2:No</b>	The cutting batch was restarted after the Emergency stop had been activated. or The cutting batch was restarted, but not completely finished, after the Stop key activated a previous stop.	Move the cut-off wheel above the workpiece outline. Press F1 when the current batch should continue. Press F2 when the current batch should be started from scratch again.
102	<b>ERROR</b> <b>No cutting motor rotation is detected. If the motor is never the less running, you can choose to continue the cutting process. Please call a Service Engineer in the near future.</b>	A motor rotation speed of a minimum of 1,000 rpm has not been measured after a while when starting a cutting process.	It is possible to start a cutting process despite a defective rotation sensor. If the motor is rotating and sounds normal, press F1 to continue. The machine will start again without using this sensor.  If you do not wish to operate without using the rotation sensor, press ESC to cancel. It will not be possible to use the machine.  Contact Struers Service. The pop-up message will periodically appear to remind you to contact Struers Service.

#	Messages	Cause	Action
103	<p>MESSAGE</p> <p><b>The selected stop position is temporary reduced, because the mechanical stop will be reached before the selected position.</b></p> <p><b>Hint: Please replace the cut off wheel to increase the cutting range.</b></p>	<p>A stop position has been entered that is greater than the distance from the lower edge of the cut-off wheel to the limit.</p>	<p>Clamp the workpiece right under the centre of the cut-off wheel.</p> <p>Use a new cut-off wheel.</p> <p>Normally, this error will be avoided, if the cut-off wheel is placed right in front of the workpiece when the stop position is set.</p>
104	<p>MESSAGE</p> <p><b>The selected batch job can't be executed, because the x-table displacement is fully used. Choose one of the following options.</b></p> <p><b>F1:Decrease no of samples</b></p> <p><b>F2:Decrease sample width</b></p>	<p>A parameter has been entered for <b>MultiCut 1</b>, but the complete batch requires more than 100 mm stroke on the X-table.</p>	<p>The complete batch must be brought down to under 100 mm.</p> <p>Press F1 to reduce the number of samples or press F2 to reduce the width of the samples.</p>
105	<p>MESSAGE</p> <p><b>The sample batch is exceeding the limit of the x-table! Possible causes:</b></p> <p><b>Too many samples or too large samples or thickness of cut-off wheel has been increased.</b></p> <p><b>The batch will be autocorrected.</b></p>	<p>A parameter has been entered for <b>MultiCut 2</b> and 3 but the complete batch requires more than 100 mm stroke on the X-table.</p>	<p>The complete batch must be brought down to under 100 mm.</p> <p>Press F1 to decrease the number of samples, and the entered workpieces will automatically be deleted, one by one, until the batch is below 100 mm.</p>
106	<p>ERROR</p> <p><b>Reference position for X-table not found !</b></p> <p><b>You will not be able to use the X-table, but all other functions in Axitom will operate as usual.</b></p>	<p>The X-table has not been able to find its reference position.</p>	<p>Restart the machine.</p> <p>If the error remains, contact Struers Service.</p>



#	Messages	Cause	Action
107	<p><b>ERROR</b></p> <p><b>Reference position for Y-table not found !</b></p> <p><b>You will not be able to use the Y-table, but all other functions in Axitom will operate as usual.</b></p>	The Y-table has not been able to find its reference position	<p>Restart the machine.</p> <p>If the error remains, contact Struers Service.</p>
108	<p><b>ERROR</b></p> <p><b>Reference pos. for cutting arm not found ! Axitom cannot continue - try to restart the machine. If you get this message again, please contact a Service Engineer.</b></p>	The cutting arm has not been able to find its reference position.	<p>Restart the machine.</p> <p>If the error remains, contact Struers Service.</p>
109	<p><b>MESSAGE</b></p> <p><b>The sample batch is exceeding the limit of the x-table ! Possible causes:</b></p> <ol style="list-style-type: none"> <li><b>1. Too many samples</b></li> <li><b>2. Too large samples or position values</b></li> <li><b>3. Cut-off wheel too wide</b></li> </ol> <p><b>Do you want to autocorrect the batch ?</b></p>	The programmed batch requires the X-table to deviate more to the right than it can.	<p>Press F1 to reduce the number of samples and restart the machine</p> <p>or</p> <p>press F2 and move the X-table as far to the left as possible to make enough space for the batch.</p>
111	<p><b>MESSAGE</b></p> <p><b>The position values must be defined in increasing order, and the difference between two values must at least be the thickness of the cut-off wheel ! The positions will be autocorrected.</b></p>	Position values have been entered for <b>MultiCut 3</b> , but the latest entered position is too small compared to the previous one.	Press F1 to autocorrect the positions.

