

Coolimat-2000 Band Filter

Instruction Manual

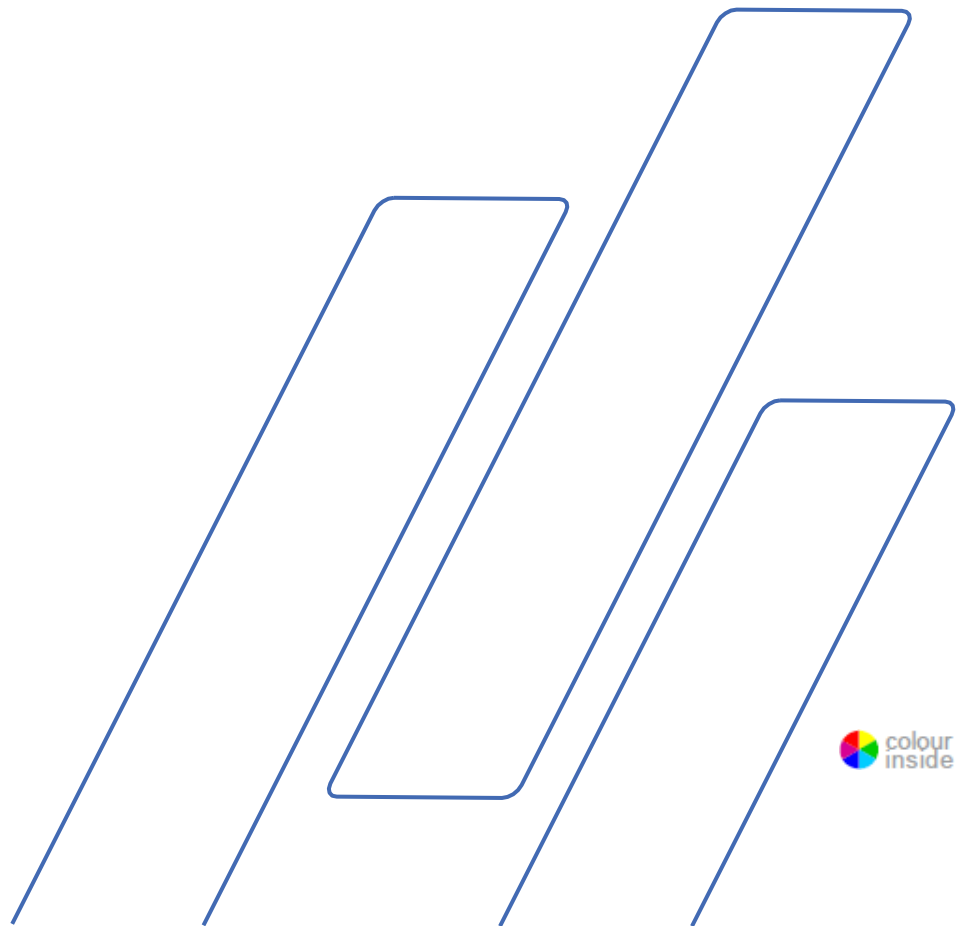


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Intended use

Coolimat-2000 is intended for filtration, cooling and recirculation of cooling fluid containing waste from machining of materials. Coolimat-2000 is designed for use with Struers grinding and cut-off machines. The machine is only to be operated by skilled/trained personnel in a professional working environment (e.g. a materialography laboratory).

The machine is only intended to be used with cooling fluids and filter materials which are specified for this purpose and this type of machine. For intended Coolimat-2000 function is required signal from the machine.

Do not use the machine for:

Filtering any type of explosive and/or flammable and/or unstable material from the cutting process. Furthermore, the machine must not be used with consumables (cooling fluids, filter materials) that are not compliant with function and materials of Coolimat-2000.

Models:

Coolimat-2000 BF (Band Filter)

**NOTE:**

READ the instruction manual carefully before use.
Keep a copy of the manual in an easy-to-access place for future reference.

Always state Serial No and Voltage/frequency if you have technical questions or when ordering spare parts. You will find the Serial No. and Voltage on the type plate of the machine itself. We may also need the Date and Article No of the manual. This information is found on the front cover.

The following restrictions should be observed, as violation of the restrictions may cause cancellation of Struers legal obligations: Instruction Manuals: Struers Instruction Manual may only be used in connection with Struers equipment covered by the Instruction Manual.

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

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

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Icons and typography

Struers uses the following icons and typographical conventions. A list of the Safety Messages used in this manual can be found in the chapter on [Cautionary Statements](#).

Always consult the Instruction Manual for information on the potential hazards marked by the icons fixed to the machine.

Icons and Safety Messages



ELECTRICAL HAZARD

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



DANGER

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



WARNING

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



CAUTION

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



CRUSHING HAZARD

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



EMERGENCY STOP

General Messages

**NOTE:**

indicates a risk of damage to property, or the need to proceed with special care.

**HINT:**

indicates additional information and tips.

Colour Inside Logo



The 'colour inside' logo on the cover page of this Instruction Manual indicates that it contains colours which are considered to be useful for the correct understanding of its contents.

Users should therefore print this document using a colour printer.

Typographic conventions

Bold type	indicates button labels or menu options in software programs
<i>Italic type</i>	indicates product names, items in software programs or figure titles
<u>Blue text</u>	indicates a link to another section or webpage
■ Bullets	indicates a necessary work step



Coolimat-2000 BF

Safety Precaution Sheet

Read carefully before use

1. 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.
2. The operator(s) must read the Safety and User's Guide sections of this manual and the relevant sections of the manuals for any connected equipment and accessories.
3. Do not use cooling liquid other than water mixed with additives, which are compliant with the machine.
4. The operator(s) must read the Instructions for Use and, where applicable, Safety Data Sheets for the applied consumables.
5. Observe the current safety regulations for handling, mixing, filling, emptying and disposal of the additive for cooling fluid.
Take care; the cooling fluid may be hot!
6. Keep a copy of the manual in an easy-to-access place for future reference.
7. Ignoring the information in the Instruction Manual can lead to severe bodily injuries and material damage.
8. Mishandling or modifying the equipment can lead to severe bodily injuries and material damage.
9. To achieve maximum safety and lifetime of the machine, use only original Struers consumables.
10. The machine must be disconnected from the mains prior to any service.
11. Use of gloves and safety goggles is recommended when filling and cleaning the tank.
12. The recirculation pump must be disconnected from the power supply prior to removal from the cooling unit. Use of safety shoes is recommended.
13. All safety functions must be intact and in working order. Damaged or malfunctioning safety functions must be replaced and/or repaired
14. Keep the area around the tank clean and free from spills.

- 15.** If any malfunction or unusual noise is detected, the equipment should be stopped immediately and technical service called.
- 16.** Struers recommend the use of an exhaust system as the cutting process may emit harmful gasses or dust
- 17.** In case of fire, alert bystanders, the fire brigade and cut power. Use a powder fire extinguisher. Do not use water.
- 18.** The machine must be installed in a well-ventilated and well-lit (300 lux) room.

The equipment should only be used for its intended purpose and as detailed in the Instruction Manual.

The equipment is designed for use with consumables supplied by Struers. If subjected to misuse, improper installation, alteration, neglect, accident or improper repair, Struers will accept no responsibility for damage(s) to the user or the equipment.

Dismantling of any part of the equipment, during service or repair, should always be performed by a qualified technician (electromechanical, electronic, mechanical, pneumatic, etc.).

User's Guide

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1. Getting Started

General Description

Coolimat-2000 BF is a filtration and recirculation machine for cooling fluid with waste/debris, typically swarf and particles from cut-off wheels. It is intended to filter and cool down the cooling fluid from up to two cutting and/or grinding machines.

Cooling fluid is directed into the filter paper which is placed on a metal rods. Filtered cooling fluid is collected in a tank underneath the filter unit and is then recirculated to the cut-off machine using up to two pumps which are inserted in the tank. The cooling fluid must be filled/topped up, correctly mixed and replaced according to specifications.

The filter paper is automatically moved to ensure the filter capacity is adapted to the amount of debris. A flotation device activates the motorized metal band filter when maximum water level above the filtration paper is reached. This ensures that the band continuously positions a fresh section of filter paper under the cooling fluid inlet. The debris is automatically conveyed to a waste bin in front of the machine. When the filter paper moves, the debris is scraped from the used filter paper and is deposited in a waste collection tray. The waste collection tray can be removed to dispose of the debris. When the disposable filter paper is used up, it is easily replaced by the operator.

The Coolimat-2000 does not have start and off buttons. It is activated or stopped by signals via the control cable from the machine to which it is connected. This means, that it will typically start and stop simultaneously with a master, and stand by when circulation is not required.

If emergency stop is activated on the master machine, the Coolimat-2000 will also stop. A category B emergency stop cuts the power to the Coolimat-2000.

