Struers
Ensuring Certainty

Cooli System

Instruction Manual

Original Instructions

CE

Doc. no.: 15767025-02_A_en-us
Date of release: 2022.12.01

Table of Contents

1 About this manual

Instruction Manuals

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 wish to view specific information in detail, see the online version of this manual.

2 Safety

2.1 Intended use

The cooling system is intended for filtration, cooling and recirculation of cutting fluid containing waste from machining of materials. The system is designed for use with Struers grinding, mounting and cutting machines.

The machine is for use in a professional working environment (e.g. a materialographic laboratory). The machine must be operated only by skilled/trained personnel.

The device is designed to be used with Struers consumables specially designed for this purpose and this type of device.

A signal from the machine it supports is required for the cooling system to function as intended.

Do not use the machine for the following	Filtration of any type of explosive and/or flammable material, or materials which are not stable during machining, heating or pressure. Furthermore, the machine must not be used with consumables (cutting fluids, filter materials) that are not compliant with function and materials of the cooling system*. Pumping of any type of explosive and/or flammable material, or materials which are not stable during machining, heating or pressure. Furthermore, the machine must not be used with consumables (cutting fluids) that are not compliant with function and materials of the Cooling System.
Model	Cooli System

2.2 Device description

The cooling system is a filtration and recirculation machine for cutting fluid with cutting debris (typically swarf). It filters and cools down the cutting fluid from a grinding and/or cutting machine.

Cutting fluid is led into the filter, which is placed on a perforated metal plate. The filtered cutting fluid is collected in a tank underneath the filter unit and is then recirculated to the cutting machine with a pump which is inserted in the tank.

The cutting fluid with waste is led into a specifically designed filter (XL filter or filter tube) which is attached to the water inlet. Cutting debris (typically swarf) is collected in the filter.

The XL filter can be re-used. The filter tube is designed for single-use.

Operation is manual, and the operator must monitor the filter and cutting fluid condition. When the disposable filter is filled, the operator empties or replaces the filter.

The cutting liquid must be filled/topped up, correctly mixed and replaced according to specifications.

The cooling system is controlled via a control cable, which activates and stops the machine it is connected to. This means that it starts and stops simultaneously with the machine, and is on stand-by when circulation is not required.

If the Emergency stop is activated on the main machine, the Cooling System also stops.

2.3 Cooli System safety precautions

2.3.1  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.
4. Only use original Struers consumables as this ensures maximum safety and prolongs the machine's lifetime.
5. When working with cooling fluid always observe the safety regulations for handling, mixing, filling, emptying and disposing of the cooling fluid additive. Never use flammable cooling fluid. Note that the cooling fluid can be hot and must therefore be handled with care.
6. Always wear protective gloves and safety goggles when you clean and fill up the tank.
7. The recirculation pump must be disconnected from the electrical power supply before it can be removed from the cooling unit.
8. 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.
9. Always use the handle to close the cover.
10. Do not insert your hands through the openings into the water inlet ducts on the cover.
11. Cooling fluid can be slippery - therefore always keep the area around the tank clean.

12. If you observe malfunctions or hear unusual noises, switch off the machine and call technical service.
13. In case of fire, alert bystanders and the fire brigade. Disconnect the electrical power supply. Use a powder fire extinguisher. Do not use water.
14. Always switch off the electrical power supply and remove the plug or power cable before dismantling the machine or installing additional components.
15. The machine must be disconnected from the electrical power supply before any service.
16. Struers equipment must only be used in connection with and as described in the Instruction Manual supplied with the equipment.
17. 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.
18. Dismantling of any part of the equipment, during service or repair, should always be performed by a qualified technician (electromechanical, electronic, mechanical, pneumatic, etc.).

2.4 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.

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

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.

2.5 Safety messages in this manual

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

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

WARNING
Switch off the machine, disconnect the electrical power cable before you dismantle the machine or install additional components.

ELECTRICAL HAZARD
Switch off the electrical power supply before installing electrical equipment.
The machine must be earthed (grounded).
Make sure that the actual electrical power supply voltage corresponds to the voltage stated on the type plate of the machine.
Incorrect voltage can damage the electrical circuit.

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

WARNING
Safety critical components must be replaced after a maximum lifetime of 20 years.
Contact Struers Service.

CAUTION
If the filter tube is twisted or has folds, stop the machine and reposition the filter tube.
Never use the filter tube when you perform dry-cutting.
Never reuse a filter tube.

CAUTION
The cooling unit will be very heavy when it is full.
Place the cooling unit in its final position, or make sure that you can easily push it into position before filling the tank.

CAUTION
Always wear protective gloves and safety goggles when you clean and fill up the tank.

CAUTION
Avoid skin contact with the cooling fluid additive.

3 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 keep all original packaging and fittings for future use.

3.1 Transport

- Clean and dry the filter unit and tank.
- Disconnect the unit from the electrical power supply.
- Disconnect the water inlet and the water outlet.

Transporting the unit to a new location

- Lift the cooling system onto a pallet and move to its new location.
- At the new location, make sure that the facilities required are in place.

3.2 Long-term storage or shipping

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

- Disconnect the control unit from the electrical power supply.
- Disconnect the water inlet and the water outlet.
- Clean the machine and all accessories thoroughly.
- Remove the control unit, the pump and the water level gauge. Place the items in a box.

- Place the box in the tank.
- Build a case around the machine.
- To keep the machine dry, plastic-wrap the machine and place a bag of desiccant (silica gel) in the case.
- Place a lid on the case.