#	Messages	Cause	Action
112	<p><b>MESSAGE</b></p> <p><b>Cooli-5: Refilling process completed. Amount of water: 104 litres</b></p> <p><b>Please add Struers additive to the water. The amount of additive can be calculated from the product information on the bottle.</b></p>	Tank has been refilled with water.	Add additive to the cooling water based on the indicated amount of water and on the dosing instructions on the bottle of additive.
113	<p><b>MESSAGE</b></p> <p><b>It is now time to service your Axitom, please call for a service visit.</b></p> <p><b>SERVICE INFO:</b></p> <p><b>Total operation time: 3100h</b></p> <p><b>Time since last service:1600h</b></p> <p><b>Service exceeded by: 100h</b></p>	Reminder of ordering service inspection.	Press F1 to continue operation.
114	<p><b>WARNING</b></p> <p><b>The cutting motor is overheated ! You can choose to start a cooling function.</b></p> <p><b>Motor temperature (thermal load): 100%</b></p> <p><b>Press F1 to start cooling</b></p> <p><b>Press ESC to cancel</b></p>	The load on the cutting motor has been quite heavy for a while, and the cutting motor temperature is now too high.	<p>Press F1 to start cooling.</p> <p>The motor will start without load. The fan will cool down the motor until the thermal load is below 80% or until the motor has been running for 30 minutes.</p> <p>or</p> <p>Press ESC to cancel and wait until the motor has cooled sufficiently to restart cutting.</p>
115	<p><b>ERROR</b></p> <p><b>No communication to Cooli-5! The recirculation unit will be controlled like Cooli-1 and Cooli-3, and therefore you cannot receive any sensor status.</b></p>	Cooli-5 is selected as recirculation unit, but it is not possible to establish communication with this unit.	<p>Restart Cooli-5 and Axitom-5, -5/400 in that order.</p> <p>If the error remains, contact Struers Service.</p>

#	Messages	Cause	Action
116	<b>WARNING</b> <b>Cooli-5: Flow sensor status:The flow sensor is unexpectedly activated (=water flow)! Do you wish to continue?</b>	The flow sensor has unintentionally been activated during process start.	The flow sensor is probably defective.If the error remains, contact Struers Service.  Press F1 to continue the cutting process.
117	<b>MESSAGE</b> <b>The last cutting position is out of range because the x-table displacement is fully used. Choose one of the following options.</b> <b>F1 – Delete positions out of range.</b> <b>F2 – Cancel all changes.</b>	<b>MultiCut</b> has been started, but the X-table is in a position where its displacement is fully used, and all the required cuts cannot be made..	Press F1 to delete all positions that cannot be used.  or Press F2 to cancel.
118	<b>MESSAGE</b> <b>The cutting arm needs repositioning. Please move the cut-off wheel in a position directly above the workpiece before you press F1.</b>	The process has been restarted after the Emergency stop.  or The cutting batch has been restarted after the previous stop by the Stop button when not completely finished.	Move the cut-off wheel above the workpiece outline and press F1 when finished.
119	<b>WARNING</b> <b>The water pressure sensor is not activated! The water level might be too low.</b> <b>Do you want to continue? (F2 - Stop monitoring)</b>	Insufficient water flow according to the water pressure sensor.	If there is sufficient water pressure, but the water sensor is defective, press F2 to stop the water pressure monitoring and continue the cutting process.  The water pressure monitoring is disabled until the next restart of the machine.
120	<b>MESSAGE</b> <b>Water pressure monitoring is now ignored until next restart of the machine.</b>	There is no monitoring of the water pressure until the next restart of the machine.	Press Enter to close the message.

#	Messages	Cause	Action
121	<p><b>ERROR</b></p> <p><b>The water pressure sensor is not activated! The water level might be too low.</b>  <b>(F1 – Ok, F2 - Stop monitoring)</b></p>	<p>The water flow decreases under a certain level (or is entirely stopped) during the cutting process.</p> <p>The cutting process is stopped to avoid burning the workpiece.</p> <p>Or</p> <p>Message #119 has been displayed without a user reaction for over 3 minutes. The cutting process is stopped to avoid overdrying the sealing.</p>	<p>Press F1 to acknowledge the message.</p> <p>Press F2 to stop the monitoring until the next restart of the machine.</p>
122	<p><b>MESSAGE</b></p> <p><b>Press and hold the two-hand operation button, or close the cover.</b></p>	<p>The working area must be secured for the movements of the cut-off wheel and the X- and Y-tables.</p> <p>Or</p> <p>A severe error has occurred on the axis speed monitoring system (modules A35, A36, and A37) due to errors such as sensor error and wrong sensor adjustment.</p>	<p>The protective hood must be closed, or the two-hand switch held pressed.</p> <p>or</p> <p>The axis speed monitoring modules must be restarted by initiating a cutting process or restarting the entire machine.</p> <p>If the error remains, contact Struers Service.</p>
123	<p><b>ERROR</b></p> <p><b>The cover lock fails to lock, please close the cover completely.</b></p> <p><b>Or</b></p> <p><b>The safety lock is manually unlocked.</b></p>	<p>The safety lock supervision signal indicates that the protective hood is not entirely closed.</p> <p>The same error might be reported if the safety lock is manually unlocked.</p>	<p>Close the protective hood entirely before the machine is started.</p> <p>Then open and close the protective hood.</p> <p>If the error is repeated, check the manual lock of the safety lock and ensure that the manual lock is not activated.</p> <p>If the error remains, contact Struers Service.</p>

#	Messages	Cause	Action
124	<b>WARNING</b> <b>Two-hand operating button has been activated for more than 30 sec.</b> <b>Please release the button.</b>	The protective hood is open, and the user activates the two-hand button for more than 30 seconds without pushing the joystick in X or Y direction or in the feed direction.	Release the button or push the joystick. The button is defective if the message is shown without activating the button. Contact Struers Service.

