
Operating manual

Version 1.0.1

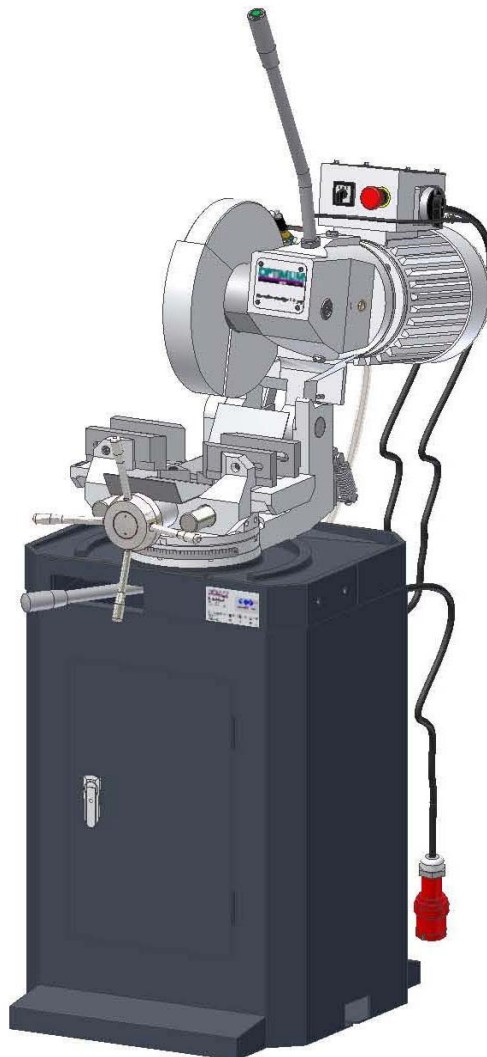
Circular metal saw

CS 250

9"/10" Cold Saw w/ Coolant System Item No. 3302257

CS 350

14" Cold Saw w/ Coolant System Item No. 3302357



Keep for future reference!

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Preface

We thank you very much that you have decided for the circular metal saw made by Optimum Maschinen Germany GmbH.

The illustration of the circular metal saw might in some details deviate from the illustrations of this operating manual but this will have no influence on the operation of the circular metal saw.

Any changes in the construction, equipment and accessories are reserved for reasons of enhancement. Therefore, no claims may be derived from the indications and descriptions.


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1 Safety

Glossary of symbols

 gives additional indications

 calls on you to act

 enumerations

This part of the operating manual

- explains the meaning and use of the warning references contained in the operating manual,
- explains how to use the cold saw properly,
- highlights the dangers that might arise for you or others if these instructions are not obeyed,
- tells you how to avoid dangers.

In addition to this operating manual please observe

- applicable laws and regulations,
- legal regulations for accident prevention,

Consult OSHA, state and local regulations in order to determine compliance, danger and risks to the operator.

ALWAYS KEEP THIS DOCUMENT CLOSE TO THE COLD SAW FOR FUTURE REFERENCE.



INFORMATION

If you are not able to solve a problem using this manual, please do not hesitate to contact us for further professional advice:

Exclusive USA Agent

LDS Industries, LLC

930 W. National Ave.




Addison, IL 60101

Tel.: 1-630-785-6437

1.1 Safety warnings (warning notes)

1.1.1 Classification of hazards

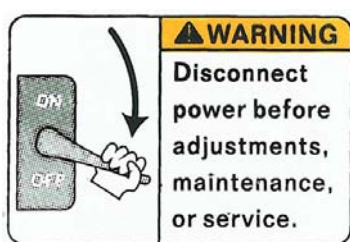
We classify the safety warnings into various levels. The table below gives an overview of the classification of symbols (pictograms) and warnings for the specific danger and its (possible) consequences.

Pictogram	Alarm Expression	Definition/Consequences
	DANGER!	Imminent danger that will cause serious injury or death to personnel.
	WARNING!	Risk: A danger that might cause serious injury or death to personnel.
	CAUTION!	Danger or unsafe procedure that might cause injury to personnel or damage to property.
	ATTENTION!	Situation that could cause damage to the machine and product and other types of damage. No risk of injury to personnel.
	INFORMATION	Application tips and other important or useful information and notes. No dangerous or harmful consequences for personnel or objects.

In the case of specific dangers, we replace the pictogram by



1.1.2 Other pictograms



Caution slide risk!



Activation forbidden!



Pull the mains plug!



Use protective goggles!



Use ear protection!



Use protective gloves!



Use protective boots!



Wear a safety suit!



Protect the environment!



Contact address

1.2 Proper use

Usage



WARNING!

Improper use of the cold saw

- will endanger personnel,
- will endanger the machine and other material property of the operator,
- may affect proper operation of the machine.

The cold saw is designed and manufactured to be used in environments where there is no potential danger of explosion.

The cold saw is designed and manufactured to saw cold metals, cast materials and other non-flammable materials that are not harmful to health and do not generate dust.

The name "cold saw" comes from the cutting process employed where the heat generated by cutting is transferred to the chips created by the saw blade. The blade and material being cut remain relatively cold, unlike an abrasive saw which abrades the metal and creates much heat in the metal and cutting blade. Cold saws produce minimal burr, no sparks, no discoloration and no dust. They must not be used on wood.

The pieces to be cut need to be of a shape that will allow them to be securely attached in the work holder vice and ensure that the piece does not come loose when it is being sawed.

The cold saw must only be installed and operated in a dry and well-ventilated place.

Improper use

If the cold saw is used in any way other than as described above, modified without authorisation or operated with different process data, then it is being used improperly.

We do not take liability for damage caused by improper use.

We would like to stress that any modifications to the construction, or technical or technological modifications that have not been authorised will also render the guarantee null and void.

It is also part of proper use that

- the maximum values of the cold saw are complied with,
- the operating manual is observed,
- inspection and maintenance instructions are observed.

📖 "Technical data" on page 14

In order to achieve the required cutting performance and the angular tolerance the correct choice of saw blade, cutting speed and coolant are critical.



WARNING!

Very serious injury.

It is forbidden to make any modifications or alterations to the operating values of the cold saw! These could endanger personnel and cause damage to the machine.

1.3

Possible dangers caused by the cold saw

The cold saw is state-of-the-art, but there is a residual risk, as the cold saw is working with

- electrical voltage and currents
- a running circular metal saw blade.

We have used construction resources and safety techniques to minimise the health risk to personnel resulting from these hazards.

If the cold saw is used and maintained by staff who are not duly qualified, there may be a risk resulting from incorrect operation or unsuitable maintenance.



INFORMATION

All staff involved in assembly, commissioning, operation and maintenance must

- be duly qualified,
- follow this operating manual.

In the event of improper use

- there may be a risk to the staff,
- there may be a risk to the cold saw and other material property,
- the proper operation of the cold saw may be affected.

Disconnect the cold saw from electrical power whenever cleaning or maintenance work is being carried out.

**WARNING!**

THE COLD SAW MAY ONLY BE USED WITH THE SAFETY DEVICES ACTIVATED.

Disconnect the cold saw whenever you detect a failure in the safety devices or when they are not fitted!

All additional installations carried out by the operator must incorporate the prescribed safety devices.

As the machine operator, this will be your responsibility!

 **“Safety devices“ on page 9**

1.4 Qualification of personnel

1.4.1 Target group

This manual is addressed to

- users,
- operators,
- maintenance staff.

The warning notes therefore refer to both operation and maintenance of the cold saw.

Determine clearly and irrevocably who will be responsible for the different activities on the machine (use, maintenance and repair).



Vague or unclear assignment of responsibilities constitute a safety hazard!

Always disconnect the cold saw from the electrical power supply and secure the cold saw against restarting.

1.4.2 Authorised personnel

**WARNING!**

Incorrect use and maintenance of the cold saw constitutes a danger for the staff, objects and the environment.

Only authorised personnel may operate the cold saw!

The only staff authorised to use this machine and perform maintenance on it are trained and instructed technical staff working for the operator and manufacturer.

The operator must

Obligations of the operator

- train staff,
- instruct staff regularly (at least once a year) on
 - all safety standards that apply to the machine,
 - operation,
 - accredited technical guidelines,
- check staff's understanding,
- document training/instruction,
- require staff to confirm participation in training/instruction by a signature,
- check whether the staff are aware of safety and of dangers in the workplace and whether they observe the operating manual.

The user must

Obligations of the user

- have received training in operation of the cold saw,
- know the function and principle of operation,
- before the machine is first used
 - have read and understood the operating manual,
 - be familiar with all safety devices and regulations.

Additional qualification requirements

For work on the following machine components there are additional requirements:

- Electrical components or devices: This work must only be carried out by a qualified electrician or person working under the instructions and supervision of a qualified electrician.

Before carrying out work on electric components or operating units the following measures must be taken, in the order given.

- Disconnect all electrical power
- Ensure that the machine cannot be turned on again
- Check that there is no voltage

1.5 User positions

The user must stand in front of the cold saw.



INFORMATION

The electrical power plug of the cold saw must be freely accessible.

1.6 Safety measures during operation



CAUTION!

Risk due to inhaling health hazardous dusts and mist.

Depending on the material being processed and any additional dusts and mist in the work area, conditions might impair your health.

Make sure that the generated health hazardous dusts and mist are safely removed at the point of origin and are collected and/ or filtered from the working area. Use an appropriate dust collection/ filter unit.



CAUTION!

Risk of fire and explosion by using flammable materials or cooling lubricants.

Take additional preventive measures in order to safely avoid health hazards before processing flammable materials (e.g. aluminum, magnesium) or before using flammable additives (e.g. solvents).

1.7 Safety devices

Use the cold saw only with properly functioning safety devices.

Stop the cold saw immediately if there is a failure in the safety device or if it is not functioning for any reason.

It is your responsibility!

If a safety device has been activated or has failed, the cold saw must only be used when

- the cause of the failure has been removed,
- it has been verified that there is no resulting danger for the staff or objects.



WARNING!

The separating protective equipment which is made available and delivered together with the machine is designed to reduce the risk of workpieces or fractions of them from being expelled, but not to remove them completely.