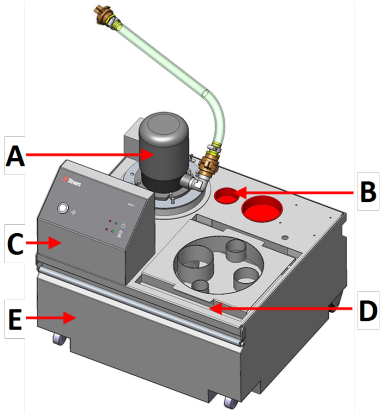
At the new location

At the new location, make sure that the facilities required are in place.

4 Installation

4.1 Overview - the cooling unit

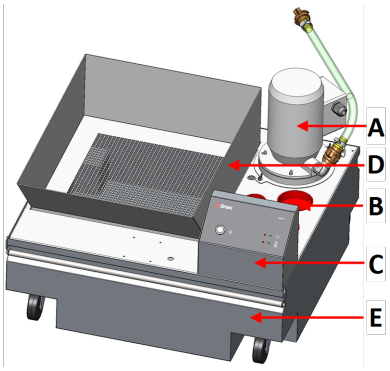
50 l tank



Front view

A Recirculation pump
B Magnetic filter
C Control unit
D Filter tray
E Tank

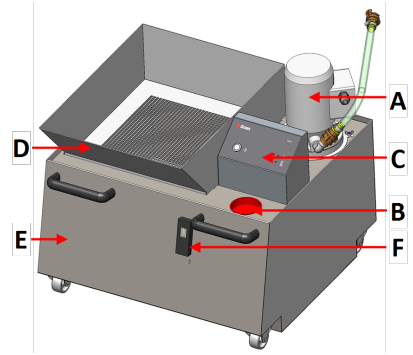
100 l tank



Front view

A Recirculation pump
B Magnetic filter
C Control unit
D Filter tray
E Tank

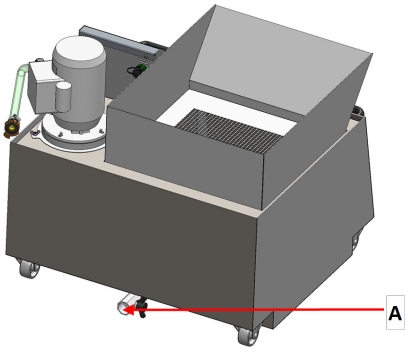
150 l tank



Front view

A Recirculation pump
B Magnetic filter
C Control unit
D Filter tray
E Tank
F Water level gauge

150 l tank



Rear view

A Drain valve

4.2 Unpack the machine

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

The equipment is delivered on a pallet and fastened with cable ties. The control unit is packed separately.

1. Remove the transport case.
2. Remove the plastic wrapping.
3. Lift off the filter unit and pump cover and remove the waste collection bin and the water level gauge.

4.3 Check the packing list

Optional accessories may be included in the packing box.

The packing box contains the following items:

Pcs.	Description
1	Tank
1	Recirculation pump
1	Filter bag (with adapter plate for 100 l and 150 l tanks)
1	Control unit
1	24 V/CAN control cable
2	Power supply cables
1	Cable connection box
1	Instruction Manual set

The tank is available in the following variants:

50 l tank	05766906
100 l tank	05766905
150 l tank (for Cooli System 1)	05766929
150 l tank (for Cooli System 2)	05766931

The pump is available in the following variants:

Small pump	05766116, 05766123, 05766216, 05766122, 05766124
Large pump	05766016, 05766023, 05766022, 05766024
Large pump (long)	05765016, 05765023, 05765022. 05765024

Other components

Filter bag	05766928
XL Filter bag	05766932
Static filter	05766934
Water level gauge	05766911
Lid	05766925

4.4 Cooling system configurations

Your cooling system can be configured in several ways.

Option 1

- 150 l Tank: 05766929
- Large pump, long: 05765016, 05765023, 05765022, or 05765024
- Cooli-1 control unit: 05761116

- XL filter bag 05766932

Option 2

- 150 l Tank: 05766931
- Large pump: 05766016, 05766023, 05766022, or 05766024
- Cooli-1 control unit: 05761116

Option 3

- 50 l Tank: 05766906
- Small pump: 05766116, 05766123, 05766216, 05766122, or 05766124
- Cooli-1 control unit: 05761116
- Filter bag 05766928

Option 4

- 100 l Tank: 05766905
- Large pump: 05766016, 05766023, 05766022, or 05766024
- Cooli-1 control unit: 05761116
- XL filter bag 05766932

Option 5

- 50 l Tank: 05766906
- Small pump: 05766116, 05766123, 05766216, 05766122, or 05766124
- Cooli-1 control unit: 05761116
- Connection kit: 05766925

Option 6

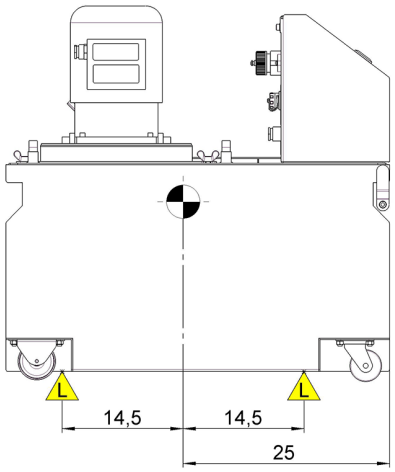
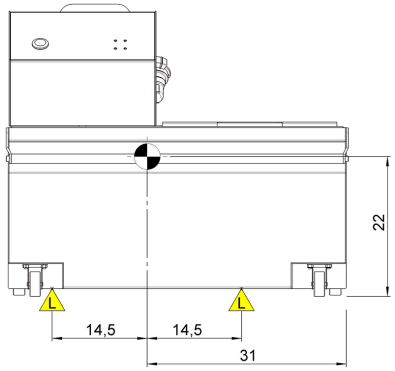
- 100 l Tank: 05766905
- Large pump: 05766016, 05766023, 05766022, or 05766024
- Cooli-1 control unit: 05761116
- Connection kit: 05766925