## 12 Technical data

### 12.1 Technical data - Axitom-5

		Axitom-5
<b>Capacity</b>	Height x Length	110 x 245 mm (4.3" x 9.6")
	Diameter	125 mm (4.9")
	Cutting length	400 mm (15.7")
<b>Cut-off wheel</b>	Diameter	350 mm (14")
	Arbor diameter	32 mm (1.26")

		<b>Axitom-5</b>
<b>Cut-off wheel motor</b>	Rotational speed	1450 rpm (motor), 1957 rpm (COW) @ 3x200V / 50 Hz
		1730 rpm (motor), 1937 rpm (COW) @ 3x200-210V / 60 Hz
		1705 rpm (motor), 1909 rpm (COW) @ 3x220-240V / 60 Hz
		1450 rpm (motor), 1957 rpm (COW) @ 3x380-415V / 50 Hz
		1745 rpm (motor), 1954 rpm (COW) @ 3x380-415V / 60 Hz
		1745 rpm (motor), 1954 rpm (COW) @ 3x460-480V / 60 Hz
	Height adjustment of cut-off wheel	0-200 mm (7.9")
<b>Cutting table</b>	Width	591 mm (23.3")
	Depth	492 mm (19.4")
	T-slots	T-slot with exchangeable T-slot plates, 12 mm
	Feed speed	0.05 – 5 mm/s (0.002" – 0.2"/s)
<b>Laser</b>		No
<b>Software and electronics</b>	Controls	Turn/push knob, buttons
	Display	LCD, TFT-color 5.7", 320 x 240 dots with LED back light
<b>Safety standards</b>		CE-labeled according to EU directives
<b>REACH</b>		For information about REACH, contact your local Struers office.
<b>Operating environment</b>	Surrounding temperature	5 - 40°C (41 - 104°F)
	Humidity	35 - 85 % RH non-condensing

		<b>Axitom-5</b>
<b>Power supply 1</b>	Voltage/frequency	3 x 200 V / 50 Hz
	Power inlet	3 phase (3L + PE)
	Power S1	5.5 kW
	Power S3	60%
	Power, idle	20 W
	Current, max.	42 A
	<b>Power supply 2</b>	Voltage/frequency
Power inlet		3 phase (3L + PE)
Power S1		6.6 kW
Power S3		60%
Power, idle		20 W
Current, max.		42.6 A
<b>Power supply 3</b>		Voltage/frequency
	Power inlet	3 phase (3L + PE)
	Power S1	6.6 kW
	Power S3	60%
	Power, idle	20 W
	Current, max.	38.4 A
	<b>Power supply 4</b>	Voltage/frequency
Power inlet		3 phase (3L + PE)
Power S1		5.5 kW
Power S3		60%
Power, idle		20 W
Current, max.		28.6 A

<b>Axitom-5</b>		
<b>Power supply 5</b>	Voltage/frequency	3 x 380-415 V / 60 Hz
	Power inlet	3 phase (3L + PE)
	Power S1	6.6 kW
	Power S3	60%
	Power, idle	20 W
	Current, max.	28.6 A
	<b>Power supply 6</b>	Voltage/frequency
Power inlet		3 phase (3L + PE)
Power S1		6.6 kW
Power S3		60%
Power, idle		20 W
Current, max.		26.6 A
<b>Cooling system</b>		
<b>Exhaust</b>	Recommended capacity	80 mm (3.15")
<b>Advanced features</b>	X-table, automatic	XY-table
	X-stand, manual	N/A
	Rotary stand	N/A



		<b>Axitom-5</b>
<b>Safety Circuit Categories/Performance Level</b>	Door Interlock	PL d, EN 60204-1 Stop category 0, EN ISO 13849-1
	Door Interlock lock	PL a, EN 60204-1 Stop category 0, EN ISO 13849-1
	Hold-to-run	PL c, EN 60204-1 Stop category 0, EN ISO 13849-1
	Emergency stop	PL c, EN 60204-1 Stop category 0, EN ISO 13849-1
	Axis speed monitoring	PL c EN ISO 13849-1
	Fluid system - cooling	PL b EN ISO 13849-1
	Fluid system - AxioWash	PL b EN ISO 13849-1
	<b>Residual Current Circuit Breaker (RCCB)</b>	
<b>Noise level</b>	A-weighted sound emission pressure level at workstations	LpA = 75.2 dB(A) (measured value). Uncertainty K = 4 dB Measurements made in accordance with EN ISO 11202
<b>Vibration level</b>	Declared vibration emission	N/A
<b>Dimensions and weight</b>	Width	115.5 cm (45.5")
	Depth, with plug	130.5 cm (51.4")
	Height	174.5 cm (68.7")
	Weight	758 kg (1670 lbs)