Coolimat-2000 Components

- 1 Cooling unit tank, 200 l
- 1 Waste collection bin
- 1 Filter Unit: Band Filter
- 1 Water level indicator
- 1 Recirculation pump
- 1 Control unit
- 1 24 V / CAN control cable



HINT:

The mains cable comes without plug.
Band filter paper is not part of delivery (consumables)

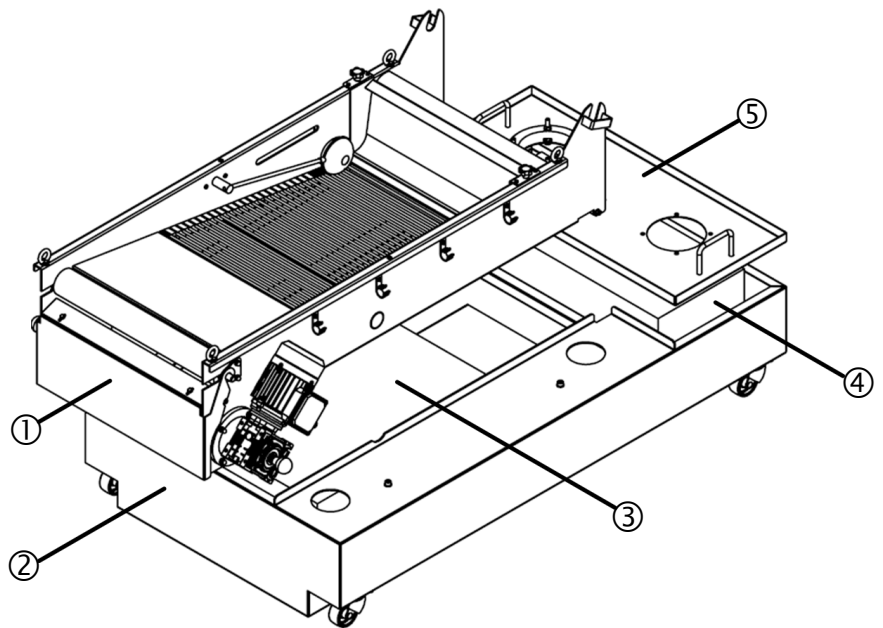
Optional Components

Additional Recirculation pump (to be mounted on the tank)

Unpacking Coolimat-2000

Loose parts and the pump are located in the waste collection box.
The Control unit is packed separately.

- Remove the transport box.
- Remove the plastic wrapping.
- Lift off the filter unit and pump cover and remove the waste collection bin and the fluid level indicator from inside the tank.

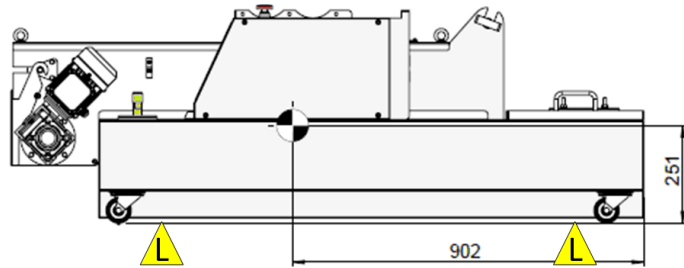


- ① Filter unit
- ② Tank
- ③ Loose parts

- ④ Pump
- ⑤ Pump cover

Placing Coolimat

- Lift the tank from the pallet and place on the floor next to the machine it will work with.
 - Position the straps under the machine, so that they are on the inner side of the rollers.
 - A lifting bar is recommended to keep the two straps apart below the lifting point.



Coolimat-2000 Band Filter – Lifting points.



CRUSHING HAZARD

Wear safety shoes when handling heavy machinery.

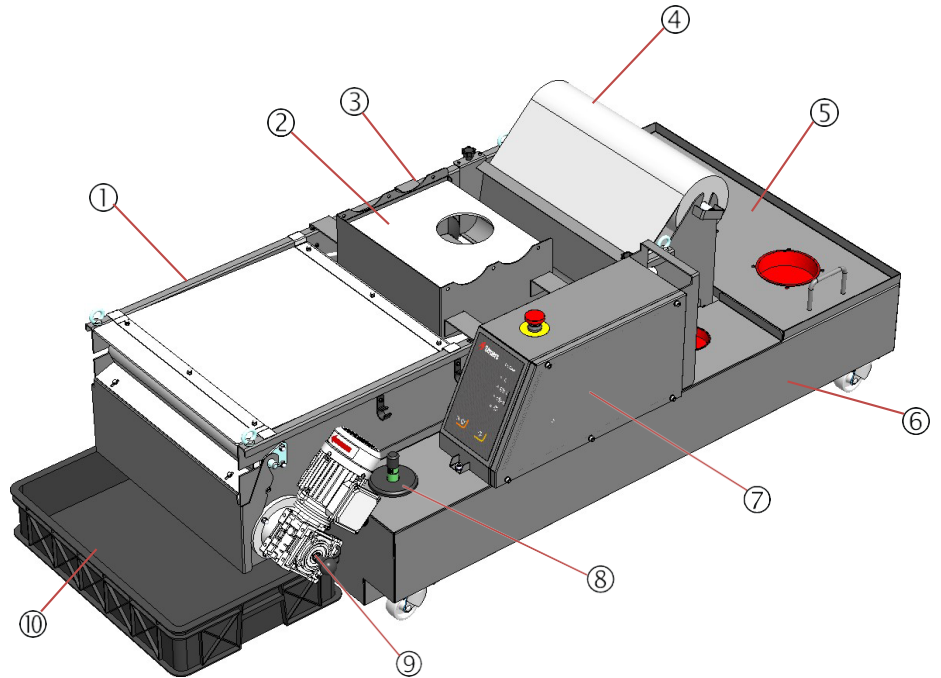
Unpacking the Control unit

- Open the box and carefully remove the control unit.

**Getting Acquainted with
Coolimat-2000**

Coolimat-2000 with Band Filter

Take a moment to familiarise yourself with the location and names of the Coolimat-2000 components.




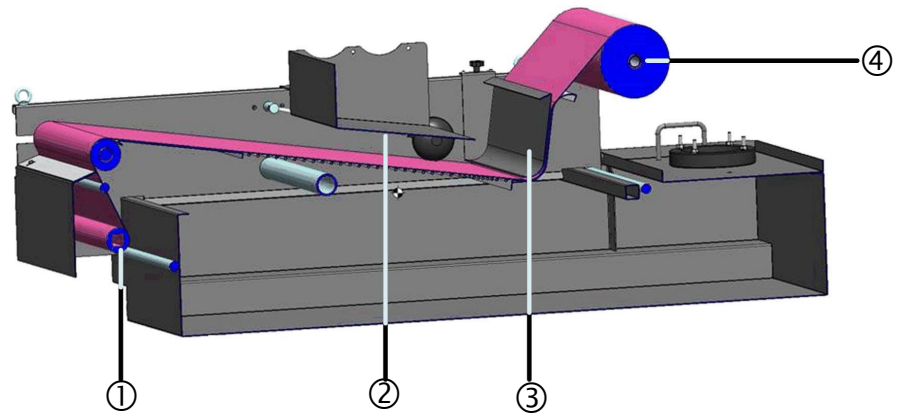
- ① Band filter unit with lid
- ② Water dispersal plate with lid
- ③ Water inlet duct
- ④ Roll of filter paper (consumable) on a paper rod
- ⑤ Pump cover
- ⑥ Cooling fluid tank (wheel mounted)
- ⑦ Control unit with Emergency Stop
- ⑧ Cooling fluid level indicator
- ⑨ Band filter motor
- ⑩ Waste collection bin

Assembling the Coolimat-2000

- Place the filter unit and the pump cover on the tank.
- Mount the control unit to the tank using the attached screws.
- Connect water level sensor and winding motor to the Control unit.

Mounting the Filter Paper Roll

- Insert the paper holder rod into the roll of filter paper.
- Mount the roll of filter paper onto the roll holder.
- Pull out approximately 2 meters of filter paper from the roll.
- Guide the paper under the guide rail, and lay flat onto the band filter.
- Tape the end of the filter paper to the collecting rod that came with the filter roll.
- Press  MANUAL PAPER WINDING on the Control box and wind 10-20 cm of filter paper onto the collecting rod.



- | | |
|-------------------------|--------------|
| ① Collecting rod | ③ Guide rail |
| ② Water dispersal plate | ④ Rod |

Water Level Indicator

- Place the water level indicator in the hole provided.