WARNING!

If you bypass, remove or override a safety device in any other way, you are endangering yourself and other staff working with the cold saw. The possible consequences are:

- damage as a result of components or parts of components flying off at high speed,
- contact with rotating parts,
- an electrocution.

The cold saw includes the following safety devices:

- a protective cover on the saw blade
- lockable main switch
- EMERGENCY-STOP switch

The saw blade of the cold saw is equipped with a protective cover.



WARNING!

Danger of injury! The teeth of the saw blade are sharp. Take great care when removing the rear cover to change the saw blade.



Wear protective gloves.

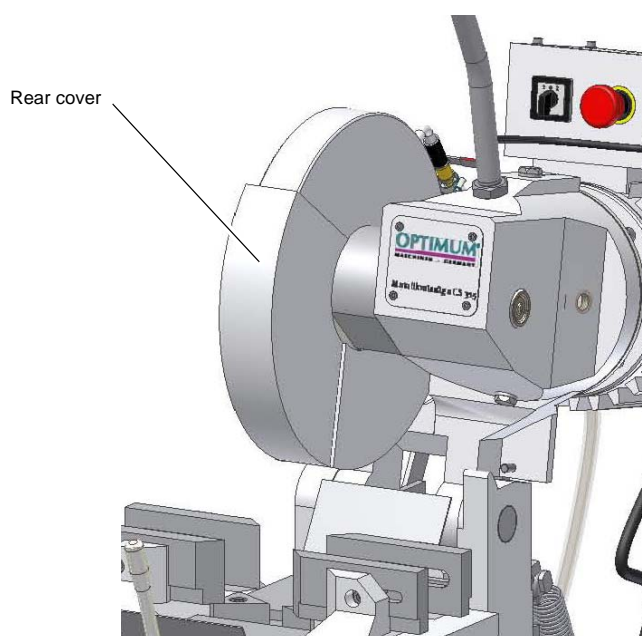


Fig. 1-1: Rear cover

1.7.1 Lockable main switch

A lockable main switch can be secured by a padlock in the position "0" against switching on by mistake or unauthorized personnel.

When the main switch is switched off, the power supply is interrupted, except for the areas marked by the pictogram below.

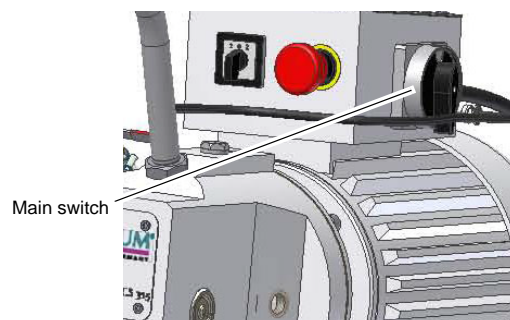


Fig. 1-2: Main switch



WARNING!

Dangerous voltage even if the main switch is switched off. In the areas marked by this pictogram, there might be voltage even if the main switch is switched off.

1.7.2

EMERGENCY-STOP button

The EMERGENCY-STOP button turns the cold saw off.



INFORMATION

After actuation turn the EMERGENCY-STOP button clockwise in order to turn the cold saw on again.

EMERGENCY-STOP button

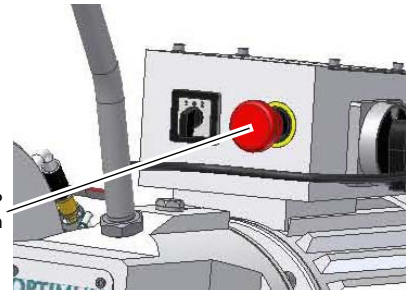


Fig.1-3: EMERGENCY-STOP button

1.7.3

Prohibition, warning and mandatory labels



INFORMATION

All warning labels must be legible. Check them regularly.

Positions of labels on the cold saw:

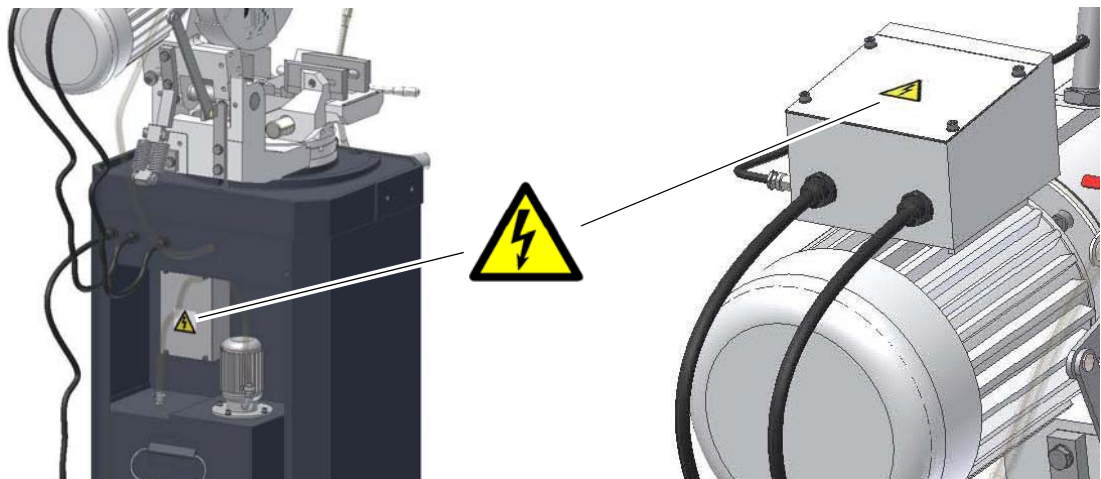


Fig.1-4: cold saw CS250/ CS350

Check the cold saw at least once per shift. Inform the person responsible immediately of any damage, defect or change in operating function.

Check all safety devices

- at the beginning of each shift (with the machine stopped),
- once a week (with the machine in operation),
- after every maintenance and repair operation.

Check if the prohibition, warning and information labels and the markings on the cold saw

- can be identified (if not, clean them),
- are complete.

1.8 Individual protection gear

For certain work individual protection gear is required. This includes:

- safety helmet,
- protective goggles or face guard,
- protective gloves,
- safety shoes with steel caps,
- ear protection.

Before starting work, make sure that the prescribed individual protection gear is available at the workplace.



CAUTION!

Dirty or contaminated personal protection gear can cause disease. Clean your personal protection gear after each use, regularly, at least once a week.



Personal protection gear for special work

Protect your face and eyes: During all work, and specifically work during which your face and eyes are exposed to hazards, a safety helmet with a face guard should be worn.



Use protective gloves when lifting or handling pieces with sharp edges.



Wear safety shoes when fitting, dismantling or transporting heavy components.

1.9 Safety during operation

In the description of work with and on the cold saw we highlight the dangers specific to that work.



WARNING!

Prior to activating the cold saw please double-check that this will

- **not endanger anybody,**
- **not cause any damage to property.**

Avoid unsafe working practises:

- Make sure your work does not endanger anyone.
- The instructions in this manual need to be observed during assembly, handling, maintenance and repair.
- Do not work on the cold saw if your concentration is reduced, for example, because you are taking medication.
- Observe the rules for preventing accidents issued by OSHA or other inspection authorities.
- Stay at the cold saw until all rotating parts have come to a halt.
- Use prescribed protection gear. Make sure to wear a well-fitting work suit and, where necessary, a hairnet.
- Inform the inspector of any danger or failure.

1.10 Safety during maintenance

Report and document any changes

Inform operating staff in good time of any repair and maintenance work.

Report all safety-relevant changes or performance details of the cold saw. Document all changes, have the operating manual changed accordingly and train the machine operators.

1.10.1 Disconnecting the cold saw and making it safe



Unplug the machine from the electrical power before beginning any maintenance or repair work.



Place a warning sign on the machine.

1.10.2 Using lifting equipment



WARNING!

Use of unstable lifting equipment and load-suspension devices that break under load can cause very serious injuries or even death.

Check that the lifting and load suspension gear

- is of sufficient load capacity,
- in perfect condition.

Observe the preventing of accidents issued by OSHA or other inspection authorities.

Hold the loads properly.

Never walk under suspended loads!

1.10.3 Mechanical maintenance work

Remove all protection and safety devices before beginning maintenance work and re-install them once the work has been completed. They include:

- covers,
- safety indications and warning signs,
- earth (ground) connection.

If you remove protection or safety devices, refit them immediately after completing the work.

Check that they are working properly!



INFORMATION

In the description of the execution of work with and on the cold saw, we highlight the dangers specific to that work.

1.11 Electrical system

Have the machine and/or the electric equipment checked regularly, and at least every six months.

Eliminate immediately all defects such as loose connections, defective wires, etc.

A second person must be present during work on live components, to disconnect the power in the event of an emergency.

Disconnect the cold saw immediately if there are any problems in the power supply!

☞ "Maintenance" on page 31, ☞ Fig. 1-1: "Rear cover" on page 10


2 Technical data

The following information gives the dimensions and weight and are the manufacturer's authorised machine data.