## 12.2 Technical data - Axitom-5/400

		<b>Axitom-5/400</b>
<b>Capacity</b>	Height x Length	125 x 290 mm ( 4.9 x 11.4")
	Diameter	150 mm (6")
	Cutting length	0-440 mm (0 -17.3")
<b>Cut-off wheel</b>	Diameter	400 mm (16")
	Arbor diameter	32 mm (1.26")
<b>Cut-off wheel motor</b>	Rotational speed	1450 rpm (motor), 1957 rpm (COW) @ 3x200V / 50 Hz
		1730 rpm (motor), 1937 rpm (COW) @ 3x200-210V / 60 Hz
		1705 rpm (motor), 1909 rpm (COW) @ 3x220-240V / 60 Hz
		1450 rpm (motor), 1957 rpm (COW) @ 3x380-415V / 50 Hz
		1745 rpm (motor), 1954 rpm (COW) @ 3x380-415V / 60 Hz
		Height adjustment of cut-off wheel
<b>Cutting table</b>	Width	591 mm (23.3")
	Depth	492 mm (19.4")
	T-slots	T-slot with exchangeable T-slot plates, 12 mm
	Feed speed	0.05 – 5 mm/s (0.002" – 0.2"/s)
<b>Laser</b>		Option
<b>Software and electronics</b>	Controls	Turn/push knob, buttons
	Display	LCD, TFT-color 5.7", 320 x 240 dots with LED back light
<b>Safety standards</b>		CE-labeled according to EU directives
<b>REACH</b>		For information about REACH, contact your local Struers office.

		<b>Axitom-5/400</b>
<b>Operating environment</b>	Surrounding temperature	5 - 40°C (41 - 104°F)
	Humidity	35 - 85 % RH non-condensing
<b>Power supply 1</b>	Voltage/frequency	3 x 200 V / 50 Hz
	Power inlet	3 phase (3L + PE)
	Power S1	7.5 kW
	Power S3	60%
	Power, idle	20 W
	Current, max.	64 A
	<b>Power supply 2</b>	Voltage/frequency
Power inlet		3 phase (3L + PE)
Power S1		7.5 kW
Power S3		60%
Power, idle		20 W
Current, max.		66 A
<b>Power supply 3</b>		Voltage/frequency
	Power inlet	3 phase (3L + PE)
	Power S1	7.5 kW
	Power S3	60%
	Power, idle	20 W
	Current, max.	32 A
	<b>Power supply 4</b>	Voltage/frequency
Power inlet		3 phase (3L + PE)
Power S1		7.5 kW
Power S3		60%
Power, idle		20 W
Current, max.		32 A


		<b>Axitom-5/400</b>
<b>Power supply 5</b>	Voltage/frequency	3 x 440-480 V / 60 Hz
	Power inlet	3 phase (3L + PE)
	Power S1	9.0 kW
	Power S3	60%
	Power, idle	20 W
	Current, max.	32 A
<b>Cooling system</b>		Option. Coolimat-2000 or Cooli System 4
<b>Exhaust</b>	Recommended capacity	80 mm (3.15")
<b>Advanced features</b>	Fixed	Yes
	X-table	Yes
	XY-table	Yes
	Rotary stand	N/A
<b>Safety Circuit Categories/Performance Level</b>	Door Interlock	PL d, EN 60204-1 Stop category 0, EN ISO 13849-1
	Door Interlock lock	PL a, EN 60204-1 Stop category 0, EN ISO 13849-1
	Hold-to-run	PL c, EN 60204-1 Stop category 0, EN ISO 13849-1
	Emergency stop	PL c, EN 60204-1 Stop category 0, EN ISO 13849-1
	Axis speed monitoring	PL c EN ISO 13849-1
	Fluid system - cooling	PL b EN ISO 13849-1
	Fluid system - AxioWash	PL b EN ISO 13849-1

<b>Axitom-5/400</b>		
<b>Residual Current Circuit Breaker (RCCB)</b>		Type A, 30 mA (or better) is recommended Circuit breaker 32A, Type D is required
<b>Noise level</b>	A-weighted sound emission pressure level at workstations	LpA = 75.2 dB(A) (measured value). Uncertainty K = 4 dB Measurements made in accordance with EN ISO 11202
<b>Vibration level</b>	Declared vibration emission	N/A
<b>Dimensions and weight</b>	Width	115.5 cm (45.5")
	Depth, with plug	130.5 cm (51.4")
	Height	174.5 cm (68.7")
	Weight	758 kg (1670 lbs)