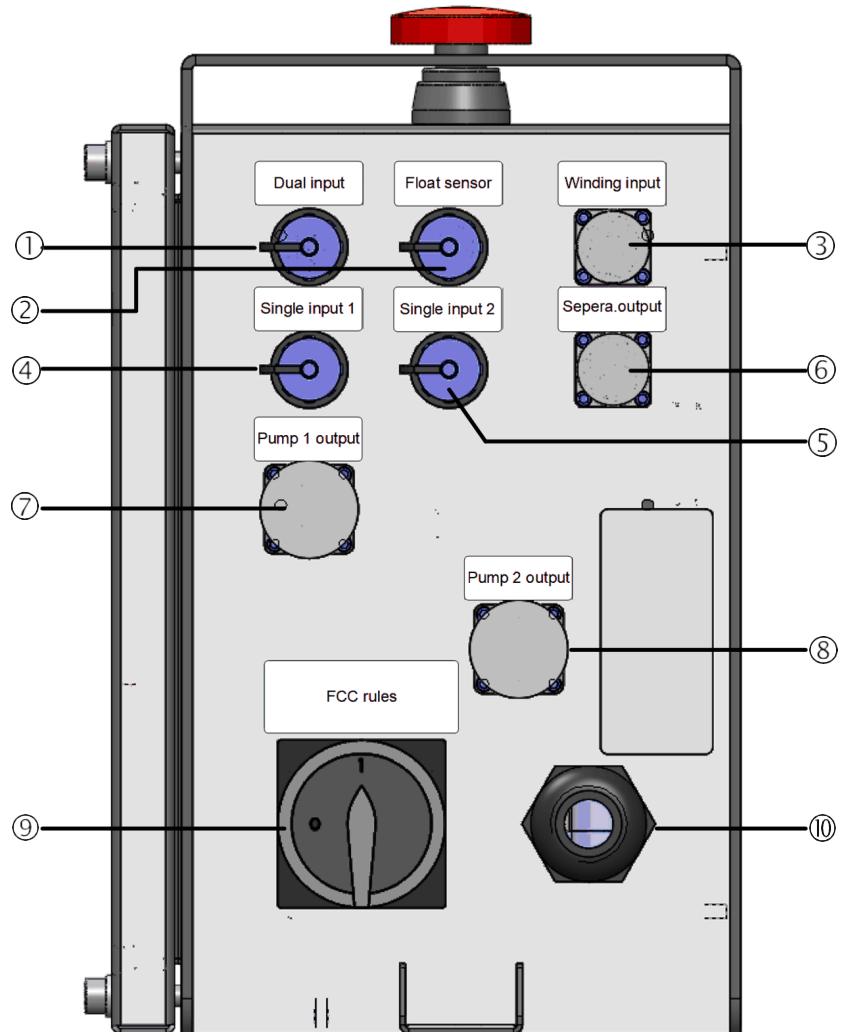
Recirculation Pump

- Mount the recirculation pump in the hole provided.

An additional Pump can be mounted in the 2nd hole. This is required in cases, where the Coolimat-2000 BF will work together with two cut-off machines.

- Remove the cover from the 2nd hole and position the adapter ring over the hole.
- Mount the 2nd recirculation pump.
- Connect the 2nd recirculation pump to the control panel.

Connecting the Control Unit
 Rear view of Control Panel



- ① Dual input signal to control both pump outputs
- ② Floater sensor input
- ③ Winding motor output
- ④ Single input 1 signal to control Pump 1 output
- ⑤ Single input 2 signal to control Pump 2 output
- ⑥ Optional accessory output (unused)
- ⑦ Pump 1 output
- ⑧ Pump 2 output
- ⑨ Electrical power supply switch
- ⑩ Electrical power supply cable

Preparing the Cooling Unit for Use

Filling the Tank

- Fill the tank with cooling fluid comprised of 192 l water and 8.0 l Cooli Additive or Cooli Additive Plus.
- Fill the tank through the pump housing hole.



NOTE:

Do not fill the tank by pouring water into the cutting chamber, as it would be difficult to check the increasing level in the tank.

NOTE:

The cooling unit will be very heavy when full.

- Before filling the tank, check that the cooling unit is in position.
- If this is not possible, ensure that the tank is directly in front of its final position with the control unit facing forwards so that it is ready to be pushed into position without being moved to the left or right.

NOTE:

To avoid corrosion, Struers recommends the use of Struers Additive, Cooli Additive or Cooli Additive Plus in the cooling water (percentage stated on the Additive container). Remember to top up with Struers Additive each time you refill with water.

Supplying Power



ELECTRICAL HAZARD

Switch the power off when installing electrical equipment. The machine must be earthed (grounded). Check that the mains voltage corresponds to the voltage stated on the type plate on the side of the machine. Incorrect voltage may result in damage to the electrical circuit.

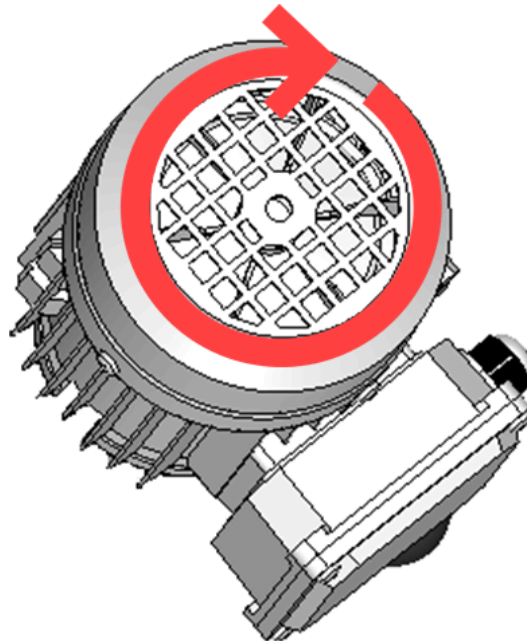
Coolimat-2000 is factory mounted with an electric cable.

- Mount an approved plug on the cable or hard-wire into the mains according to electrical specifications of your unit and local regulations:

EU cable		UL cable	
L1	Brown	L1	Black
L2	Black	L2	Red
L3	Black or grey	L3	Orange/ turquoise
Earth	Green/yellow	Earth	Green/yellow
Neutral	Blue (Not used)	Neutral	White (Not used)

Verifying Correct Installation

- Check that the fan beneath the intake cover rotates in the direction indicated by the arrow.
- If the fan rotates counter clock-wise, switch two of the phases.



Check the fan's rotation – it must be clock-wise.

Connecting Coolimat-2000 to the Cut-off Machine

The recirculation pump is controlled by the cut-off machine. Water is directed from the cut-off machine to Coolimat via the water outlet pipe supplied with the cut-off machine. On Struers' large, floor-type cut-off machines the pipe is rigid. A drain angle is supplied with which fits into the water inlet duct on the filter unit cover.

- Connect the 24 V / CAN control cable to the Coolimat-2000 control unit by plugging one end into the machine's control socket (see machine manual for details) and the other end into the socket on the rear panel of the Coolimat-2000 control unit.
- Connect one end of the Coolimat-2000 water hose to the quick coupling on the pump, and connect the other end to the water inlet of the cut-off machine.
- Mount the drain angle to the water outlet from the cut-off machine and insert above the water dispersal plate

Noise Level

See Technical Data in the rear of the Instruction Manual for information on the sound pressure level value.