2.1	Power Supply	CS 250	CS 350
	Motor	115V, 1HP, 1Ph, 60 Hz	230V, 1.0/2.0 HP, 3 Ph, 60 Hz (1.0 HP at 22 RPM, 2.0 HP at 44 RPM Blade Speed)

2.2	Cutting range	CS 250	CS 350
	90 ⁰ round, max.	61 mm (2.4")	86 mm (3.4")
	90 ⁰ rectangular, max.	99x57 mm (3.9x2.4")	130x70 mm (5.1x2.8")
	90 ⁰ square, max.	57x57 mm (2.4x2.4")	70x70 mm (2.8x2.8")
	45 ⁰ round, max.	61 mm (2.4")	86 mm (3.4")
	45 ⁰ rectangular, max.	57x57 mm (2.4x2.4")	89x70 mm (3.5x2.8")
	45 ⁰ square, max.	57x57 mm (2.4x2.4")	70x70 mm (2.8x2.8")
	Cutting angle	-45 ⁰ -+45 ⁰	

2.3	General	CS 250	CS 350
	Cutting angle adjustment	turnable bearing block	
	Feed	Manual	
	Material hold-down	quick-action vice	

2.4	Dimensions	CS 250	CS 350
 "Dimensions of sawing flange" on page 37			
	Vice, jaw opening	109 mm (4.3")	152 mm (6")
	Height	1005 mm (39.5")	1780 mm (70.0")
	Depth	457 mm (18.0")	900 mm/ (35.5")
	Width	825 mm (32.5")	545 mm (21.5")
	Weight	200 kg. (440 lbs)	235 Kg. (518 lbs)

2.5	Speed of saw blade	CS 250	CS 350	
	Two-stage gear drive (RPM)	60	22	44

2.6	Environmental conditions	CS 250	CS 350
	Temperature	5 - 35 °C (40 - 95 °F.)	

2.6	Environmental conditions	CS 250	CS 350
	Humidity	5 - 80 %	

2.7	Service material	CS 250	CS 350
	Helical gear	628 Mobil (vis. 100/150), or a corresponding material	
	Spindle of the machine vice	Commercial heavy grease	
	Plain bearing	Commercial heavy grease	
	Blank steel parts	e.g. machine oil (Mobil oil, Fina, ...), motor oil, motor oil is acid-, stain- and resin-free.	

2.8 Emissions

The level of noise (emission) emitted by the cold saw is less than 80 dB(A).

If the cold saw is installed in an area where various machines are in operation, the acoustic influence (emission) on the operator of the cold saw may exceed 85dB(A).



INFORMATION

This numeric value had been measured on a new machine under conventional operating conditions. Depending on the age or wear of the machine, the noise behavior of the machine might change.

Furthermore, the extent of the noise emission is also depending on manufacturing influence factors, such as speed, material and clamping conditions.



INFORMATION

The mentioned numerical value is an emission level and not necessarily a safe working level.

Unless the degree of noise emission and the degree of noise disturbance are depending on one another it is not possible to use it in order to reliably determine if it is necessary to take further preventive measures or not.

The following factors influence the actual degree of the noise disturbance of the operator:

- Characteristics of the working chamber, e.g. size or damping behavior,
- Other noise sources, e.g. the number of machines,
- Other processes proceeding nearby and the period during which the operator is exposed to the noise.

Consult OSHA, state and local regulations in order to determine compliance, dangers and risks to the operator.

CAUTION!

The machine operator has to wear an appropriate ear protection depending on the overall stress caused by noise and on the basic limit values.

We generally recommend using a sound and ear protection.



2.9 Dimensions CS 250

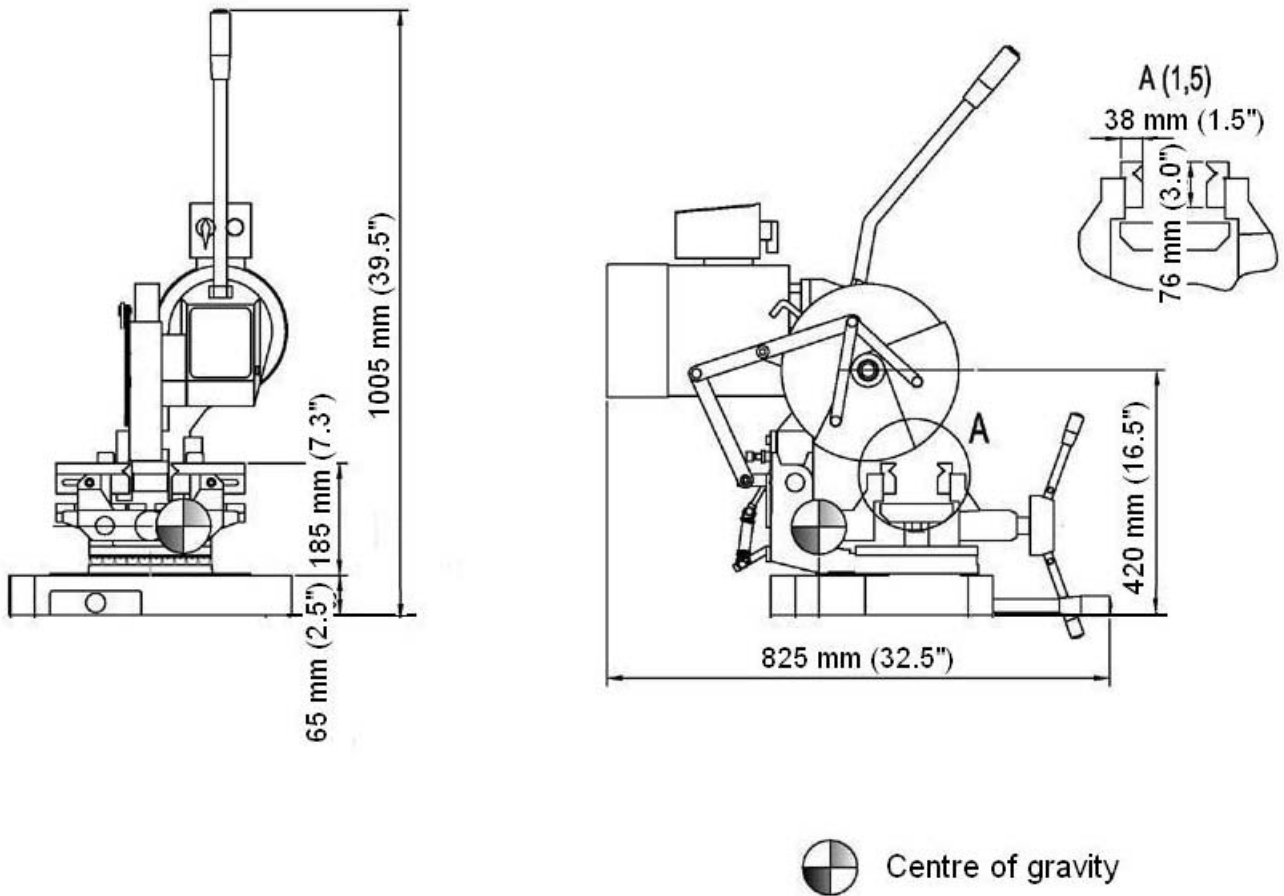
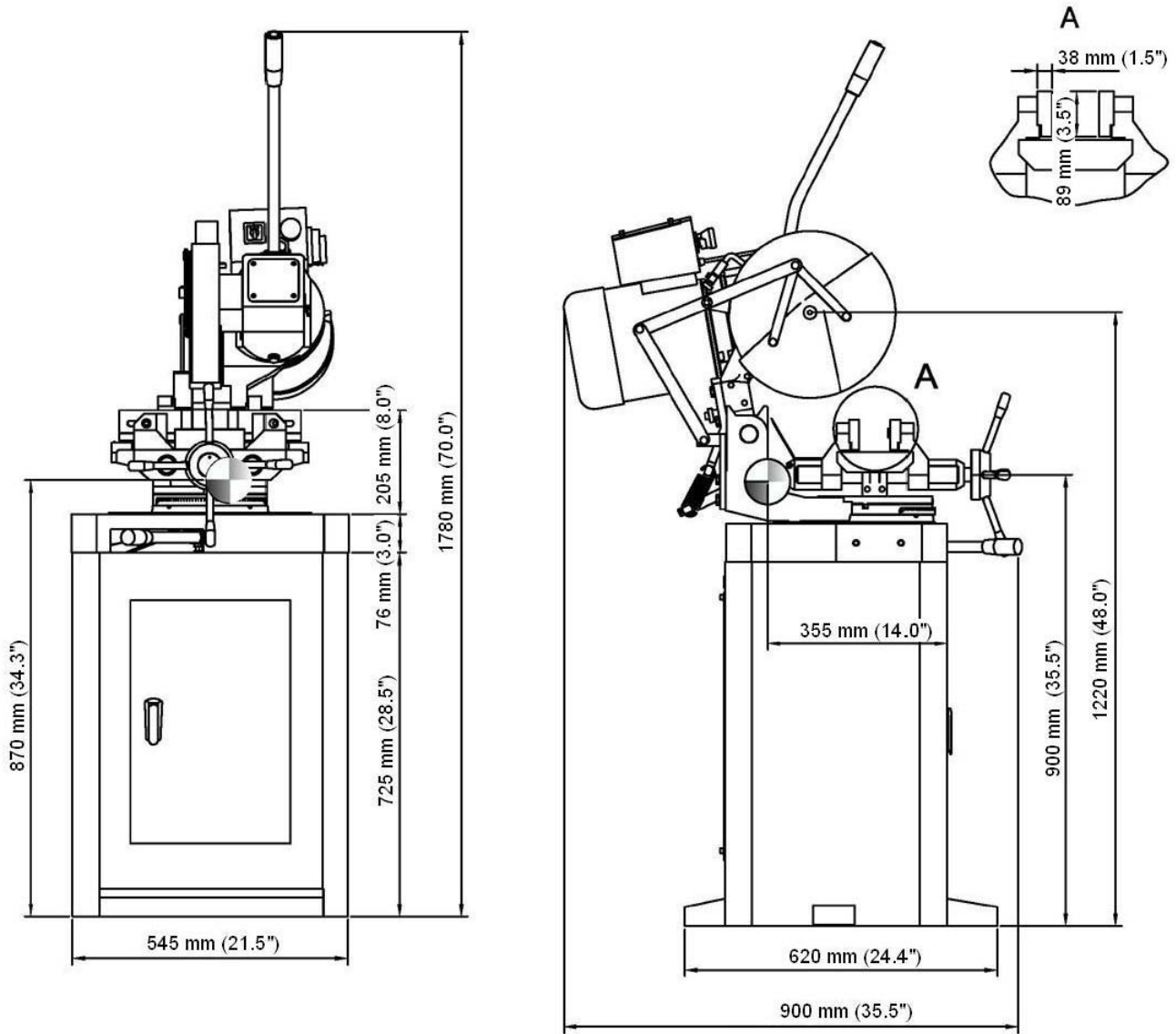


Fig.2-1: Dimensions CS 250

2.10 Dimensions CS 350



Centre of gravity
Weight 235 Kg. (518 lbs)

Fig.2-2: Dimensions CS 350

3 Assembly



INFORMATION

The cold saw comes pre-assembled.