## 12.3 Cutting capacity

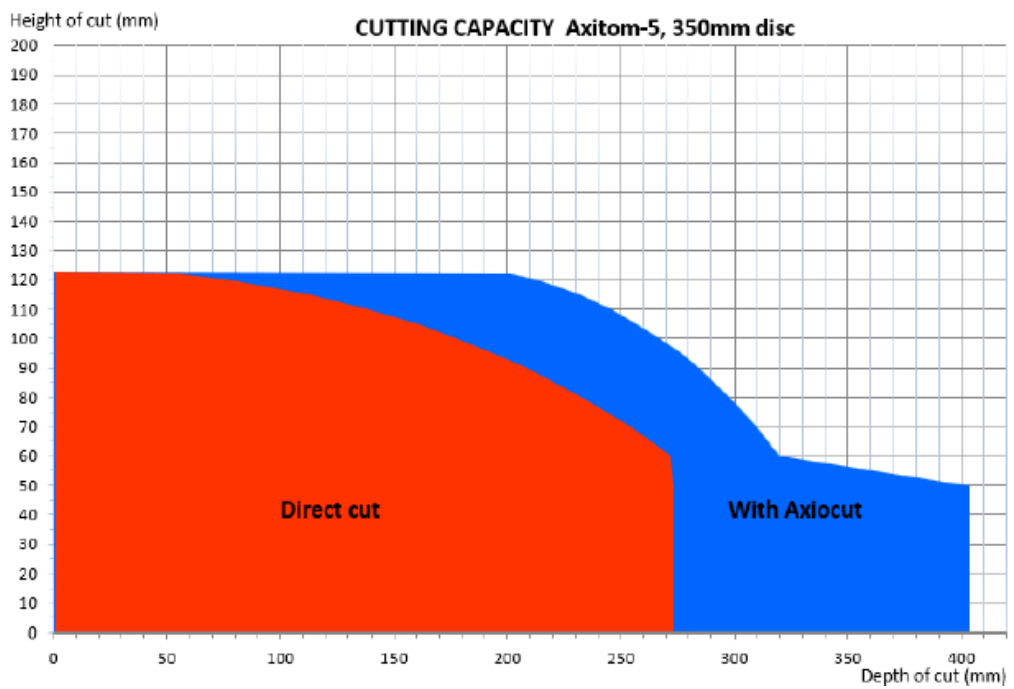
The graphs show the projected cutting capacity under the following conditions:

- A new cut-off wheel.
- The workpiece is laid directly on the cutting table, with overhang where appropriate.
- Vertical clamping is used.

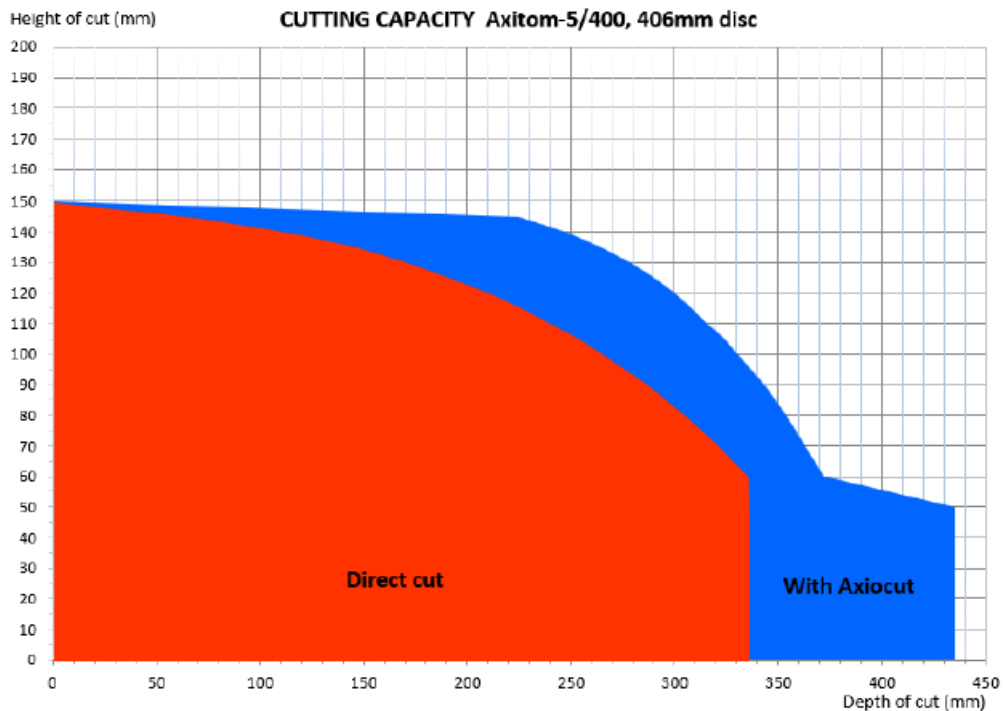


**Note**  
The actual cutting capacity depends on the specimen material, cut-off wheel and clamping technique.

### Axitom-5 with a new 350 mm diameter cut-off wheel



### Axitom-5/400 with a new 400 mm diameter cut-off wheel



Axitom-5/400 can be used with up to 400 mm diameter cut-off wheels.