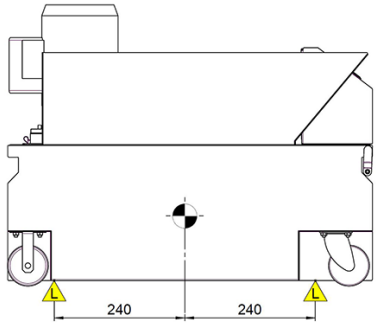
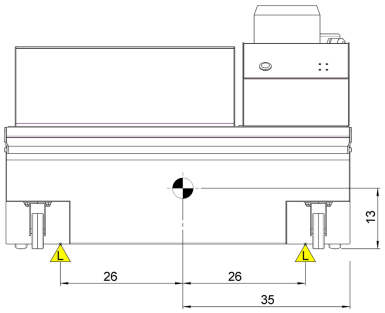
4.5 Lift the machine

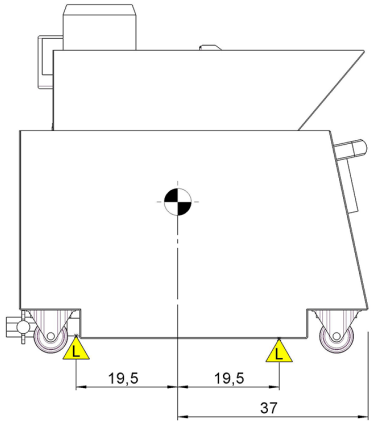
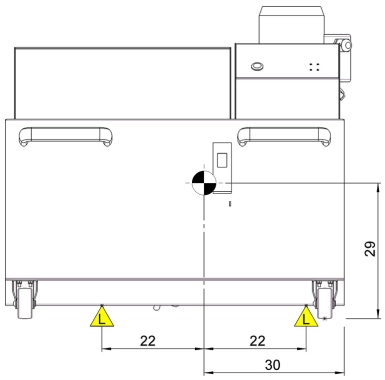
CRUSHING HAZARD
Take care of your fingers when handling the machine.
Wear safety shoes when handling heavy machinery.

Weight	
Cooling unit with 50 l tank:	32 kg/70.5 lbs
Cooling unit 100 l tank:	44 kg/97 lbs
Cooling unit with 150 l tank:	65 kg/143 lbs

Lifting points and center of gravity

50 l tank	
Side view	
Front view	

100 l tank	
Side view	
Front view	

150 l tank	
Side view	
Front view	

Procedure

To facilitate easy access for service technicians, allow sufficient space around the machine.

1. Lift the tank from the pallet.
2. Place the tank on the floor next to the machine you wish to connect it to.
3. Position the straps under the machine, so that they are on the inner side of the rollers.
4. A lifting bar is recommended to keep the two straps apart below the lifting point.

4.6 Power supply

WARNING
Switch off the machine, disconnect the electrical power cable before you dismantle the machine or install additional components.

ELECTRICAL HAZARD
The machine must be earthed (grounded).
Switch off the electrical power supply before installing electrical equipment.
Make sure that the actual electrical power supply voltage corresponds to the voltage stated on the type plate of the machine.
Incorrect voltage can damage the electrical circuit.

Power socket

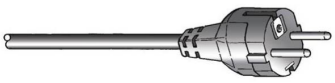
The electrical power supply socket must be easy to access.

Note
The equipment is shipped with 2 types of electrical power cables. If the plug supplied on these cables is not approved in your country, the plug must be replaced with an approved plug.

4.6.1 Single-phase supply

Single-phase supply

The 2-pin plug (European Schuko) is for use on single-phase electrical power connections.

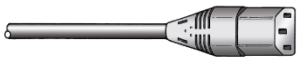


The 3-pin plug (North American NEMA) is for use on single-phase electrical power connections.

The leads must be connected as follows:

Yellow/Green	Earth (ground)
Brown or Black	Line (live)
Blue or White	Neutral

4.6.2 Connection to the machine



- Connect the electrical power cable to the machine (C14 IEC 320 connector).
- Connect the cable to the electrical power supply.

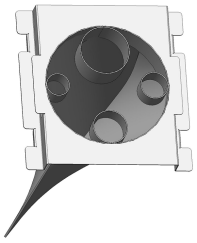
Note
To keep water away from the connections (Protection Rating IP44), place the cable box around the cable connections.

Note
To prevent the cables from trailing on the ground and being damaged, hang them by the hooks in the cooling unit tank.

4.7 Filters

Filter bag

Insert the water outlet hose from the connected machine into the hole that has the correct size.

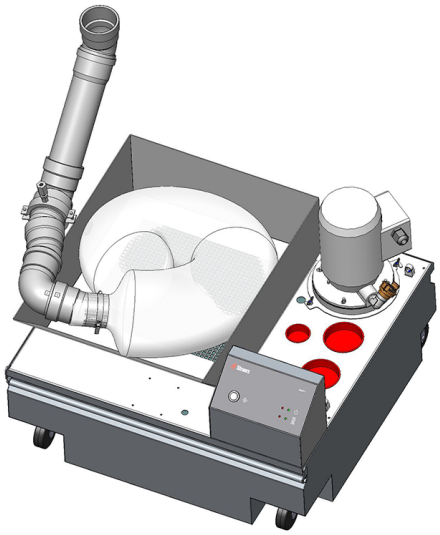


4.7.1 The filter tube

1. Insert 5 to 10 cm of the filter tube through the quick-release clamp.

Hint
You can remove the end of the rigid connector pipe while you mount the filter tube. Use grease or soap to lubricate the sealing ring to make reinsertion easier.