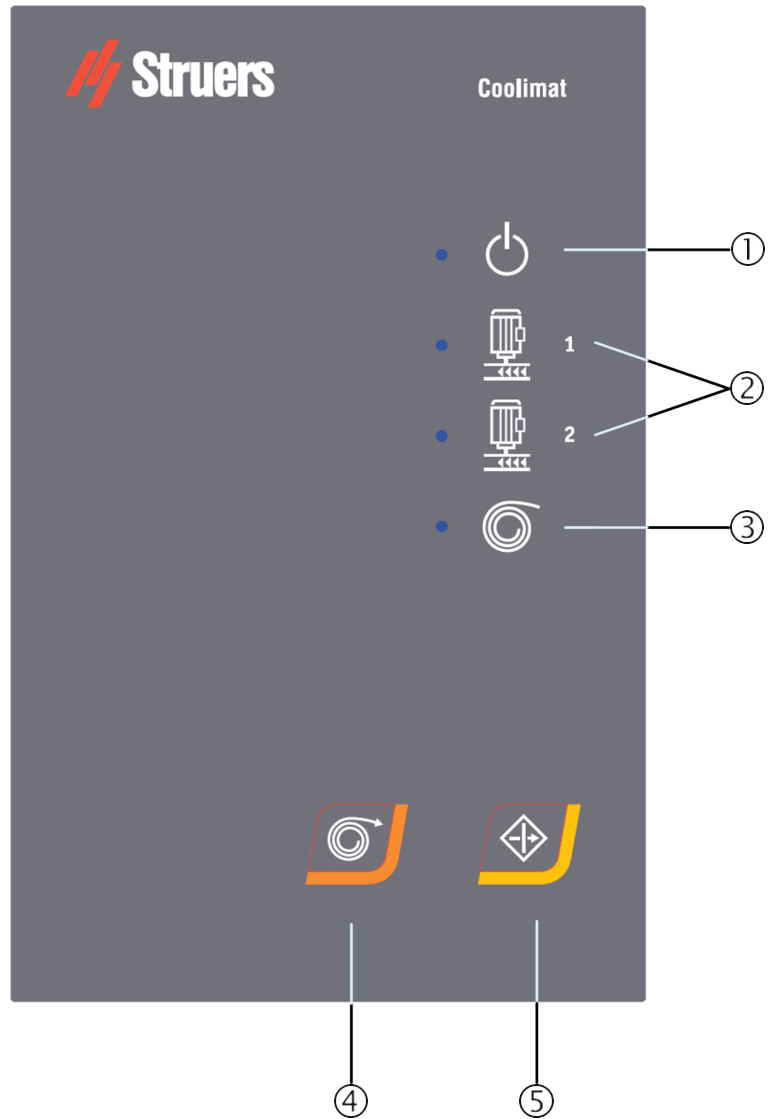


CAUTION







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

2. Operation

Control Panel



Control Panel Indicators/ Functions

Name	Indicator	Function	Name	Key	Function
① POWER		Green LED indicator: The unit is on standby. Red LED indicator: Unit error (after power up or Emergency stop).	④ MANUAL PAPER WINDING		Press MANUAL PAPER WINDING to start winding of paper (Only for band filter version)
② PUMP 1+2		Green LED indicator: Pump is energized. Red LED indicator: Pump error (e.g. the pump is not connected, overloaded or there is a unit error).	⑤ RESUME		Press RESUME to activate the unit after power up or Emergency stop.
③ PAPER WINDING		Green LED indicator: Paper winding is energized. Red LED indicator: Paper winding error (e.g. the pump is not connected, overloaded or there is a unit error). (Only for band filter version)			The Emergency Stop initiates a safety stop of all movements and sources of energy.



MAIN SWITCH

The main switch is located at the rear of the control unit.



The EMERGENCY STOP is located on the top of the machine.

Emergency Stop function:

- Push the red button to Activate.
- Turn the red button clockwise to Release.



NOTE:

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

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

NOTE:

The emergency stop work both in conjunction with the cut-off machine and independently.

Water Level Indicator

The water level indicator is a simple float device.

- Top up or refill the tank with cooling fluid when the level is too low.

The concentration of additive should always 4%. Add Cooli Additive or Cooli Additive Plus if the concentration is too low. Use a refractometer to check the concentration of additive (see [Checking the Cooling Fluid](#) on page 27 for instructions).

Starting Coolimat-2000

Coolimat-2000 starts automatically when the cut-off machine starts to cut. Coolimat-2000 will enter Standby mode when cutting is stopped.

- Turn on using the main switch.
- Check the POWER LED is GREEN, if not press RESUME.



NOTE:

Be aware of possible exothermic reactions dependent on the combination of the metallic swarf produced during cutting. See the section on [Disposal](#) on page [33](#) for more information.


Power off

To disconnect the power supply to Coolimat:

- Turn the main switch off.

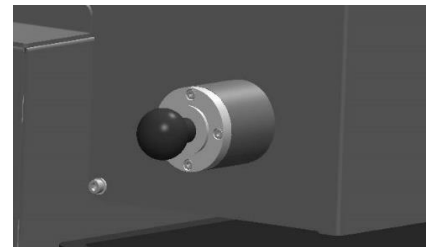
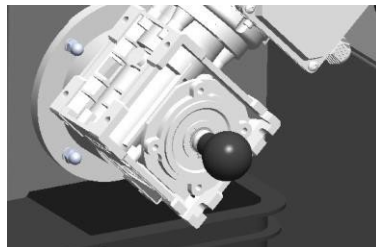


NOTE:

Before turning off Coolimat, press  MANUAL PAPER WINDING to replace the used, wet paper with new, dry paper.

Changing the Paper in the Band Filter

- Turn the Main switch off to disconnect the power and wait 10 seconds.
- Remove the waste collection bin.
- Remove any remaining paper and clean the surfaces that are in contact with the filter paper.
- On each side of the Band Filter Unit, pull out the handles to release the spool.

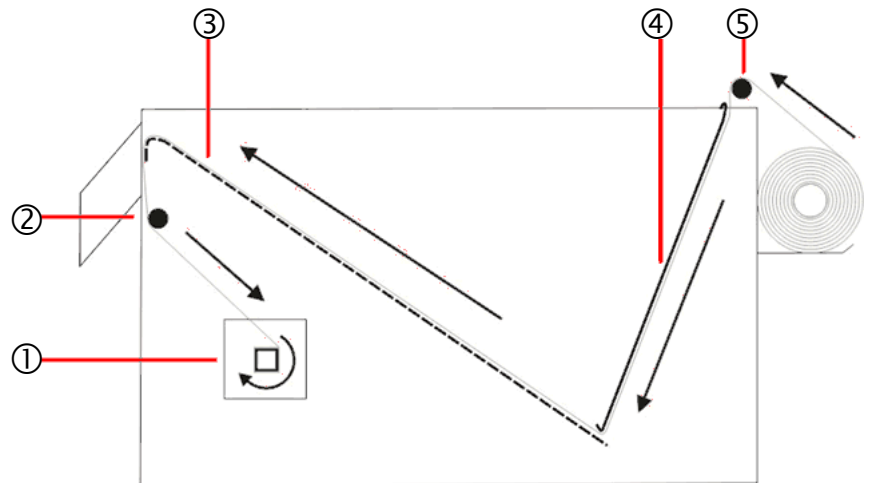


Release the safety bars on right- and left-hand side.

- Remove the spool of used paper together with the collector rod and discard.
- Fit a new collector rod.

Inserting Filter Paper

- Mount a roll of filter paper onto the paper roll holder.
- Remove the metal plate (for holding the filter paper in place).
- Guide the filter paper over the guide roller, around the guide bar and secure onto the collector rod (see illustration).
- Slide the metal plate into position.



- | | |
|---------------------------|----------------|
| ① Collector rod | ④ Metal plate |
| ② Guide bar | ⑤ Guide roller |
| ③ Perforated bottom plate | |

- Check the operation of the level float mechanism by raising and lowering the float.
- Check that the level float is positioned correctly so that the filter paper is replaced before the level of cooling fluid reaches the edge of the perforated bottom plate.
If necessary, adjust the angle of the level float by loosening the adjustment screw located on the end of the arm of the level float. Re-tighten the screw when adjustment is completed.
- Place the Band Filter Unit into position in the Cooling Unit compartment.
- Turn the main switch on.
- Press the RESUME button to activate the Coolimat-2000.






NOTE:

Empty the waste collection bin periodically to prevent blockages.

Adjustment of the Water Float Sensor

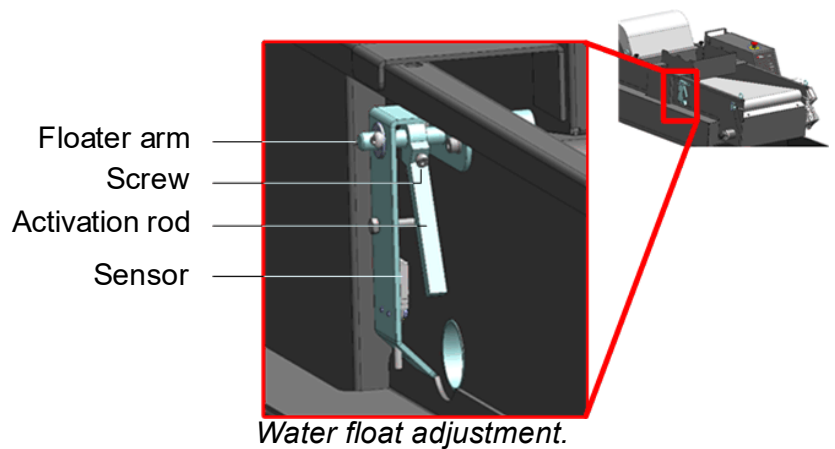
The Floater is adjusted before the band filter is shipped. It is possible to adjust the position of the floater to achieve higher water filtration or lower paper consumption.

- Ensure that there are no cutting operations from the connected machine.
- Wait until there is no water above the paper.
- Release the waste paper roll from the winding mechanism (or make an adjustment before new paper is inserted)
- Lift the floater from the bottom, until the Paper winding  LED on the Control panel turns green – this is the set water level for this machine.
- Adjust the position of the activation rod (in millimetres):
 - Release the tightening screw.
 - Raise the floater for less paper consumption.
 - Lower the floater for better filtration.
 - Move the activation rod until the sensor is activated and the  LED is green.
 - Tighten the screw.
- Reposition the waste paper roll in the winding mechanism.
- Press  MANUAL PAPER WINDING to check the function.