3.1 Extent of supply

When the machine is delivered, immediately check that the cold saw has not been damaged during shipping and that all components are included. Also check that no fastening screws have come loose.



INFORMATION

No saw blade is included. If required, you can order saw blades of three different toothings.

Description / CS250

Sawblade 225mm (9") / 120 Tooth
 Sawblade 225mm (9") / 180 Tooth
 Sawblade 225mm (10") / 180 Tooth
 Sawblade 250mm (10") / 78 tooth
 Sawblade 250mm (10") / 100 Tooth

Item No.

3357431
 3357432
 3357438
 3357436
 3357437

Description / CS350

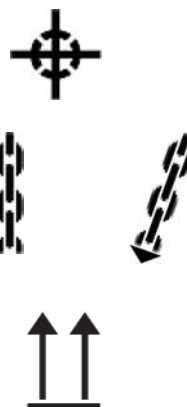
Sawblade 350mm (14") / 60 tooth
 Sawblade 350mm (14") / 120 Tooth
 Sawblade 350mm (14") / 180 Tooth
 Sawblade 350mm (14") / 280 tooth
 Sawblade 350mm (14") / 180 Tooth
 Sawblade 350mm (14") / 120 tooth / Bright Finish

Item No.

3357470
 3357471
 3357472
 3357473
 3357476
 3357475

3.2 Transport

- Center of gravity
- Attachment positions (marking the positions for the attachment position gear)
- Prescribed transport position (marking the top side)
- Means of transportation to be used
- Weights



WARNING!

Severe to lethal injuries due to machine parts tilting over or falling down from forklift trucks or transport vehicles. Please follow the instructions and indications on the transportation box:

- Center of gravity
- Attachment positions
- Weights

- Means of transportation to be used
- Prescribed transport position



WARNING!

Use of unstable lifting equipment and load-suspension devices that break under load can cause very serious injuries or even death.

Check that the lifting and load suspension gear

- is of sufficient load capacity,
- in perfect condition.

Observe the preventing of accidents issued by OSHA or other inspection authorities.

Hold the loads properly.

Never walk under suspended loads!

3.3

Storage



ATTENTION!

Improper storage may cause important parts to be damaged or destroyed.

Store packed or unpacked parts only under the intended environmental conditions.

Please follow the instructions and indications on the transportation box:


- Fragile goods (goods require careful handling)
- Protect against humidity and humid environments
👉 “Environmental conditions“ on page 14
- Prescribed position of the packaging box (marking the top side – arrows pointing upward)
- Maximum stacking height



Example: non-stackable – do not pile any further packaging boxes on top of the first packaging box

3.4 Installation and assembly

3.4.1 Requirements of the installation site

Organise the work area around the cold saw in accordance with local safety regulations.  "Dimensions" on page 14

Operation, maintenance and repair in the work area must not be hindered.



INFORMATION

The electrical power plug of the cold saw must be freely accessible.

3.4.2 Fasten the stand of the cold saw CS 350 on the floor

→ Fasten the stand on the floor with shear connector screws M12.

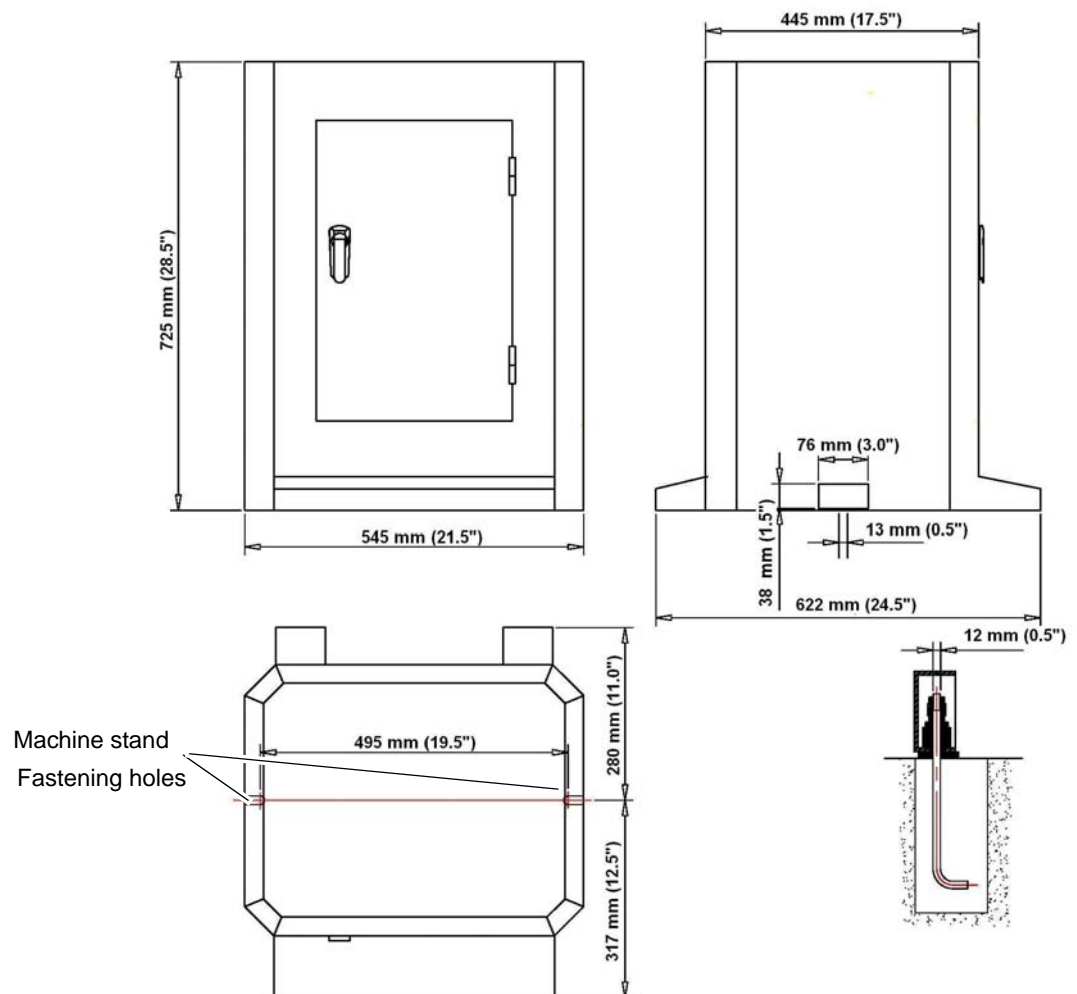


Fig.3-1: Machine stand CS 350

3.4.3 Mount the saw on the machine stand



ATTENTION!

Danger of crushing and overturning. Proceed with caution during the work described below.



CAUTION!

The cold saw needs to be mounted on the machine stand by at least two persons.

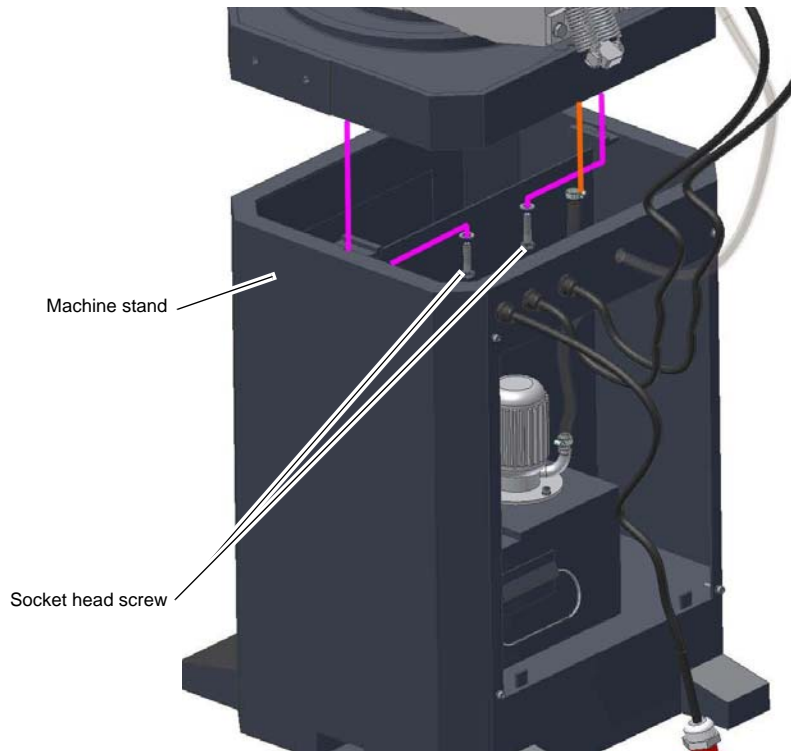


Fig.3-2: Mount the saw on the machine stand

- Put the cold saw on the machine stand.
- Fasten the cold saw with the socket head screws on the machine stand.

3.4.4 Mount the lever arm

- Remove the screw cap on the saw head.
- Mount the lever arm on the saw head.
- Set up the lever arm.
- Counter the lever arm attached to the hexagonal nut.
- Connect the cable connection with the operating element.