When using a new cut-off wheel, the capacity will be reduced accordingly in the vertical direction.  
For further information contact Struers Service.

## 12.4 Safety Related Parts of the Control System (SRP/CS)



### WARNING

To ensure its intended safety, the PETG screen must be replaced every 5 years.  
A label on the screen indicates when it is due to be replaced.



### WARNING

Safety critical components must be replaced after a maximum lifetime of 20 years.



### Note

SRP/CS (safety-related parts of a control system) are parts that have an influence on safe operation of the machine.



### Note

Replacement of safety critical components must only be performed by a Struers engineer or a qualified technician (electromechanical, electronic, mechanical, pneumatic, etc.).  
Safety critical components must only be replaced by components with at least the Contact Struers Service.

**Parts**

<b>Safety related part</b>	<b>Manufacturer/ Manufacturer description</b>	<b>Manufacturer catalog no.</b>	<b>Electrical ref.</b>	<b>Struers catalog no.</b>
Guard for cut-off wheel, 350 mm	Struers	R5480049	N/A	R5480049
Guard for cut-off wheel, 400 mm	Struers	R5482637	N/A	R5482637
PETG protective hood assembly	Struers	R5480070	N/A	R5480070
Emergency stop button	Schlegel	ES Ø22 type RV	S1	2SA10400
Emergency stop contact	Schlegel	1 NC type MTO	S1	2SB10071
Module holder	Schlegel	MHR-5	S1	2SA41605
Magnetic sensor	Schmersal	BNS 120-02Z	SS1	2SS00130
Magnetic sensor actuator	Schmersal	BP-10	SS1	2SS00131
Solenoid interlock	Schmersal	AZM 161SK-12/12RK-024	YS1	2SS00121
Solenoid interlock actuator	Schmersal	AZM 161-B1F	YS1	2SS10001
Safety relay	Omron	G9SB-3012-A	KS1	2KS10006
Contactora	Omron	J7KNG-40-24D	K1, K2	2KM74010
Contactora	Omron	J7KNG-14-01-24D	K5, K6, K7, K8	2KM71411
Contactora auxiliary contact block	Omron	J73KN-B-01	K1, K2	2KH00137
Speed monitor module	Sick	MOC3SA	A35, A36, A37	2KS10033
Speed monitor module M4 sensor	Sick	IM04-01BPSVU2K	B5, B6	2HQ00034



Safety related part	Manufacturer/ Manufacturer description	Manufacturer catalog no.	Electrical ref.	Struers catalog no.
Speed monitor module M8 sensor	Sick	IMB08-02BPSVU2K	B7, B8, B9, B10	2HQ00032
Hold-to-run button	Schurter	1241.6931.1120000	S2	2SA00023
Solenoid water valve	Sirai	D132V23Z130A13 24V DC	Y2, Y3	2YM10132