NOTE:

DO NOT leave equipment without checking that the new setting works correctly and that automatic paper winding is activated as required.



3. Maintenance

Proper maintenance is required to achieve the maximum uptime and operating lifetime of the machine. Maintenance is also important in ensuring your machine's continued safe operation.

The maintenance procedures described in this section must be carried out by skilled or instructed persons.

To ensure a longer lifetime for your equipment, Struers strongly recommends regular cleaning.



WARNING

Disconnect the power before performing any maintenance work.



CAUTION

Wear gloves and goggles when handling cooling fluid.

The collection bin is heavy when full and should not be handled without assistance.

Use of safety shoes is recommended when handling the pump.

Take care; the cooling water may be hot!



NOTE:

Accumulated dirt and swarf can restrict or cause damage to the water inlet valves.

Daily

Checking the Cooling Fluid

During use, cooling fluid will evaporate and the level in the tank will be reduced over time. This requires the operator to refill or “top up” periodically.

For the cooling fluid to maintain the same function, always maintain a constant mix of additive and water.

- Check and if necessary replace the cooling fluid.
(See [Replacing the Cooling Fluid](#) on page 28 for instructions.)
- Top up with cooling fluid if required; the cooling fluid level should be approx. 25 mm below the upper edge of the tank (follow the marking on the floater).

**NOTE:**

- Replace the cooling water immediately if infected by algae or bacteria.
- Flush the tank and tubes with a suitable antibacterial disinfectant, e.g. Struers Unitclean.

Remember to add Struers Additive Cooli Additive or Cooli Additive Plus: One part of Additive for 25 parts of water.

To check the concentration of additive, use a refractometer.

Concentration = 1.9 x Brix value.

The concentration of additive should always be 4%. Add Cooli Additive or Cooli Additive Plus if the concentration is too low. Information on the cooling fluid additive must be followed.

**HINT:**

Struers Additive Cooli Additive or Cooli Additive Plus is recommended to minimize foam generation in the cooling fluid.

- Check and if necessary empty the waste collection bin.
 - Empty and clean the waste collection bin.
- Check and if necessary replace the roll of filter paper.

**NOTE:**

Always ensure that there is sufficient filter paper on the roll. The band filter unit will continue to operate even if the filter paper runs out.

Replacing the Cooling Fluid Emptying the Cooling Unit Tank



NOTE:

The cooling fluid will contain additive and cutting swarf and may **NOT** be disposed of into a main drain. Cooling fluid must be disposed of in compliance with local safety regulations. See [Disposal](#) on page [33](#).

NOTE:

Do not leave equipment unsupervised when emptying the Cooling Unit Tank.

Using the Recirculation Pump

- Empty the cooling unit tank using the recirculation pump:
 - Disconnect the cooling unit's water outlet hose from the quick coupling on the cut-off machine.
 - Place the open end of the hose in a suitable container.
 - Start the recirculation pump by activating the flushing gun on the cut-off machine.
 - Turn off Coolimat-2000 on the main switch when the tank is empty.

OR

Using a Dredge Pump

- Empty the cooling unit tank using an industrial dredge pump.
 - Place the open end of the hose in a suitable container.
 - Empty the cooling unit completely, and clean out all water and debris from the tank.
 - Clean the tank and connected tubes thoroughly.
- Empty any debris that may be left in the tank before refilling it.



CAUTION

Avoid spilling cooling fluid when filling, emptying or topping the tank.

Wear working shoes with slip-resistant soles.

Refilling the Cooling Unit Tank

Please refer to [Filling the Tank](#) on page [18](#).



NOTE:

Always maintain the correct concentration of Struers Additive, Cooli Additive or Cooli Additive Plus, in the cooling water (percentage stated on the container of the Additive). Remember to add Struers Additive each time you refill with water.

Weekly

- Clean all the surfaces in contact with the filter paper.

Monthly

- Clean all surfaces with a damp cloth.

Yearly Maintenance
Testing Safety Devices

Only skilled/trained personnel may carry out the safety test.

Test 1

- Start a cutting process.
Both cut-off machine and Coolimat start.
- Activate the Emergency stop on the cut-off machine.
The filter pump(s), band filter motor and optional auxiliary equipment should stop. The cut-off machine should stop.
If not, turn off the Coolimat-2000 on the main switch and contact Struers Service.

Test 2

- Start a cutting process.
Both cut-off machine and Coolimat start.
- Activate the emergency stop on the Coolimat.
- The filter pump(s), band filter motor and optional auxiliary equipment should stop.
If not, turn off the machine on the main switch and contact Struers Service.



WARNING

Do NOT use the machine with defective Safety Devices.
Contact Struers Service.

4. Cautionary Statements

List of Safety Messages in the Manual



CRUSHING HAZARD

Wear safety shoes when handling heavy machinery.



ELECTRICAL HAZARD

Switch the power off when installing electrical equipment.
The machine must be earthed (grounded).
Check that the mains voltage corresponds to the voltage stated on the type plate on the side of the machine.
Incorrect voltage may result in damage to the electrical circuit.



CAUTION

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



WARNING

Disconnect the power before performing any maintenance work.



CAUTION

Wear gloves and goggles when handling cooling fluid.
The collection bin is heavy when full and should not be handled without assistance.
Use of safety shoes is recommended when handling the pump.
Take care; the cooling water may be hot!



CAUTION

Avoid spilling cooling fluid when filling, emptying or topping the tank.
Wear working shoes with slip-resistant soles.



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

Safety critical components are to be replaced after a maximum
lifetime of 20 years.
Contact Struers Service for information.

5. Transportation and Storage

Transporting Coolimat-2000

- Disconnect the power supply.
- Clean and dry the filter unit and tank.
- Lift Coolimat-2000 onto a pallet and move to its new location.

At the new location, check that:

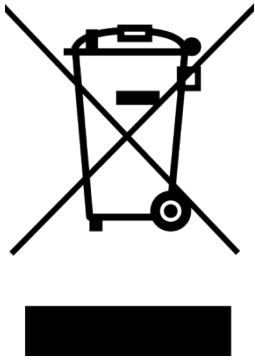
- The facilities required are in place.
- Check the Pre-Installation Checklist.

Shipping or Storing Coolimat-2000


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

- Remove the Control unit, pump(s) and the water level indicator and place in a box.
- Place the box in the tank.
- Build a crate around the machine.
- To keep the machine dry, plastic-wrap the machine and place a bag of desiccant (silica gel) in the crate.
- Place a lid on the crate.

6. Disposal



Disposal of Swarf

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

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



NOTE:

Be aware of possible exothermic reactions of the metallic swarf produced during cutting.

This must be taken into consideration during disposal.

Depending on which metals are being cut, it is possible that the combination of the metallic swarf from metals with a large difference in electro positivity (a large distance apart in the electrochemical series), could result in exothermic reactions when 'favourable' conditions are present.

Therefore it is always good practice to bear in mind which metals are being cut and the amount of swarf (cutting debris) produced.

Examples:

The following are examples of combinations which could result in exothermic reactions if a large amount of debris is produced during cutting/ grinding on the same machine, and when favourable conditions are present:

Aluminum and Copper

Zinc and Copper



WARNING

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

Reference Guide

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1. System Components and Accessories

Please refer to the [Coolimat-2000 brochure](#) for details of the range available.

*The use of Struers consumables is recommended.
Other products (e.g. coolants) 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 non-Struers consumables.*

2. Troubleshooting

Problem Solving

The following table describes the problems that users may potentially experience when using the cooling units and contains advice on how to solve them.

Error	Explanation	Action
Water leaking.	Leak in recirculation water hose.	Check the hose and tighten the hose clamp.
	The drain from the cut-off machine is blocked with debris.	Check and clean the drain and tubes.
	Water overflow in the recirculation water tank.	Remove the excess water in the tank.
Cooling unit stops and cannot be restarted.	Blown fuse(s)	Contact Struers Service
Samples, cooling unit or equipment corroded.	Insufficient additive for cooling fluid.	Add Struers Additive for cooling fluid to the cooling water, using the correct concentration. Check with a refractometer. Follow the instructions in the Maintenance section.
The pump has stopped.	Emergency stop on the cut-off machine has been activated. This will stop the pump.	Release the Emergency stop. NOTE:- Pressing the Emergency stop on Coolimat-2000 will not stop the cut-off machine.
Filter paper does not move and/or the water level rises.	When the filter paper is saturated with swarf, the water level rises, and a float activates the winding motor, which automatically feeds fresh filter paper.	Check that the float is functioning correctly. Adjust the water sensor, if needed. Check that the filter paper is not torn close to the winding mechanism.
No or low flow of cooling fluid in the cut-off machine.	The direction of the pump is incorrect.	Switch two of the phases. See Verifying Correct Installation on page 19 .
	The water inlet to the cut-off machine is blocked.	Check the water inlet hose for blockages. For cut-off machines with an In-line filter, see the Instruction Manual for the machine.