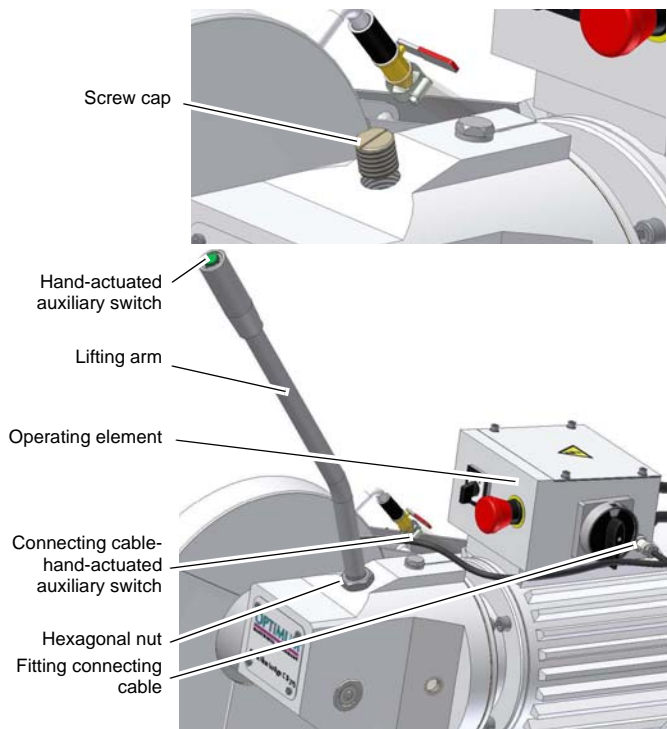


Fig.3-3: Mount lever arm

3.4.5 Mount the saw blade

→ Mount your saw blade ☞ “Mounting and replacing the saw blade” on page 36

3.5 First use



WARNING!

Personnel and equipment may be endangered if the cold saw is first used by inexperienced staff.

We do not take liability for any damage caused by incorrect commissioning.

3.5.1 Checking

→ Check the following.



ATTENTION!

Danger of cutting! Proceed with caution during the work described below. Use the prescribed protection equipment.

3.5.2 Direction of the saw teeth

→ Check the direction of the saw teeth. The saw teeth need to be oriented in the direction of the arrow.

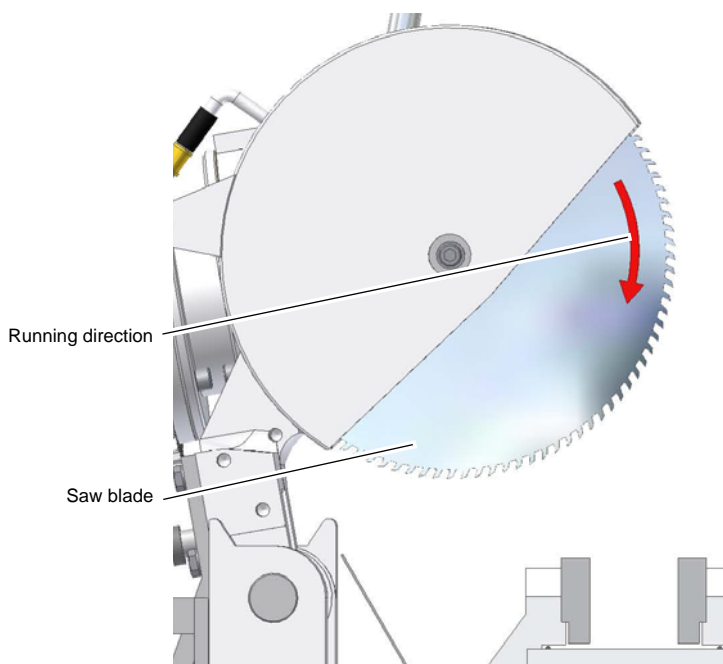


Fig.3-4: Running direction of saw blade

3.5.3 Check the oil level in the worm gear

→ Check the oil level in the worm gear of the cold saw.

☞ “Check oil level, change gear oil.” on page 33

→ Fill in gear oil, if required.

3.5.4 Fill in coolant

Fill coolant tank with approximately 8 qts. water-soluble and non-pollutant emulsion.



CAUTION!

Danger of destroying the pump by dry running.

When the cold saw is switched on, the coolant pump is switched on.

The pump is lubricated by coolant.

Do not operate the pump without coolant.

☞ “Filling in / Rinsing / Replacing“ on page 35

3.5.5 Power supply

Connect the electrical plug of the cold saw with your power supply. Control the fusing (fuse) of the power supply according to the technical indications for the power input of the cold saw.



CAUTION!

Make sure that all 3 phases (L1, L2, L3) are connected correctly.

Most of the defects on motors are resulting from wrong connections. For instance, if a motor phase is not correctly clamped or connected to the neutral conductor (N).

This may cause:

- That the motor is becoming hot very rapidly.
- Increased motor noises.
- The motor has no power.

If the machine is incorrectly connected the warranty will become null and void.

3.5.6 Check the running direction of the saw blade



CAUTION!

The saw blade is running clockwise.

Check the turning direction of the cold saw. The cold saw has to turn in direction as described in ☞ Fig.3-4: “Running direction of saw blade“ on page 22.

If the turning direction is wrong, exchange two of the three phases on your cable connection or on your power supply.

Make sure that the turning direction of any other power supply is not wrong ☞ “Qualification of personnel“ on page 8.

4 Operation

4.1 Safety

Use the cold saw only under the following conditions:

- The cold saw is in proper working order.
- The cold saw is used as prescribed.
- The operating manual is followed.
- All safety devices are installed and activated.



Any problems should be eliminated immediately. Stop the machine immediately in the event of any problem in operation and make sure it cannot be started up accidentally or without authorisation.

Notify the person responsible immediately of any modification.

☞ "Safety during operation" on page 12

4.2 Control and indicating elements CS 250/ CS 350

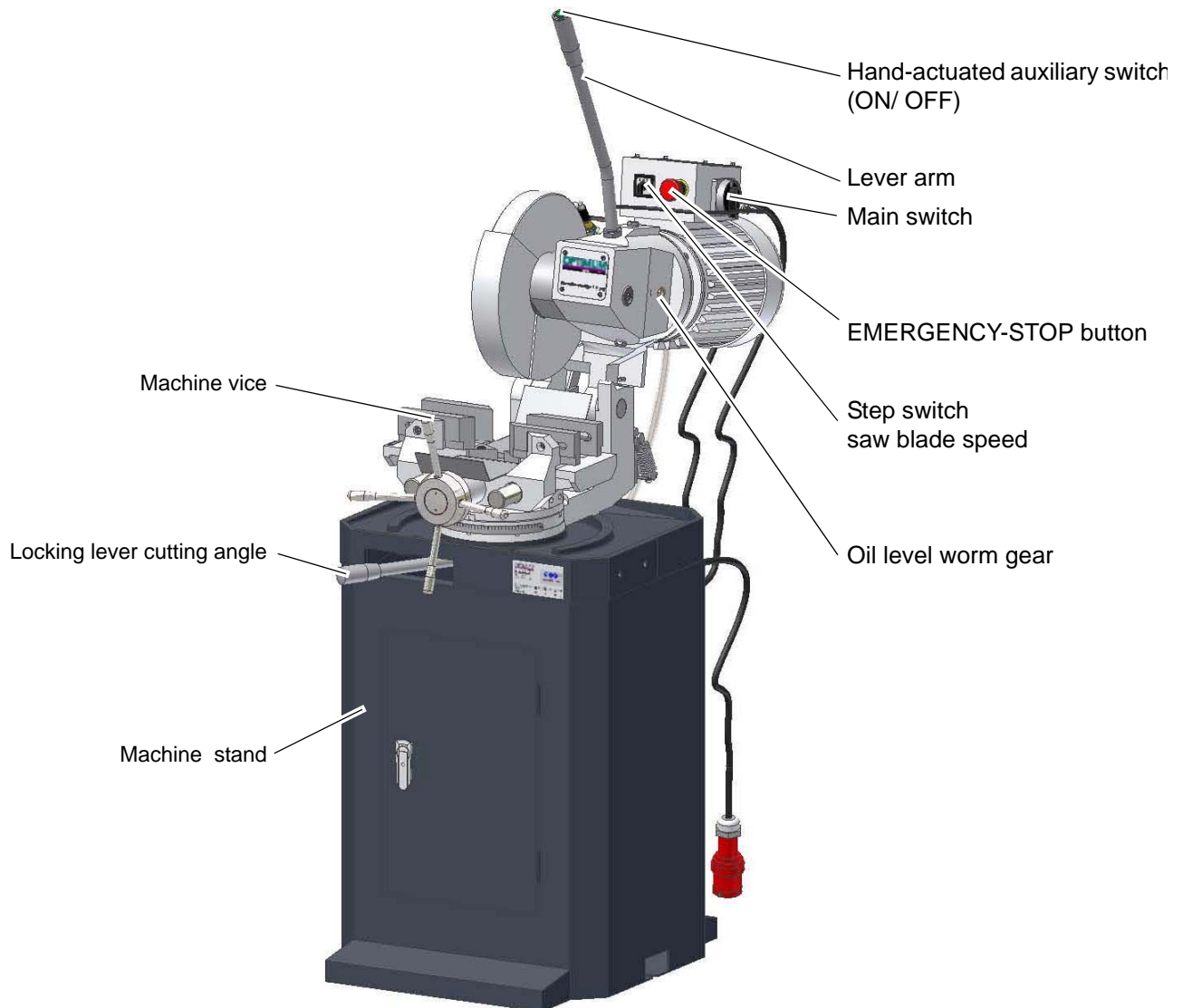


Fig.4-1: Circular metal saw CS 250

4.3 Insert workpiece

The machine vice serves as clamping device of the workpiece.

The machine vice consists of

- the working table,
- the clamping jaws,
- the hand wheel.

The clamping jaws at the front and back are moved simultaneously, this way the machine vice will clamp the clamp parts concentrically

→ Insert the workpiece to be sawed into the machine vice.

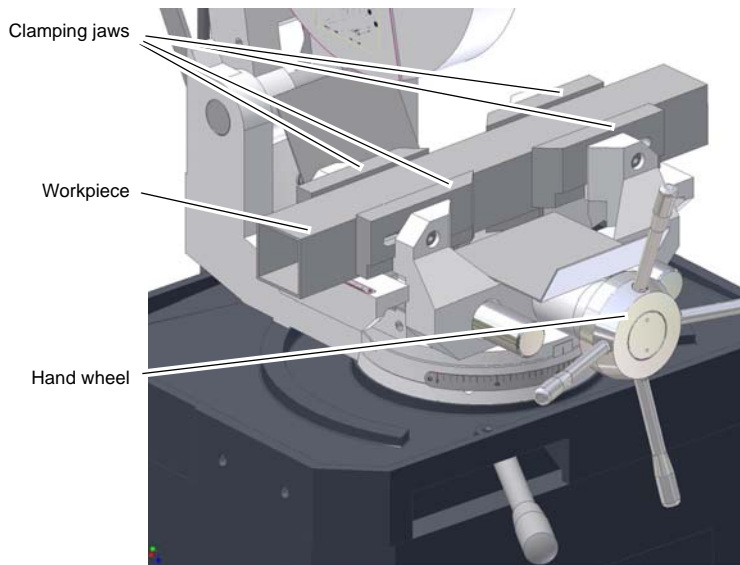


Fig. 4-2: Machine vice



ATTENTION!