## 12.5 Diagrams

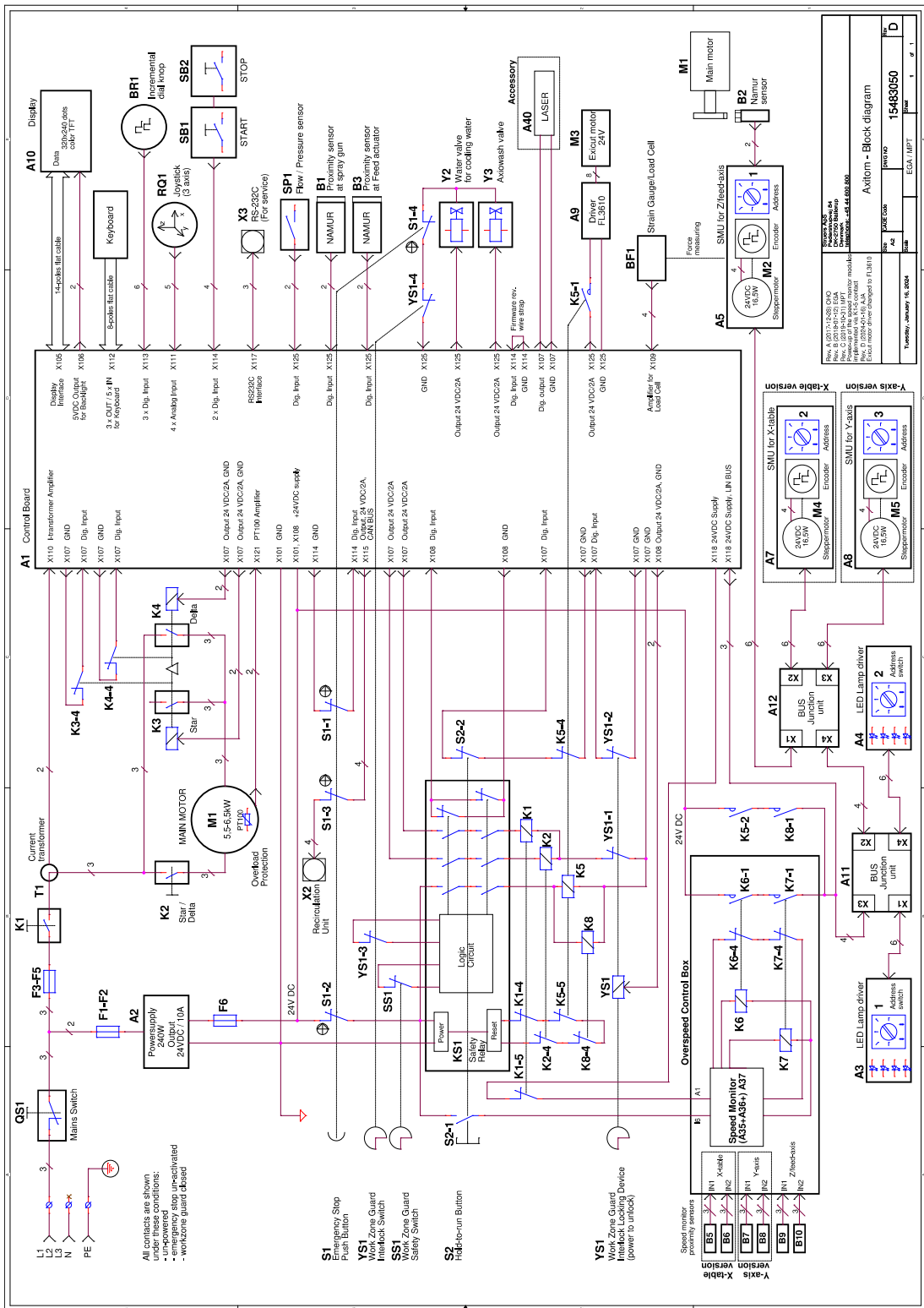


### Note

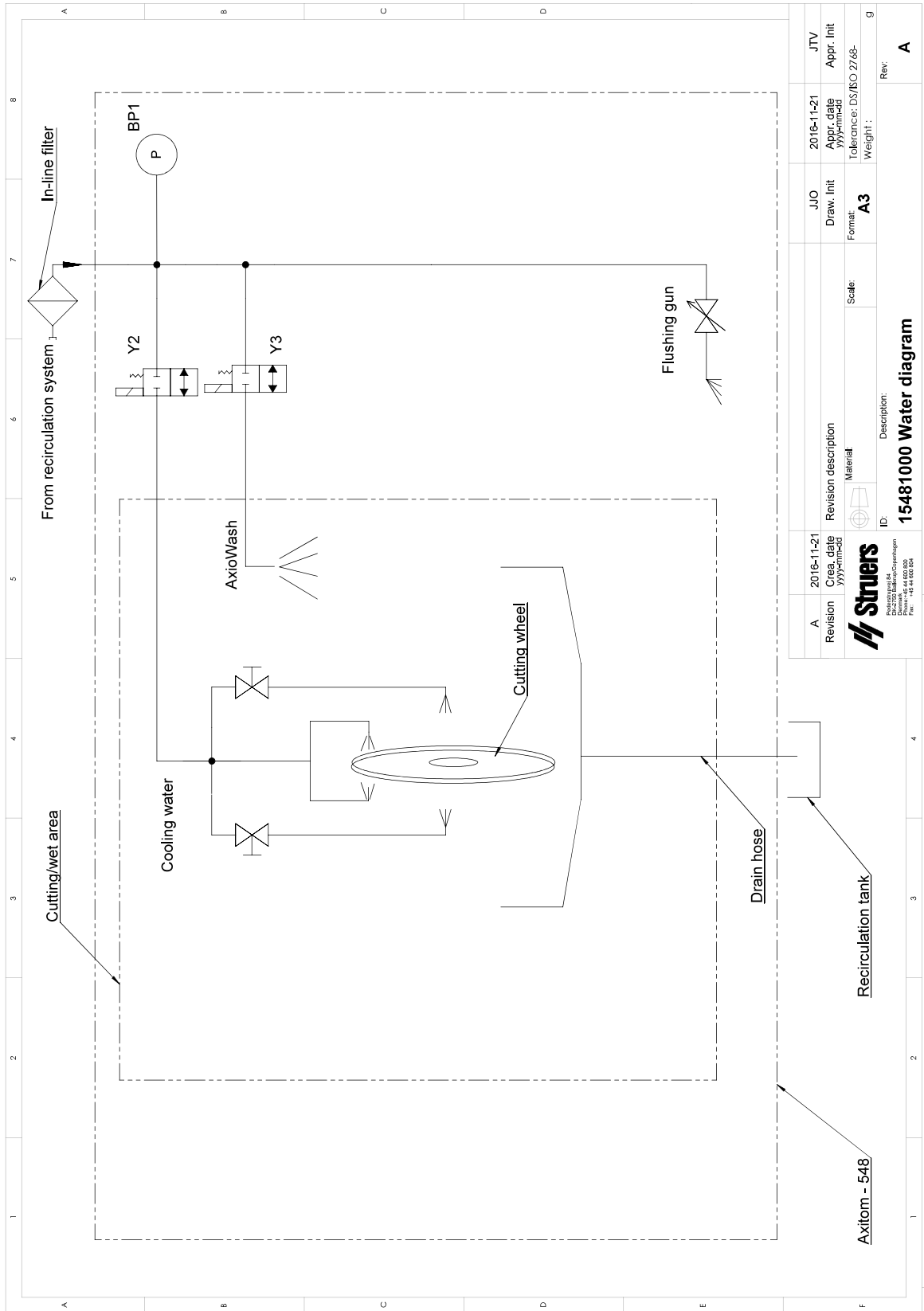
If you want to view specific information in detail, see the online version of this manual.