2. Mount the filter tube into the outlet hose or pipe approx. 5 cm from the end of the pipe.
3. Place the filter tube in a U-shape in the filter unit.
4. Make sure that there are no folds in the tube.



Note
The first time you use the cooling system after changing the filter tube, make sure that the filter tube expands to its full length when it fills with water.

CAUTION
If the filter tube is twisted or has folds, stop the machine and reposition the filter tube.
Never use the filter tube when you perform dry-cutting.
Never reuse a filter tube.

4.8 Noise

For information on the sound pressure level value, see this section: Noise and vibration levels ►30

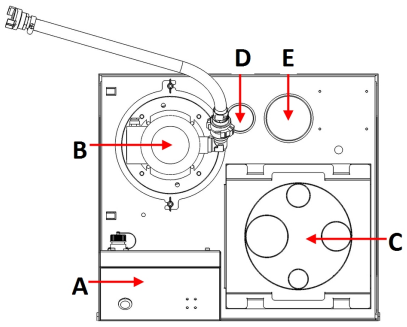
To lower the noise, try to decrease the force with which the cut-off wheel is pressed against the workpiece. The processing time may increase.

5 Assembling the cooling unit

Note
Some of the cooling unit components are optional.

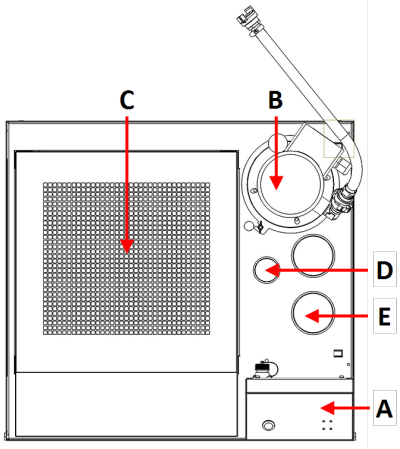
5.1 The tank

50 l tank



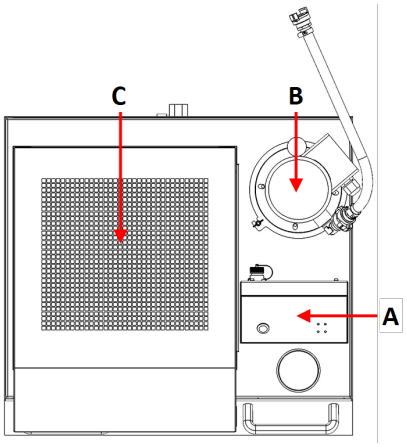
A Control unit
B Recirculation pump
C Filter tray
D Water level gauge
E Magnetic filter

100 l tank



A Control unit
B Recirculation pump
C Filter tray
D Water level gauge
E Magnetic filter

150 l tank

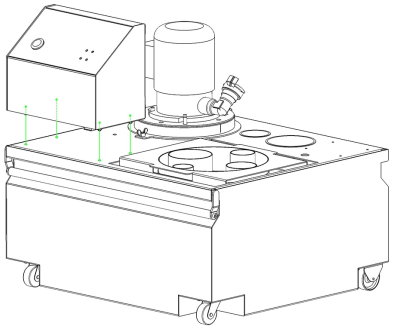


A Control unit
B Recirculation pump
C Filter tray

5.2 The control unit

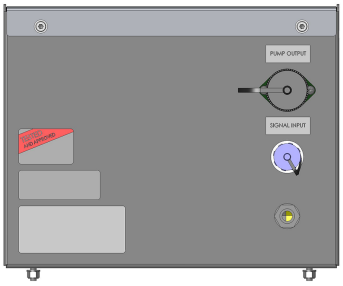
Note
The control panel must be mounted facing the cooling unit's handle.

1. To mount the Cooli System control unit, place the bolts in the holes.
2. Secure the bolts with the supplied nuts.



Connecting the cables to the control unit

1. Connect the cables to the respective sockets on the rear of the control unit.



Note
The sockets and cables are different from each other so you cannot connect the wrong cable to the wrong socket.

Note
Connect the 24 V/CAN to the machine with which you are using the cooling unit.
The 24 V/CAN cable used is supplied with the control unit.

5.3 The recirculation pump

- Mount the recirculation pump on the connection for the pump.

Adapter ring

- A small pump: use the adapter ring to decrease the diameter of the connection.
- A large pump: remove the adapter ring to increase the diameter of the connection.

Magnetic filter

- Mount the magnetic filter in the hole. See The tank ►19.

Water level gauge

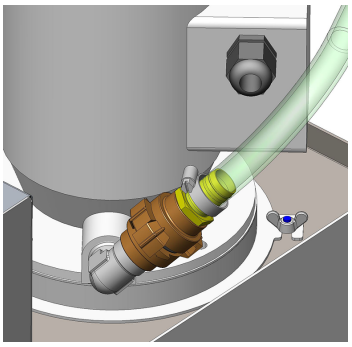
- Mount the water level indicator in the hole. See The tank ►19.

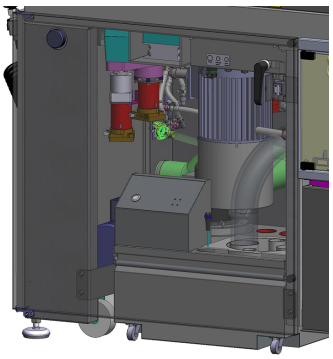
5.4 The filter tray

- Place the filter tray in the tank.