Danger of overturning of the cold saw if the machine stand has not been fixed to the floor.

Support long workpieces before pushing the piece to be cut into the machine vice.

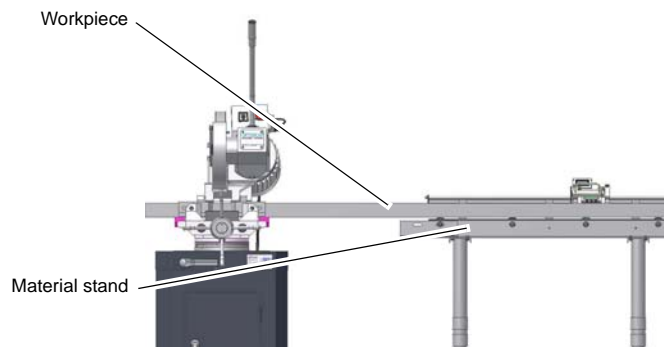


Fig. 4-3: Machine vice

→ Turn the hand wheel to the right until the workpiece is firmly clamped.



CAUTION!

Make sure that the workpiece is firmly clamped.

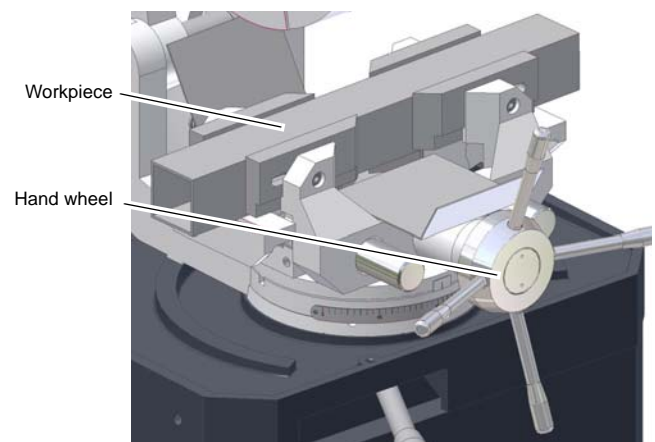


Fig. 4-4: Hand wheel

4.4 Saw blade speed

4.4.1 Speed change

A speed change of the saw blade is performed by switching over with the step switch on the control panel.

There are two speed levels available which allow a wide range of materials allowed for sawing.

CS 250

- 60 rpm

CS 350

- Level 1 = 22 rpm
- Level 2 = 44 rpm

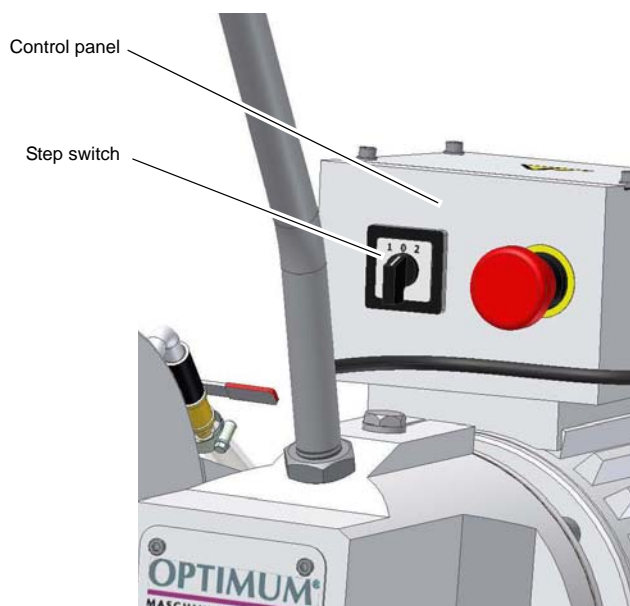


Fig.4-5: Step switch saw blade speed

4.4.2 Select the tothing and the shape of the tooth

When sawing with the cold saw, make sure to select the correct saw blade or the correct tothing of the saw blade.

With the help of the listed table (☞ Fig.4-5: "Table for tothing" on page 27) you can determine the tothing for the material which you want to saw by yourself.



CAUTION!

If the tothing is too small and the cutting length is too large, the chipping material can not be taken up by the gap between the teeth.

In case of large tothing, the saw tooth starts pecking; this might cause the teeth to break.

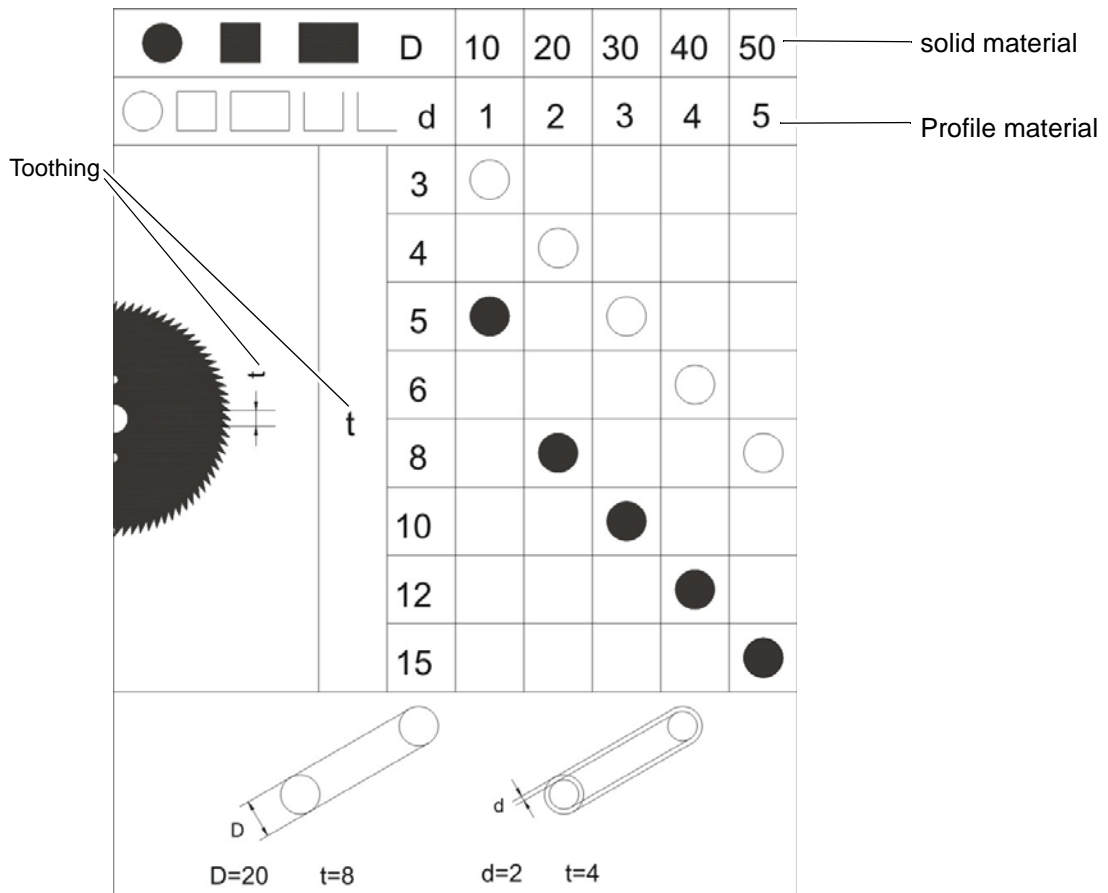


Fig. 4-6: Table for tothing

Example:

Profile material wall thickness 3 mm = tothing 10

Solid material diameter 40 mm = tothing 12

4.5 Switching on the machine



→ Connect the electrical plug to the power supply.



→ Main switch on.



→ Select speed level „1" or „2".

→ Actuate the hand-actuated switch at the handle of the lever arm.

→ Pull the lever arm downward towards the workpiece.

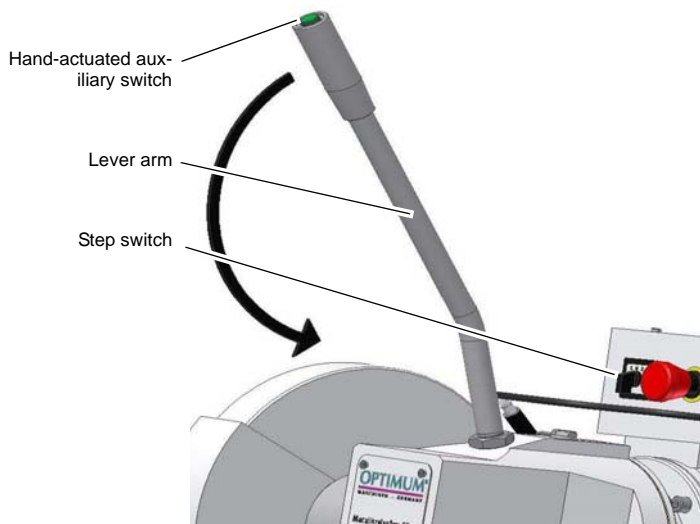


Fig.4-7: Hand-actuated auxiliary switch and step switch

4.6 Switching off the machine



→ Push the lever arm upward.

→ Release the hand-actuated auxiliary switch at the handle of the lever arm.



→ Switch the step switch to the position „0".

→ Main switch off.