3. Spare Parts and Diagrams

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

Spare Part	Cat. no.
Emergency stop button	2SA10400 2SA41603 2SB10071
Relay G7SA	2KL20751 2KL20714
Contactora J7KNA-12-10	2KM70911



WARNING

Safety critical components are to be replaced after a maximum lifetime of 20 years.
Contact Struers Service for information.



NOTE:

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

Contact Struers Service for information.



Information:

SRP/CS (Safety-related parts of a Control System). Parts that have an influence on safe operation of the machine.

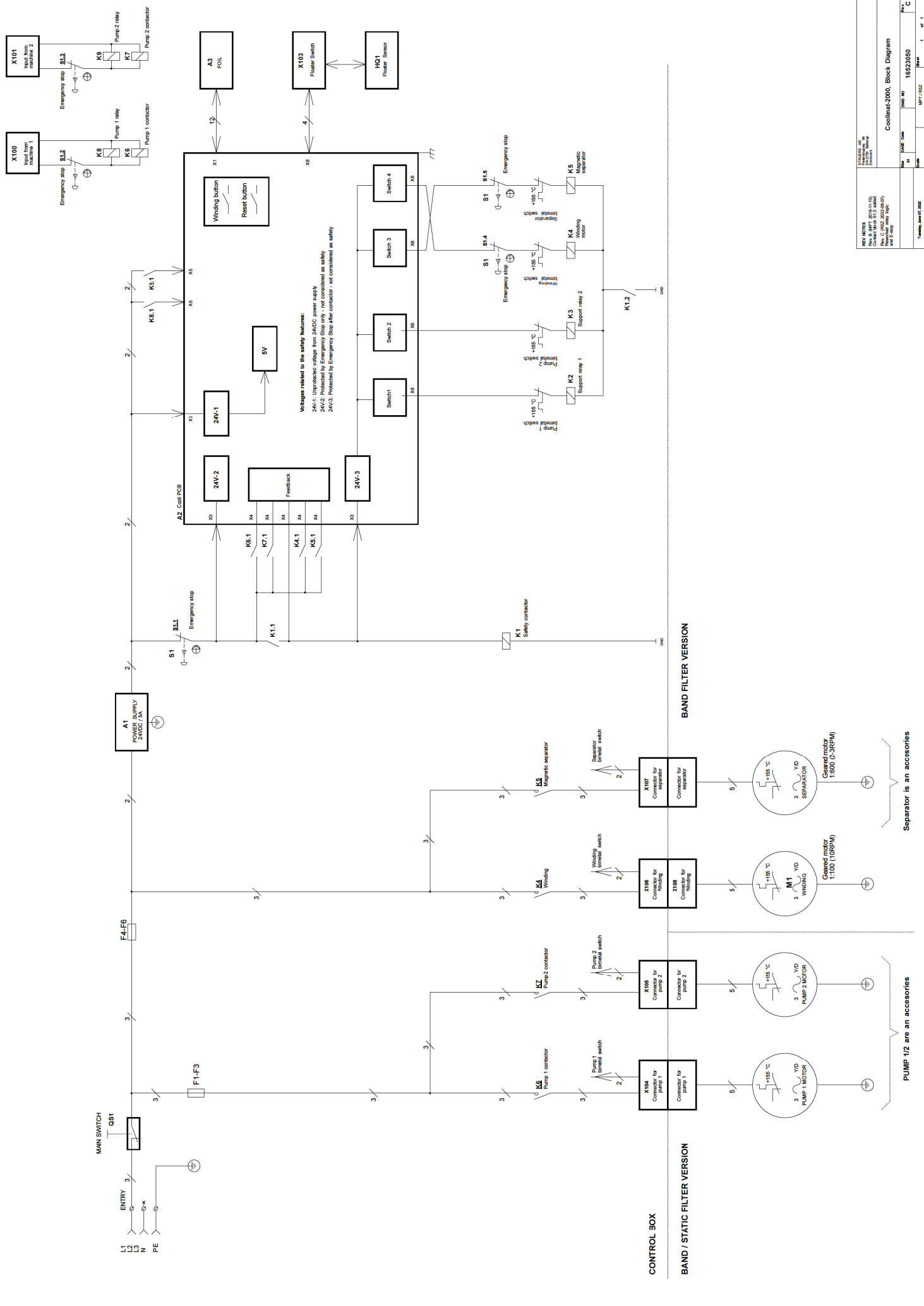
Spare Parts List

The following is a list of selected wear parts that may need replacement during the lifetime of the machine.
For further information, or to check the availability of other replacement parts, please contact your local Struers Service department. Contact information is available on Struers.com.

Spare Part	Cat. no.
Wheel Swivel Ø65mm, 2 pcs.	RGB00120
Float assembly	R6160022

Diagrams

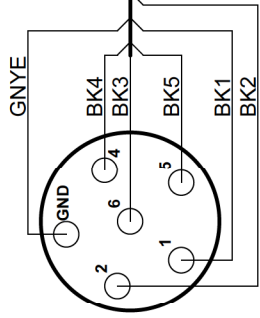
Title	No.
Block diagram Coolimat-2000	16523050
Circuit/Wiring diagram, Coolimat-2000 pump	16523103



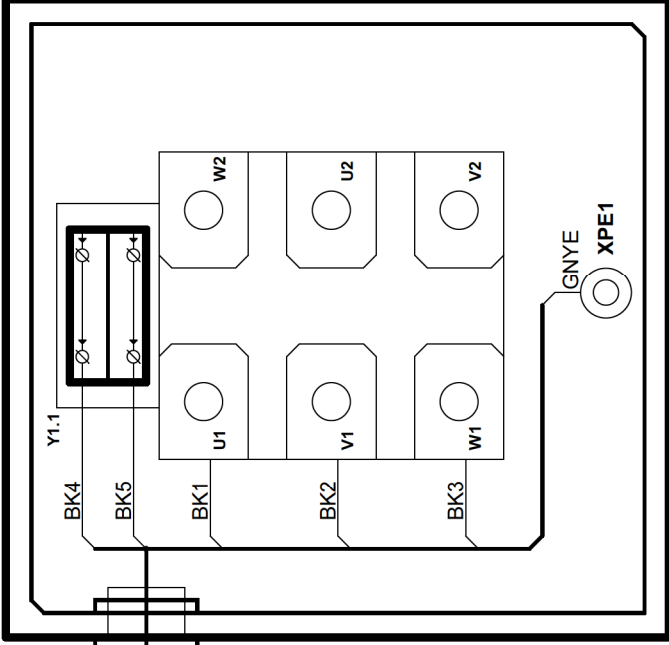
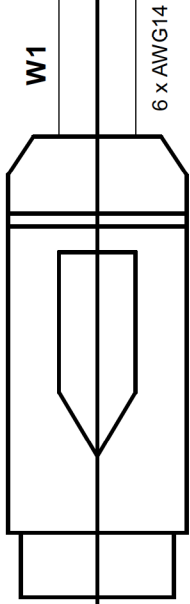
REV. 1	DATE	BY	APP. NO.	REV. NO.	REV. DATE
1	15/02	AT	16523050	1	15/02