5.5 Connection to the machine

1. Connect the water outlet hose of the cooling unit to the quick coupling on the machine.
2. Connect the 24 V/CAN control cable to the control unit:
   - Plug one of the cable end into the machine's control socket (see the machine manual for specific information on how to do this).
   - Plug the other end into the socket on the rear panel of the Cooli System control unit.
3. Place the pump on the tank.
4. Secure the pump and connect it to the control unit.
5. Connect the cooling unit to the power supply.
6. Place the cooling unit under the outlet on the connected machine, or lead the outlet hose from the machine into the filter unit on the cooling tank.





6 Operate the device

6.1 Filling the tank

1. Place a clean plastic liner in the tank.
2. Make sure that the liner lies flat on the base of the tank so that it does not block the pump.
3. The wheels of the unit must be in line with the sides of the compartment so that you can move the unit into position without having to wiggle it from side to side.

CAUTION
The cooling unit will be very heavy when it is full.
Place the cooling unit in its final position, or make sure that you can easily push it into position before filling the tank.

Note
To prevent corrosion, Struers recommends using the Struers additive in the cooling fluid. For more information, see the additive container.
Remember to top up with Struers additive each time you fill up the tank with water.
For machines which mainly cut copper and copper alloys, use Corrozip-Cu.

Mixing cooling fluid additive with water

Follow the instructions on the cooling additive container. If you need more information, see: www.struers.com

Note
Do not overfill the tank.
Avoid spilling when you move the tank.

6.2 Control panel functions

Button/LED	Function
	**On/Off** Green LED: Standby mode. Red LED: Unit error (after power-up or pump failure/overload).
	**Pump status** Green LED: Pump is energized. Red LED: Pump error (not connected or pump failure/overload).
	**Resume** Use this button to manually reset the control unit after power up or pump failure/overload. **Note** You can only reset the control unit using the **Resume** button if no other signal is applied at the signal input connector.

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 type plate of the machine.

7.1 General cleaning

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

WARNING
Accumulated dirt and swarf (cutting debris) can restrict or cause damage to the water inlet valves.

Note
Disconnect the machine from the power supply before cleaning it.

CAUTION
Always wear protective gloves and safety goggles when you clean and fill up the tank.

1. Clean the tank and the connected tubes thoroughly.If the cooling water has been infected with bacteria or algae, flush the tank and tubes with a suitable antibacterial disinfectant, e.g. Struers Unitclean.
2. Clean the filter.

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

- Clean the machine and all accessories thoroughly.

7.2 Daily

Checking the cooling fluid

- Make sure that there is enough cooling fluid in the tank. See the section: Filling the tank ►21
- Fill up the tank, if necessary. The cooling fluid level should be 25 mm below the upper edge of the tank.

Note
Replace the cooling fluid immediately if you notice that it is infected by algae or bacteria.

Remember to add Struers additive. See the container for instructions on how to mix it with water.

You can find information on how to maintain the cutting liquid on the Struers cutting liquid maintenance guide. See www.struers.com.

7.2.1 Filter bag

Check the filter bag daily and, if necessary, empty and clean it.

1. Disconnect the electrical power supply.
2. Remove the cooling unit from the machine compartment.

3. Remove the filter bag from the tank and turn it upside down over a waste container.
4. Empty the debris into the container and clean the filter bag.
5. Replace the filter bag.

Note
Dispose of swarf according to the current local safety regulations for handling and disposal of swarf and cooling fluid additive.

7.2.2 Filter tube

Check and, if necessary, replace the filter tube.

Note
Dispose of swarf according to the current local safety regulations for handling and disposal of swarf and cooling fluid additive.

Hint
The combination of the metallic swarf (cutting debris) from metals with a large difference in electro-positivity can result in exothermic reactions when favorable conditions are present. This depends on whether a large amount of swarf is produced during cutting/grinding on the same machine, and on the metals being cut

Examples:
The following are examples of such metal combinations:
- aluminum and copper
- zinc and copper

7.2.3 Magnetic filter

Check and, if necessary, clean the magnetic filter.

1. Remove the filter from its connection.
2. Slide the plastic outer tube off the magnet.
3. Use a stiff brush to clean the plastic tube.
4. Remount the plastic tube.
5. Remount the magnetic filter back on its connection.

7.2.4 Static filter

Check and, if necessary, clean the static filter.

1. Remove the pump.
2. Loosen the wing nut and remove the static filter.
3. Use a stiff brush to clean the mesh.
4. Rinse the static filter.
5. Remount the static filter.

7.3 Monthly

Clean the machine regularly to avoid damage caused by abrasive grains or metal particles.

1. Clean all painted surfaces and the control panel with a soft damp cloth and common household detergents. For heavy duty cleaning, use a heavy duty cleaning agent such as Solopol Classic.

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

7.3.1 Changing the cooling fluid

- Change the cooling fluid in the cooling unit at least once a month.

CAUTION
Avoid skin contact with the cooling fluid additive.

Note
The cooling unit fluid contains additive and grinding residue and you must not dispose of it into the waste water drain.
Cooling fluid must be disposed of in compliance with local safety regulations.

Empty the recirculation tank

1. Disconnect the drain from the main machine to the cooling unit and place it in the collecting container.
2. Empty the cooling unit by starting the equipment and stopping it when the tank is empty. Remove the plastic liner and clean out all water and debris from the tank.
3. Clean the recirculation tank and the connected tubes thoroughly.
4. If the cooling water has been infected with bacteria or algae, clean the tank and tubes with a suitable antibacterial disinfectant.

The 150 l tank

You can empty the tank as follows:

- Using the drain valve. Move the disposable liner to allow the cooling fluid to flow freely.
- Using an industrial dredge pump.

7.4 Spare parts

Technical questions and spare parts

If you have technical questions or when you order spare parts, state the serial number. The serial number is stated on the type plate of the unit.