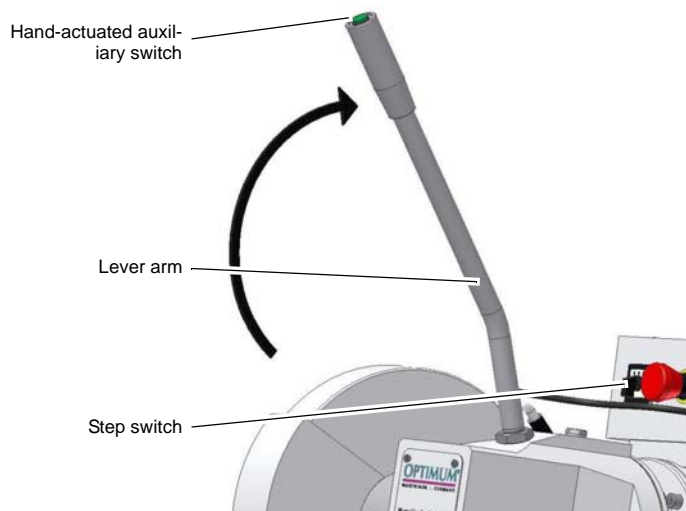


Fig.4-8: Hand-actuated auxiliary switch and step switch

4.7 Sawing of angles

The cold saw can be turned from -45° to 45° in order to allow angular saw cuts.

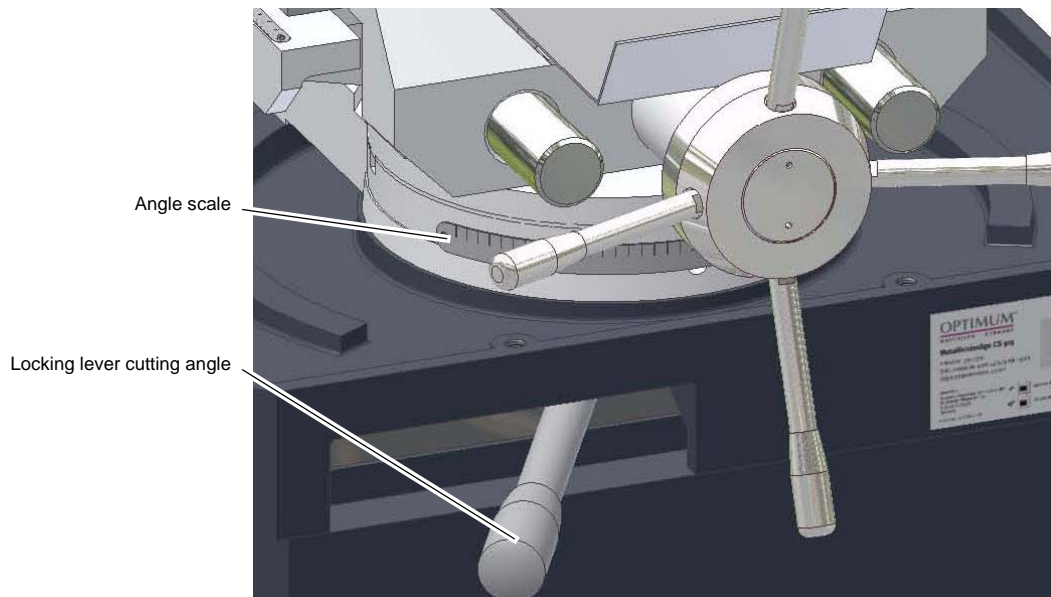


Fig.4-9: Setting of angle cut

CAUTION!

Make sure that the saw is clean and free of chips in the angle-setting area before adjusting it.

- Loosen the locking lever.
- Turn the saw to the required cutting position with the help of the angle scale.
- Retighten the locking lever.
- Move the locking lever to the right in order to release the bearing block.
- Adjust the saw to the required position with the help of the angle scale.
- Move the locking lever to the left in order to re- clamp the bearing block.

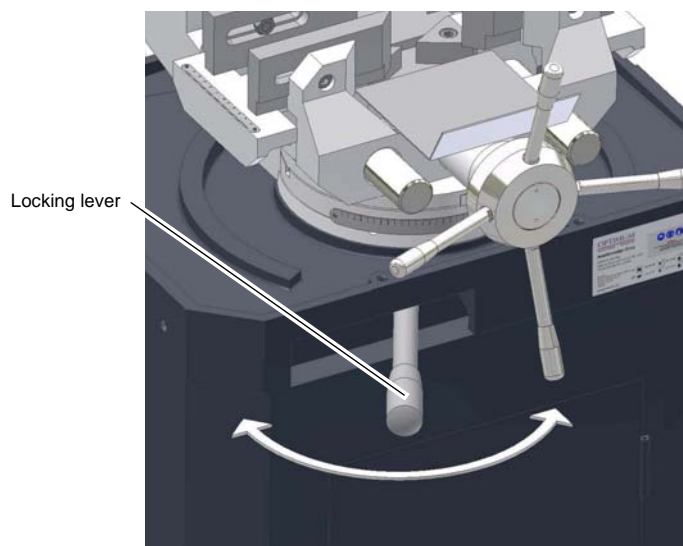


Fig.4-10: Releasing clamping lever

4.8 Cooling



ATTENTION!

Damage to the pump in the event of dry running.

When the cold saw is switched on the coolant pump is switched on.

The pump is lubricated by the coolant. Do not start up the pump without coolant.

→ Turn the coolant valve in direction of the coolant hose until the coolant flows.

By cooling with an appropriate coolant/lubricant agent you will achieve better working results and longer life of the saw blade.

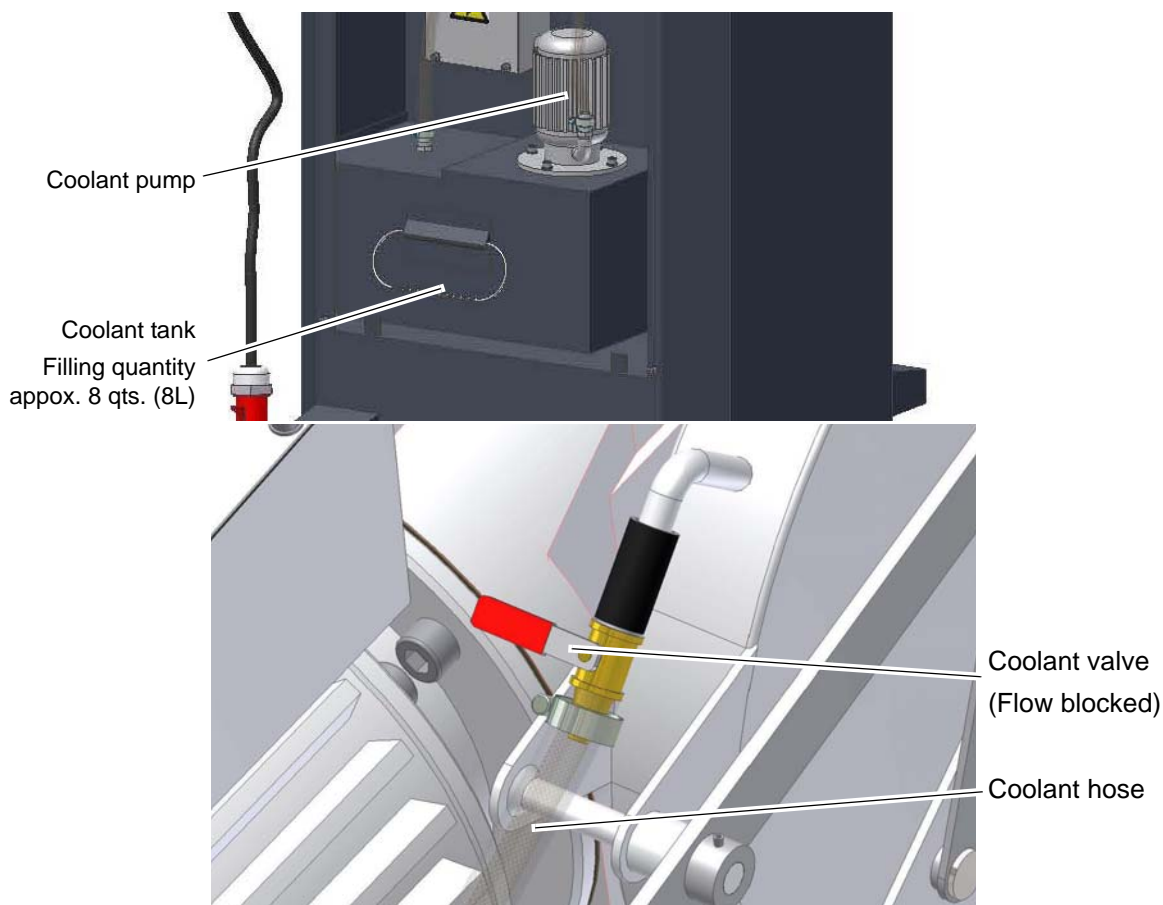


Fig.4-11: Coolant system



INFORMATION

Use a water-soluble and non-pollutant emulsion as a cooling agent. This can be acquired from authorised distributors.



Make sure that the cooling agent is properly retrieved.

Respect the environment when disposing of any lubricants and cooling agents.

Follow the manufacturer's disposal instructions.

5 Maintenance

In this chapter you will find important information about

- inspection,
- maintenance,
- repair.

The diagram below shows which of these headings each task falls under.

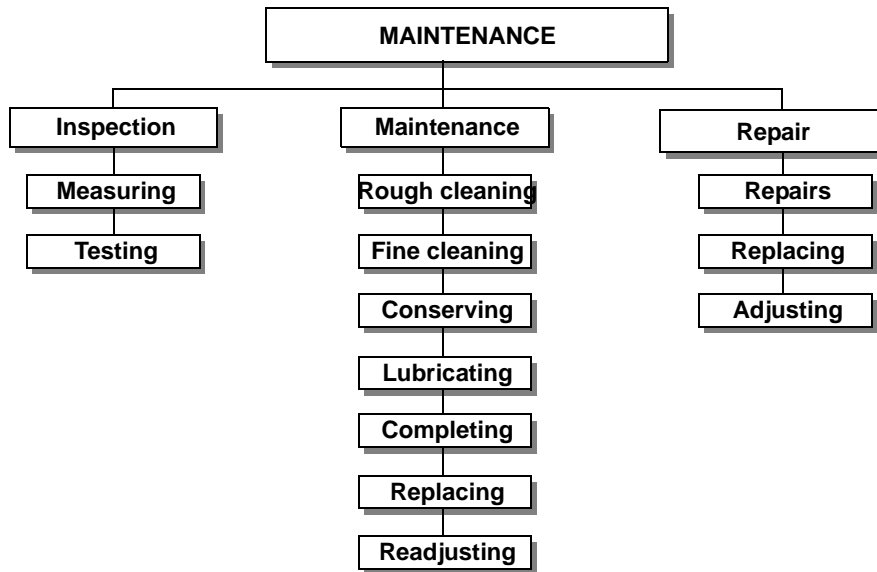


Fig.5-1: Maintenance – tasks



ATTENTION!