Coolimat-2000, Block Diagram

Wiring diagram



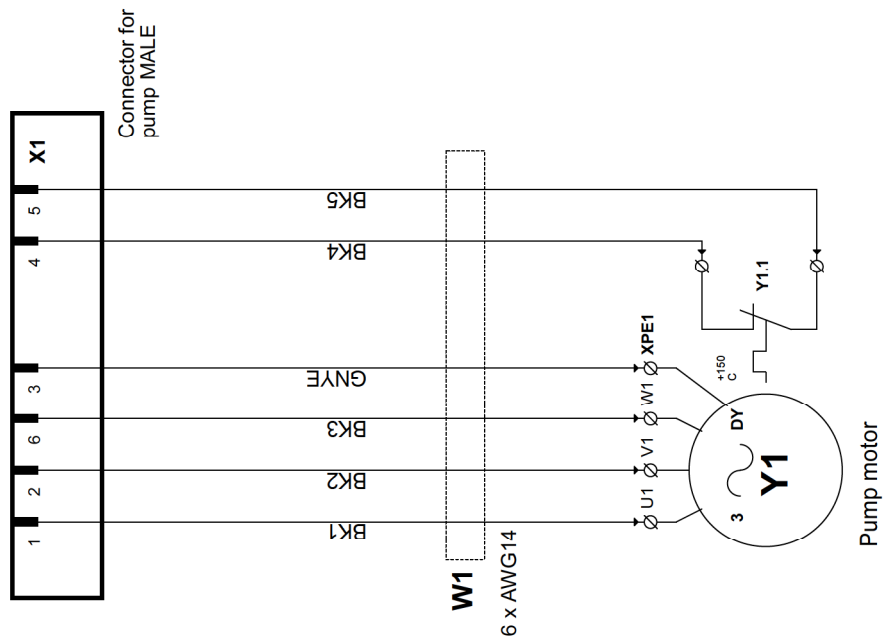
X1 CONNECTOR



Placed on pump Y1
Torque 0,4-0,5Nm

COLOR CODES (IEC757):
BK = BLACK
GNYE = YELLOW-GREEN

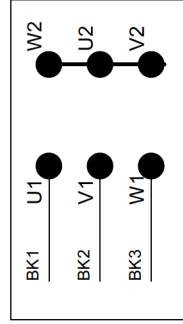
Circuit diagram



MOTOR COUPLING

SINGLE SPEED MOTOR

STAR CONNECTION Y



DELTA CONNECTION Δ

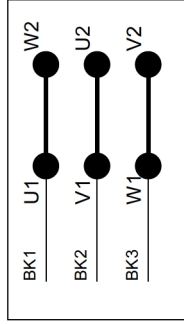


TABLE 1

VOLTAGE / FREQ. (from nameplate)	Y1 connection
3 x 200V / 50Hz	DELTA
3 x 380-415V / 50Hz	STAR
3 x 200-210 V / 60Hz	DELTA
3 x 220-240 V / 60Hz	DELTA
3 x 460-480V / 60Hz	STAR

REV NOTES
Rev. B (MPT 2019-05-14):
3x200V/50Hz and 3x200-210V/60Hz
voltage variants added to TABLE 1

STRUERS A/S
Pedesturvej 84
Ballerup
Denmark

Coolimat - 2000, Circuit/Wiring diagram, Pump

Size A3	CAGE Code	DWG NO	16523103	Rev	B
Scale	RSZ / MPT	Sheet	1	of	1

4. Legal and Regulatory

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.

Pursuant to Part 15.21 of the FCC Rules, any changes or modifications to this product not expressly approved by Struers ApS could cause harmful radio interference and void the user's authority to operate the equipment.

EN ISO 13849-1:2015

All SRP/CS are limited to a lifetime of 20 years. After expiration of this period, all components must be replaced.

5. Technical Data

Subject		Specification				
		Metric/International			US	
200 l Tank	Height	275 mm			10.8"	
	Width	800 mm			31.5"	
	Depth	1,400 mm			55.1"	
	Volume	200 l			52.8 gallons	
Band Filter	Height: with filter paper roll without filter paper roll	620 mm 545 mm			24.4" 21.5"	
	Width	800 mm			31.5"	
	Depth:- (without /with waste bin)	1,625 / 1,825 mm			64" / 71.9"	
	Weight	52 kg			114 lbs	
Pump	Flow	65 l/min at 1 bar			17 gal/min at 1 bar	
	Power	0.75 kW				
	Water outlet	GEKO ¾"				
Electrical specifications		3x200V, 50Hz	3x200- 210V, 60Hz	3x220- 240V 60 Hz	3x380- 415V 50 Hz	3x460- 480V 60 Hz
	Power (Nominal load)	2,300 W	2,300 W	2,300 W	2,300 W	2,300 W
	Power (idle)	10 W	10 W	10 W	10 W	10 W
	Current (nominal)	10,28 A	10,6 A	9.2 A	5,21 A	4.71 A
	Current max	20,56 A	21,2 A	18.4 A	10.42 A	9.42 A
Safety Standards	Designed to comply with a minimum of:	Emergency stop: PL c, Category 1 Stop category 0 Emergency stop from main machine: PL c, Category 1 Stop category 0				
Operating Environment	Noise Level ¹	LpA=69.2 dB(A), K=4 dB(A) measured. (In combination with Magnutom-5000 cutting an Aluminium alloy rod Ø110 mm).				
	Surrounding temperature	5 – 40°C / 41 – 104°F				
	Humidity, non-condensing	10 – 85% RH				
Storage Conditions	Surrounding temperature	0 – 60°C / 32 – 140°F				
	Humidity, non-condensing	10 – 85% RH				

Appendix:

Coolimat-2000, Pre-Installation Checklist

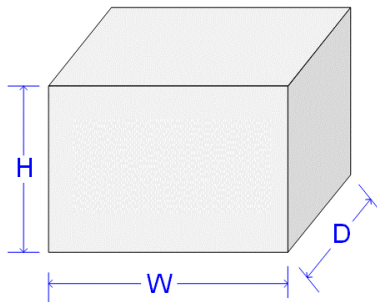
Read the Installation instructions in the Instruction Manual *before* installing the machine.

Installation Requirements

- Crane and straps* or
 - 2 persons
- Required Accessories and Consumables* (ordered separately)
 (Please refer to the [Coolimat Brochure](#) for details of the range available).
- Recirculation pump
 - Additive for recirculation cooling unit

*) Crane and straps must be approved to at least twice the weight of the load.

Crating Specifications



Band Filter	
H	80 cm / 31.5"
W	120 cm / 47.3"
D	200 cm / 78.8"
Weight	130 kg / 287 lbs

Static Filter	
H	83 cm / 32.7"
W	120cm / 47.3"
D	200cm / 78.8"
Weight	110 kg / 243 lbs

Location

The machine must be placed close to the power supply.
 Place on a stable and level floor.



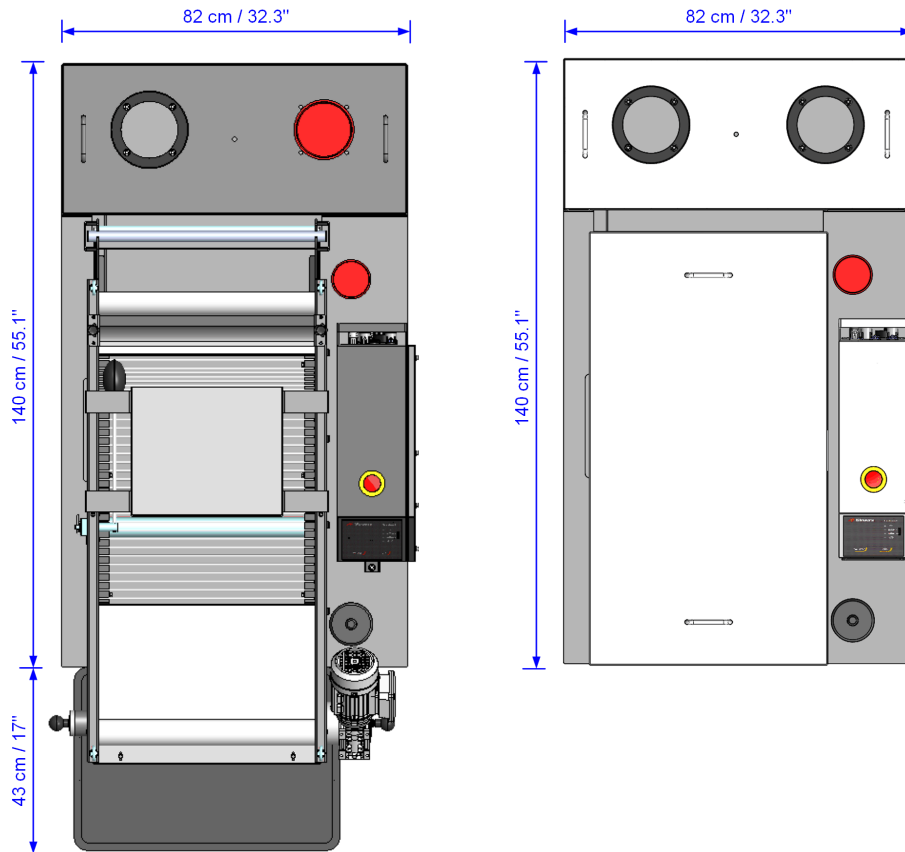
NOTE:

The cooling unit will be very heavy when full.

- Before filling the tank, check that the cooling unit is in position. Or,
- Ensure that the tank is directly in front of its final position so that it is ready to be pushed into position without being moved to the left or right.

Dimensions

Footprint



Coolimat-2000 Band Filter w. waste basket. Coolimat-2000 Static Filter.

Height

Band Filter	- with filter paper roll	64 cm / 25.2"
	- without filter paper roll	56 cm / 22.0"
Static Filter	- with cover	72 cm / 28.3"

Recommended Space

Front: Recommended space at the front: 100 cm / 40".