For further information, or to check the availability of spare parts, contact Struers Service. Contact information is available on Struers.com.

Note
Replacement of safety critical components must only be performed by a Struers engineer or a qualified technician (electromechanical, electronic, mechanical, pneumatic, etc.).

Note
Safety critical components must only be replaced by components with at least the same safety level.

7.5 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 1500 hours of operation time, the display will show a message reminding the user that a service check should be scheduled.

Note
Service must only be performed by a Struers engineer or 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.

7.6 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.

Note
Dispose of swarf according to the current local safety regulations for handling and disposal of swarf and cooling fluid additive.

Note
The cooling fluid contains 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.

Depending on which metals are being cut, it is possible that the combination of the metallic swarf (cutting debris) from metals with a large difference in electrode-positivity (a large distance apart in the

electrochemical series), could result in exothermic reactions when ‘favorable’ conditions are present.

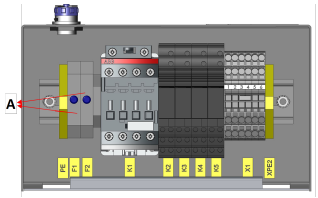
Always bear in mind which metals you cut and the amount of swarf the cutting produces. Some combinations of metals can result in exothermic reactions if a large amount of swarf is collected during cutting.

Examples:

Aluminum and Copper

Zinc and Copper

8 Troubleshooting

Error	Cause	Action
Water leakage.	A leak in the cooling unit water hose.	Check the hose for leakages and tighten the hose clamp.
	Water overflow in the water tank	Remove the excess water in the water tank
The cooling unit has stopped and cannot be restarted	Blown fuses	Replace the fuse or fuses with appropriate slow-blow fuses. **A:** Fuses 
	Pump failure	Make sure that the connected pump is not visibly damaged or overheated. You can only reset the control unit using the **Resume** button if no other signal is applied at the signal input connector.
Corrosion of samples, cooling unit or equipment	Insufficient additive for cooling fluid	Add cooling fluid additive in the correct concentration to the cooling fluid. Check with a refractometer. Follow the instructions in the Maintenance section. Contact Struers Service.

9 Technical data

9.1 Technical data

Subject	Specifications	
Safety standards	See the Declaration of Conformity	
50 l tank	Height with pump and Cooli-1	260 mm (10.2")
	Width (with extended handle)	520 mm (20.7") 530 mm (21")
	Depth	460 mm (18.1")
	Volume	50 l (13.2 gallons)
	Weight	23 kg (50.7 lbs)
100 l tank	Height with pump and Cooli-1	260 mm (10.2")
	Width (with extended handle)	730 mm (28.7") 740 mm (29.0")
	Depth	670 mm (26.4")
	Volume	100 l (26.4 gallons)
	Weight	25 kg (55.1 lbs)
150 l tank	Height with pump and Cooli-1	740 mm (29.1")
	Width	830 mm (32.7")
	Depth	760 mm (29.9")
	Volume	150 l (39.6 gallons)
	Weight	46 kg (101.4 lbs)
Small pump	Flow	60 l/min at 1 bar (16 gal/min at 14.5 psi)
	Power consumption	90-120 W
	Water outlet	GEKA $^{3/4}$" bayonet
Large pump/Large pump, long	Flow	125 l/min at 1 bar (33 gal/min at 15.5 psi)
	Power consumption	550 W
	Water outlet	GEKA $^{3/4}$" bayonet

Electrical data					
Small pump	**1 x 100 V/50 Hz**	**1 x 100-120 V/60 Hz**	**1 x 100-120 V/50/60 Hz**	**1 x 220-240 V/50 Hz**	**1 x 220-240 V/60 Hz**
Power consumption	120 W	120 W	120 W	90 W	90 W
Current, nominal load	1.5 A	1.7 A	1.8 A	0.7 A	0.87 A
Current, maximum load	3 A	3.4 A	3.6 A	1.4 A	1.74 A

Electrical data				
Large pump/large pump, long	**1 x 100 V/50 Hz**	**1 x 100-120 V/60 Hz**	**1 x 220-240 V/50 Hz**	**1 x 220-240 V/60 Hz**
Power consumption	550 W	550 W	550 W	550 W
Current, nominal load	8.6 A	8.5 A	4.6 A	4.5 A
Current, maximum load	17.2 A	17 A	9.2 A	9 A

9.2 Control unit

Subject	Specifications	
Dimensions and weight	Height	187 mm (7.3")
	Width	226 mm (8.9")
	Depth	166 mm (6.5")
	Weight	3.4 kg (7.5 lbs)

Subject	Specifications	
Power supply	Voltage	100-240V/50/60Hz
	Power inlet	1-phase (N+L1+PE) The 2-pin plug (European Schuko) or 3-pin plug (North American NEMA) is for use on single-phase electrical power connections. The electrical installation must comply with “Installation Category II”.
	Power consumption	710 W
	Power, idle	5 W
	Current, nominal load	8.7 A
	Current, maximum load	17.4 A
Residual Current Circuit Breaker (RCCB)	Type AC 30 mA (or better) is recommended	
Operating environment	Surrounding temperature	4-40 °C (41-104 °F)
	Humidity	10-85 % RH non-condensing (10-85 % RH non-condensing)
Storage	Surrounding temperature	0-60 °C (32-140 °F)
	Humidity	10-85 % RH non-condensing (10-85 % RH non-condensing)

9.3 Safety Circuit Categories/Performance Level

Safety Circuit Categories/Performance Level	Emergency stop from main machine	PL c, Category 1 Stop category 0

9.4 Noise and vibration levels

Noise level	A-weighted sound emission pressure level at workstations	L_{pA} = 71.1 dB(A) (measured value) (In combination with: Labotom-5 cutting an aluminum alloy rod Ø 40 mm.) Uncertainty K = 4 dB Measurements made in accordance with EN ISO 11202

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

WARNING
Safety critical components must be replaced after a maximum lifetime of 20 years.
Contact Struers Service.