Title	No.
Block diagram	<a href="#">15483050</a> ► <a href="#">98</a>
Water diagram	<a href="#">15481000</a> ► <a href="#">99</a>
Circuit diagram	See the diagram number on the name plate of the equipment, and contact Struers Service via <a href="http://Struers.com">Struers.com</a> .

15483050



15481000



A	2016-11-21	Revision							
	2016-11-21	Creation							
		ID: 15481000 Water diagram		Description:		Scale:		Material:	
Revision description		Draw. Init		JVO		2016-11-21		JTV	
Format: A3		Tolerance: DS/ISO 2768-		Weight:		g		Appr. Init	
Rev:		A		Appr.		Weight:		g	

## 13 Legal and regulatory information

### **FCC notice**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

## 14 Manufacturer

Struers ApS  
Pederstrupvej 84  
DK-2750 Ballerup, Denmark  
Telephone: +45 44 600 800  
Fax: +45 44 600 801  
[www.struers.com](http://www.struers.com)

### **Responsibility of the manufacturer**

The following restrictions should be observed, as violation of the restrictions may cause cancellation of Struers legal obligations.

The manufacturer assumes no responsibility for errors in the text and/or illustrations in this manual. The information in this manual is subject to change without notice. The manual may mention accessories or parts not included in the supplied version of the equipment.

The manufacturer is to be considered responsible for effects on safety, reliability, and performance of the equipment only if the equipment is used, serviced, and maintained in accordance with the instructions for use.

# Declaration of Conformity

Manufacturer	Struers ApS • Pederstrupvej 84 • DK-2750 Ballerup • Denmark
Name	Axitom-5 Axitom-5/400
Model	
Function	Cut-off machine
Type	0548, 0686
Cat. no.	<b>Axitom-5</b> 05488129, 05488130, 05488136, 05488146 , 05488147, 05488154, 05488346, 05488354, 05488429, 05488430, 05488436, 05488446, 05488454 <b>Axitom-5/400</b> 06866129, 06866130, 06866146, 06866147, 06866229, 06866230, 06866246, 06866247
Serial no.	



Module H, according to global approach



We declare that the product mentioned is in conformity with the following legislation, directives and standards:

<b>2006/42/EC</b>	EN ISO 12100:2010, EN ISO 13849-1:2015, EN ISO 13849-2:2012, EN ISO 13850:2015, EN ISO 16089:2015, EN 60204-1:2018, EN 60204-1-2018/Corr.:2020
<b>2011/65/EU</b>	EN 63000:2018
<b>2014/30/EU</b>	EN 61000-3-11:2001, EN 61000-3-12:2012, EN 61000-6-2:2005, EN 61000-6-2:2005/Corr.:2005, EN 61000-6-3:2007, EN 61000-6-3-A1:2011, EN 61000-6-3-A1-AC:2012
<b>Additional standards</b>	NFPA 79, FCC 47 CFR Part 15 Subpart B

Authorized to compile technical file/  
Authorized signatory

Date: [Release date]

en For translations see  
bg За преводи вижте  
cs Překlady viz  
da Se oversættelser på  
de Übersetzungen finden Sie unter  
el Για μεταφράσεις, ανατρέξτε στη διεύθυνση  
es Para ver las traducciones consulte  
et Tõlked leiate aadressilt  
fi Katso käännökset osoitteesta  
fr Pour les traductions, voir  
hr Za prijevode idite na  
hu A fordítások itt érhetőek el  
it Per le traduzioni consultare  
ja 翻訳については、  
lt Vertimai patalpinti  
lv Tulkojumus skatīt  
nl Voor vertalingen zie  
no For oversettelser se  
pl Aby znaleźć tłumaczenia, sprawdź  
pt Consulte as traduções disponíveis em  
ro Pentru traduceri, consultați  
se För översättningar besök  
sk Preklady sú dostupné na stránke  
sl Za prevode si oglejte  
tr Çeviriler için bkz  
zh 翻译见

[www.struers.com/Library](http://www.struers.com/Library)