Rear: The machine may be placed against a wall.

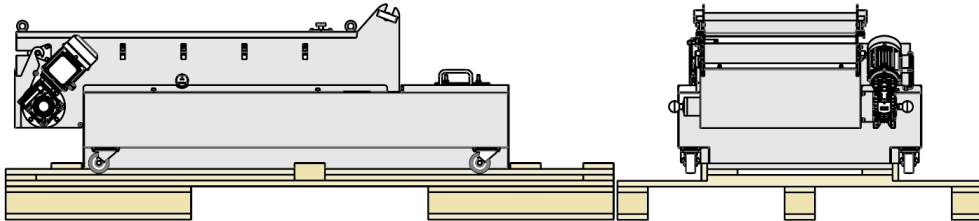
Side:

- Check there is at least 2 cm / 7" between Coolimat-2000 and the cut-off machine to ensure that no hoses or tubes are constricted.

Unpacking

Coolimat-2000 is delivered on a pallet and fastened with cable ties.

- Remove the box.
- Remove the plastic wrapping.
- Save the packing crate and pallet for future use.



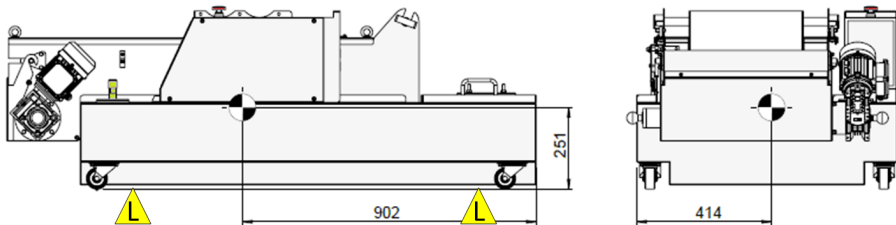
Lifting

Weight

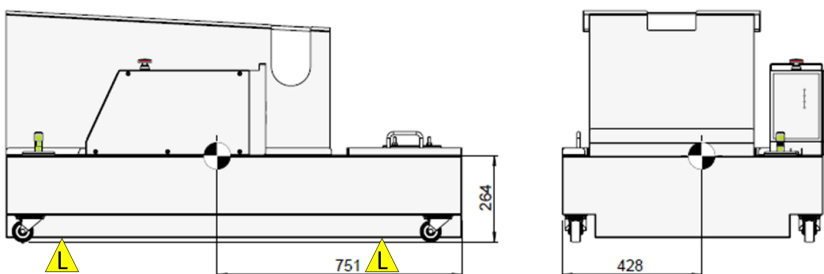
Coolimat-2000 with Band Filter: **87 Kg/ 192 lbs**

Coolimat-2000 with Static Filter: **56 Kg/ 123 lbs**

Lifting Points and Centre of Gravity



Coolimat-2000 Band Filter – lifting points (L).



Coolimat-2000 Static Filter – lifting points (L).

With a crane

- Place the two lifting straps* under the machine.
 - Position the straps under the machine, so that they are on the inner side of the rollers.
 - A lifting bar is recommended to keep the two straps apart below the lifting point.

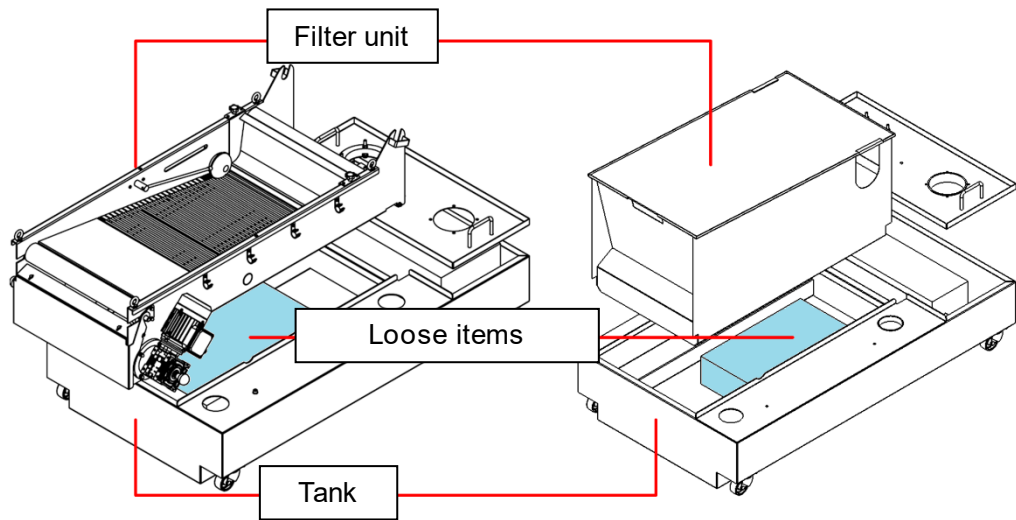


CRUSHING HAZARD

Wear safety shoes when handling heavy machinery.

2 persons

- Lift off the filter unit and remove the loose items from inside the tank



Power Supply

The machine is shipped with a 1.8 m power cable.

Electrical Data

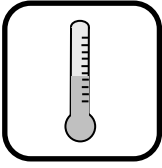
Voltage/frequency	Max. Load	
	Band filter	Static filter
3x200V, 50Hz	20,56A	17,36A
3x200-210V, 60Hz	21,2A	17,6A
3x220-240V, 60Hz	18,4A	15,6A
3x380-415V, 50Hz	10,42A	8,58A
3x460-480V, 60Hz	9,42A	7,74A

Safety Specifications

Stop Mechanisms

	Designed to comply with a minimum of
Emergency stop	PL c, Category 1 Stop category 0
Emergency stop from main machine	PL c, Category 1 Stop category 0

Ambient Conditions



5 – 40 °C / 40 – 105 °F (operation)
0 – 60 °C / 32 – 140 °F (storage)



10 – 85 RH % (operation)
10 – 85 RH % (storage)

Water Supply

Required

Option

Coolimat-2000's recirculation tank is filled with water from a main supply (no hose is supplied).
Water Inlet Duct: 115mm / 4.5" dia.

Water outlet - Drain

Required

Option

Emptying of the recirculation tank is carried out using the recirculation pump or by using an external dredge pump (not supplied).

Cooling fluid must be disposed of in compliance with local safety regulations.



NOTE:

The cooling fluid will contain additive and cutting swarf and **may NOT** be disposed of into a main drain.

Compressed Air

Required

Option

Not required.

Exhaust

Required

Option

It is recommended to establish a suction point to ventilation above any Cooling System to extract heat and potentially harmful components from the cooling fluid.

For more information, please refer to the material safety data sheet of the cooling fluid.

Accessories & Consumables

Please refer to the [Coolimat Brochure](#) for details of the range available.

Accessories *Required*

Large pump. Capacity of 65 l/min at 1 bar (17 gallons/min).

Additional Recirculation Pump

A second Pump can be mounted to supply cooling fluid to 2 machines. When purchased from Struers, the pump is equipped with a cable, that can be plugged directly into the rear of the control box

Consumables *Required*

Additive for recirculation cooling unit, to prevent corrosion and improve cutting results.

Struers cooling fluid Cooli Additive and Cooli Additive Plus is recommended.

Filter paper is required. It is recommended to use a roll of filter paper rolls with a tensile strength of 20N and a length of 100 meters. Struers art. no. 06526901

Recommended

For easy cleaning, use a plastic inlay (liner) to collect surplus waste material.

The use of Struers consumables is recommended.

Other products (e.g. coolants) 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 non-Struers consumables.

Declaration of Incorporation of Partly Completed Machinery

Manufacturer	Struers ApS • Pederstrupvej 84 • DK-2750 Ballerup • Denmark
Name	Coolimat-2000
Model	N/A
Function	Recirculation cooling unit
Type	652
Cat. no.	Band filter 06526129, 06526130, 06526136 06526146, 06526154 Static filter 06526229, 06526230, 06526236, 06526246, 06526254

The above listed machinery is only intended to be used with:
And shall not be put into service until the final machinery into which it is to be incorporated has been declared in conformity with this regulation, where appropriate.

Struers machinery and consumables

Serial no.



Module H, according to global approach



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

2006/42/EC	EN ISO 12100:2010, EN ISO 13849-1:2015, EN ISO 13849-2:2012, EN ISO 13850:2015, EN 60204-1:2018, EN 60204-1-2018/Corr.:2020
2011/65/EU	EN 63000:2018
2014/30/EU	EN 61000-3-2:2014, EN 61000-3-3:2013, 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
Additional standards	NFPA 79, FCC 47 CFR Part 15 Subpart B

Authorized to compile technical file/
Authorized signatory

Date: [Release date]



Pederstrupvej 84
DK-2750 Ballerup
Denmark