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 same safety level.
Contact Struers Service.

Safety related part	Manufacturer/Manufacturer description	Manufacturer catalog no.	Electrical ref.	Struers catalog no.
Contactor	ABB Contactor AF09Z 3NO/1NO	1SBL136001R2110	K1	2KM11310

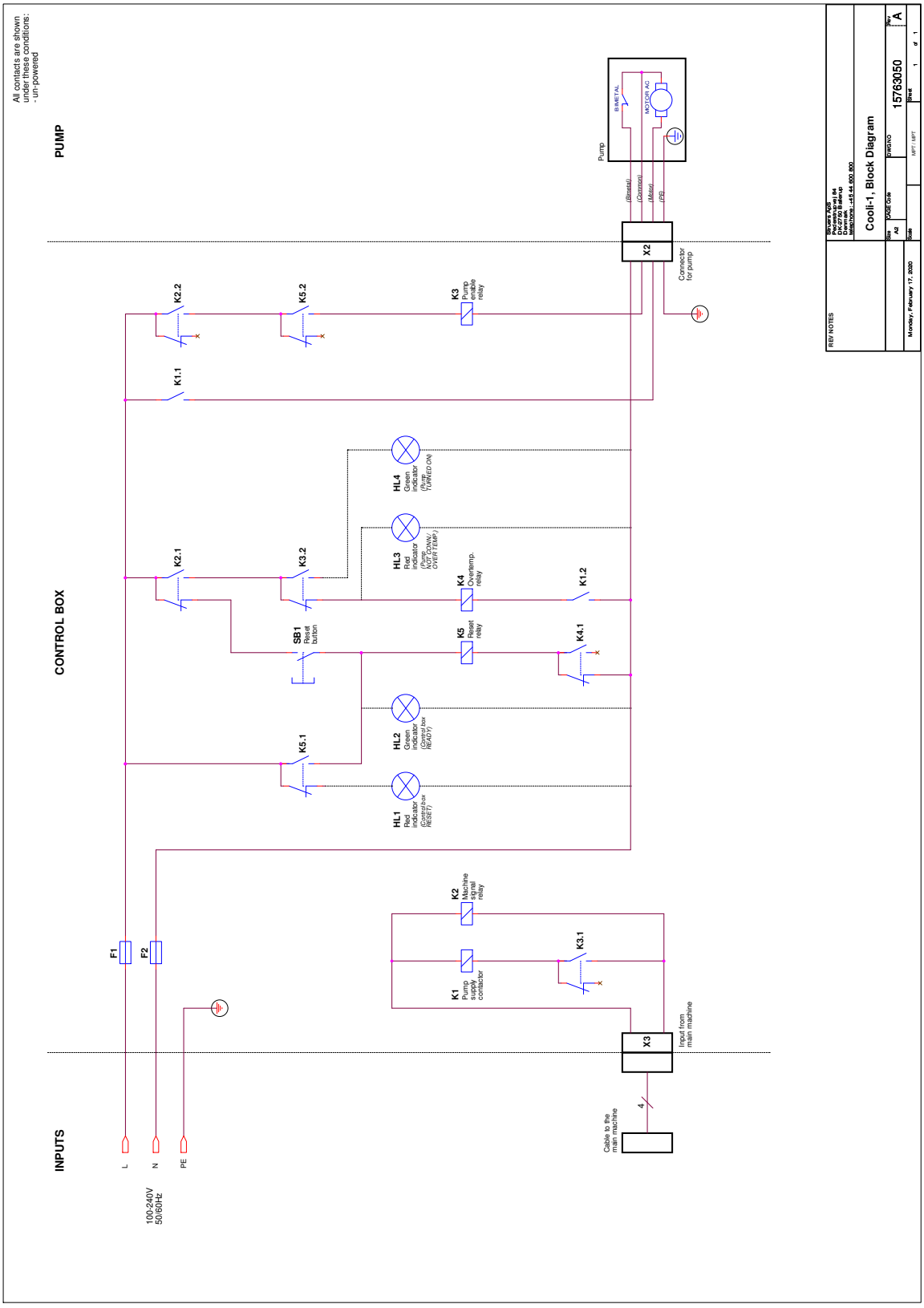
9.6 Diagrams

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

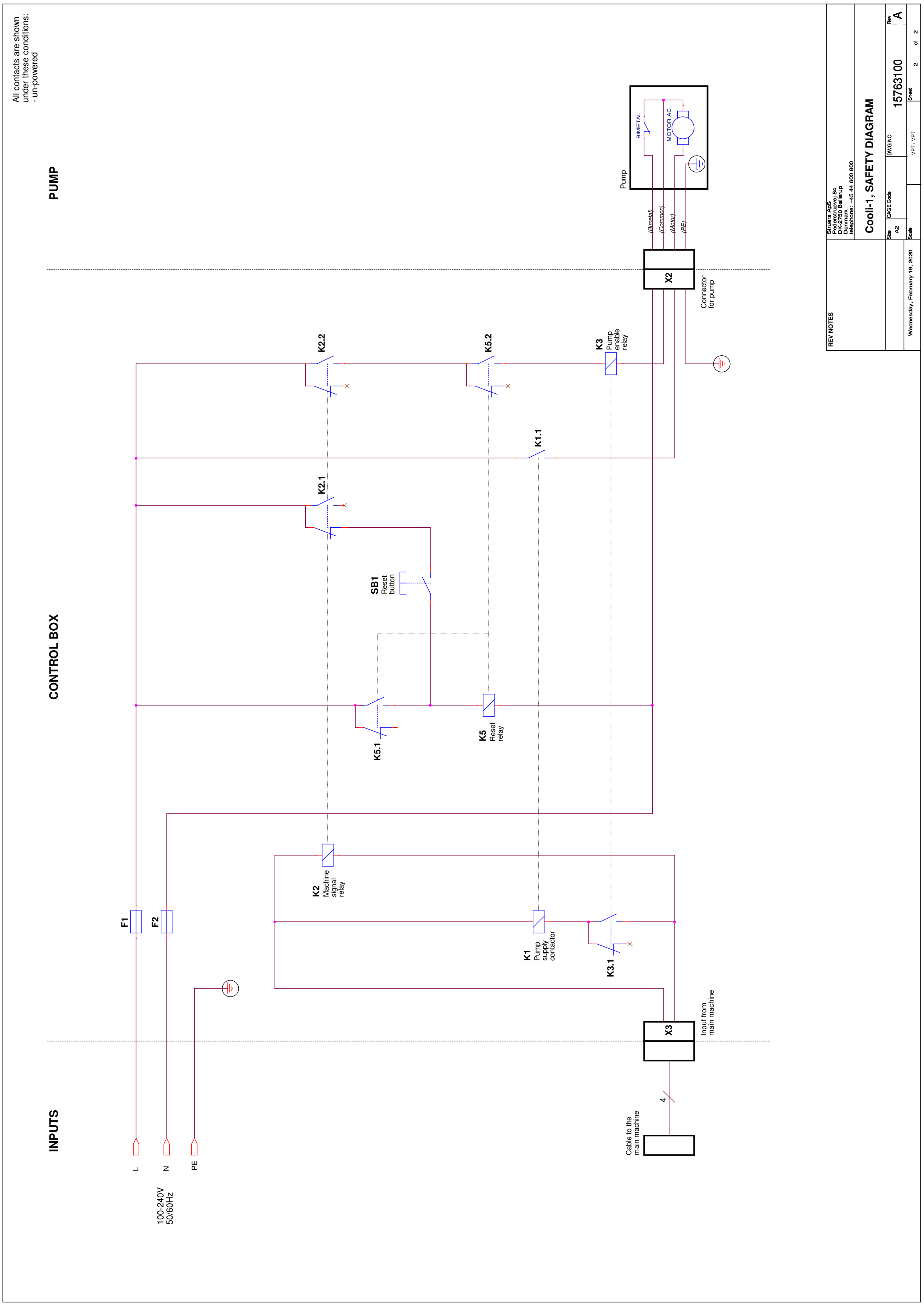
9.6.1 Diagrams - Cooli-1

Title	No.
Cooli System, Block diagram	15763050 A ►32
Cooli System, Safety diagram	15763100 A ►33

15763050 A


All contacts are shown under these conditions: - un-powered
PUMP
CONTROL BOX
INPUTS
Pump
BIMETAL
MOTOR AC
(Bimetal)
(Common)
(Motor)
(PE)
X2
Connector for pump
K2.2
K5.2
K3
Pump outside relay
K1.1
HL4 Green Indicator (Pump TURNED ON)
HL3 Red Indicator (Pump OUTFLOW/ OVERTEMP)
K2.1
K3.2
K4 Overtemp. relay
K1.2
SB1 Reset button
K5 Reset relay
K4.1
HL2 Green Indicator (Control box READY)
K5.1
HL1 Red Indicator (Control box RESET)
F1
F2
K2 Machine ground relay
K3.1
K1 Pump ground contactor
X3
Input from main machine
Cable to the main machine
4
L
N
PE
100-240V 50/60Hz
REV NOTES
Monday, February 17, 2020
Cooli-1, Block Diagram
15763050
A
A3
1 of 1

15763100 A


All contacts are shown
under these conditions:
- un-powered
PUMP
CONTROL BOX
INPUTS
Pump
BIMETAL
MOTOR AC
(Bimetal)
(Common)
(Motor)
(PE)
X2
Connector for pump
K2.2
K5.2
K3 Pump enable relay
K1.1
K2.1
SB1 Reset button
K5.1
K5 Reset relay
K2 Machine signal relay
F1
F2
K1 Pump supply contactor
K3.1
X3
Input from main machine
4
Cable to the main machine
L
N
PE
100-240V
50/60Hz
REV NOTES
Cooli-1, SAFETY DIAGRAM
15763100
A
Wednesday, February 19, 2020

9.7 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.

10 Manufacturer

Struers ApS
Pederstrupvej 84
DK-2750 Ballerup, Denmark
Telephone: +45 44 600 800
Fax: +45 44 600 801
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.

Struers
Ensuring Certainty

Based on: 15767901 C

Declaration of Incorporation of Partly Completed Machinery

Manufacturer	Struers ApS • Pederstrupvej 84 • DK-2750 Ballerup • Denmark
Name	Cooli System
Model	N/A
Function	Circulation of cooling water through a filter, magnetic or static or both
Type	N/A
Cat. no.	05761116 In combination with: 05766116 05766123 05766216 05766122 05766124, 05766016 05766023 05766022 05766024, 05765016 05765023 05765022 05765024, 05766906 05766905 05766929 05766930 05766931
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.	

CE Module H, according to global approach **EU**

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

2006/42/EC	EN ISO 12100:2010, EN 60204-1:2018
2011/65/EU	EN 63000:2018
2014/30/EU	EN 61000-3-2:2014, EN 61000-3-3:2013, EN 61000-6-1:2007, 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]

Struers
Ensuring Certainty

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 érhetők 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