Properly-performed regular maintenance is an essential prerequisite for

- safe operation,
- fault-free operation,
- long service life of the machine and
- the quality of the products you manufacture.

Installations and equipment from other manufacturers must also be in optimum condition.



ENVIRONMENTAL PROTECTION

Make sure that when working on the worm gear and on the coolant tank

- collection tanks are used where the collecting capacity is appropriate for the quantity of liquids which needs to be collected.
- any spilt liquids and oils are not spilt on the ground.

Clean up any spilt liquid or oils immediately using proper oil-absorption methods and dispose of them in accordance with current legal requirements on the environment.

Cleaning up spillages

Do not re-introduce liquids spilt outside the system during repair or as result of leakage from the reserve tank: collect them in a special vessel to be disposed of.

Disposal

Never dump oil or other pollutant substances in water inlets, rivers or channels.

Used oils must be delivered to a collection centre. Consult your superior if you do not know where the collection centre is.

5.1 Safety



WARNING!

The consequences of incorrect maintenance and repair work may include:

- Very serious injury to staff working on the machine,
- damage to the machine.

Only qualified staff should carry out maintenance and repair work on the machine.

5.1.1 Preparation



WARNING!

Only carry out work on the machine if it has been unplugged from the electrical power supply.

Attach a warning label.

5.1.2 Restarting

Before restarting, run a safety check.



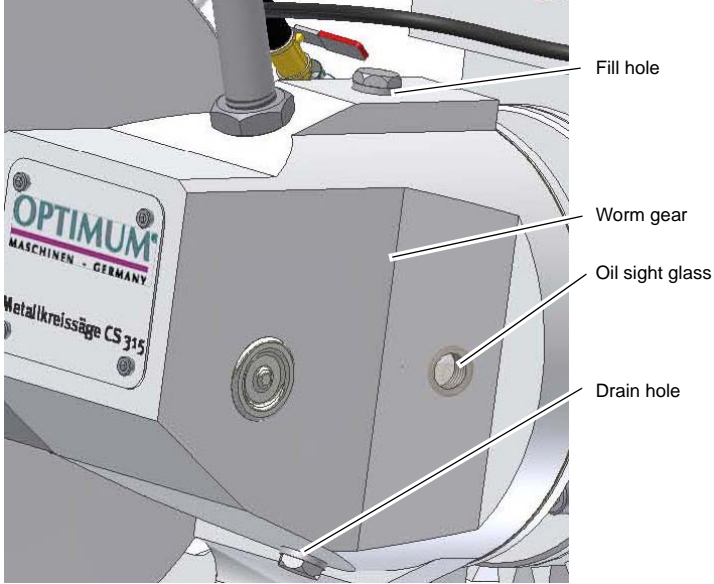




WARNING!


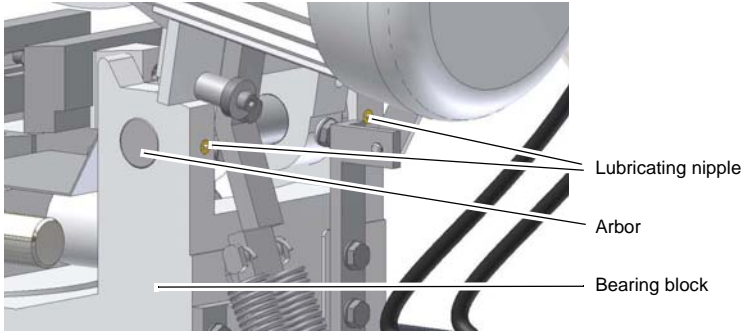

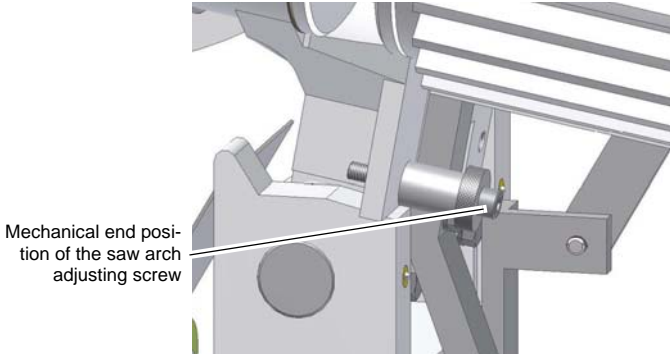
Prior to activating the machine please double-check that this will

- not endanger anybody,
- not damage the machine.



5.2 Inspection and maintenance

The type and extent of wear depends to a large extent on individual usage and service conditions. For this reason, all of the intervals are only valid for the authorised conditions.

Interval	Where?	What?	How?
Every six months	Worm gear	Check oil level, change gear oil.	<ul style="list-style-type: none"> • Replace the lubricating oil in the worm gear. • Regularly check the oil level on the sight glass. • The oil level has to reach at least the middle of the sight glass.  <p>Illustration: 5-2: Oil level worm gear</p> <p>INFORMATION  The filling quantity amounts to about 0.5 L (1/2 qt.) Type of the gear oil,  "Service material" on page 15</p>
Every six months	Electrical system	Check	Check the electrical devices / components of the cold saw .  "Qualification of personnel" on page 8
As required	Machine	Cleaning the machine	→ Clean the machine with an appropriate cloth and provide rust protection with rust-inhibiting oil.  "Service material" on page 15

Interval	Where?	What?	How?
As required	Vice	Cleaning the vice	<p>→ Regularly remove the chips which are accumulating below the clamping jaws.</p> <p>→ To do so, use a thin, flat brush.</p> <p> CAUTION! Never clean the vice with compressed air.</p>
As required	Arbor bearing block	Lubricate	<p>→ Lubricate the arbor of the bearing block</p>  <p>Illustration: 5-3: Bearing block</p>
As required	Machine vice	Spindle	<p>→ Lubricate the spindle of the machine vice at the provided lubricating nipples.</p> <p>Type of lubricating oil,  "Service material" on page 15</p>
As required	Bearing block saw head	adjusting the end position	<p>The end position of the saw blade shall be positioned below the support face of the machine vice.</p> <p>→ Adjust the end position of the saw head with the screw. Refasten the counter nut after readjusting it.</p>  <p>Illustration: 5-4: end position saw arch</p>

Maintenance

Interval	Where?	What?	How?
Every six months	Coolant system	Filling in / Rinsing / Replacing	<p>The coolant pump is almost maintenance-free.</p> <ul style="list-style-type: none"> • Replace the cooling agent regularly, depending on usage. • Rinse the coolant pump when using coolants which leave residues. • In order to exchange the coolant liquid, pump it into an appropriate collecting vessel and refill the coolant liquid. <p> INFORMATION</p> <p>The filling quantity amounts to about 8 L (8 qts.). Thus the tank is filled about 2/3 of its filling capacity.</p>
According to wear	Saw blade	Replacing the saw blade	<p> "Mounting and replacing the saw blade" on page 36</p>



INFORMATION!

The spindle bearing is prelubricated. No lubricating is required.

5.3 Mounting and replacing the saw blade



Disconnect the cold saw from the electrical supply.

☞ “Disconnecting the cold saw and making it safe“ on page 13



ATTENTION!

Danger of cutting, please proceed carefully when performing the below described tasks. Use the prescribed personal protective gear.

- Switch the step switch to the position 0.
- Disconnect the mains plug.
- Adjust the saw to the maximum top.

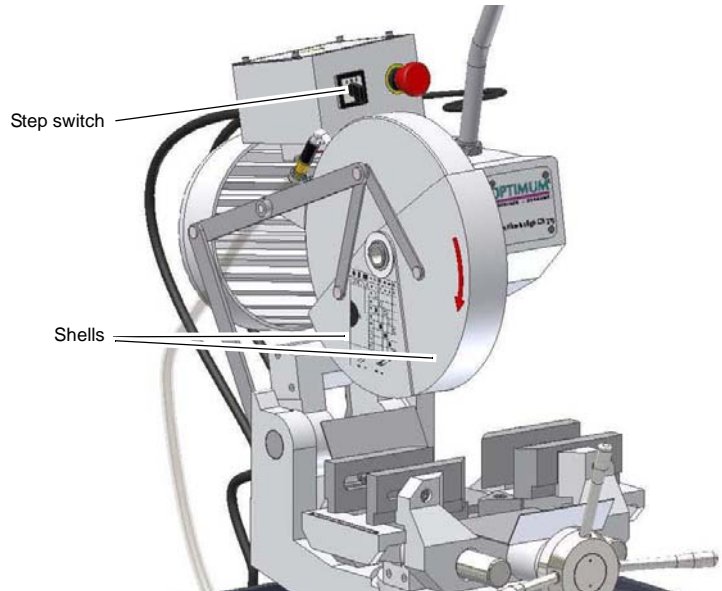


Fig.5-5: Mounting and replacing the saw blade

- Push the shells of the protective device apart.
- Loosen the socket screw M8 from the sawing spindle and remove the cutting flange.
- Remove the sawing blade.
- Thoroughly clean the sawing spindle and the flange.
- Reassemble the parts in reverse sequence.



CAUTION!

Please proceed carefully when performing the below described tasks.

- Mind the turning direction of the saw blade.
- Check that the saw is correctly set.
- Close the protective hood again.

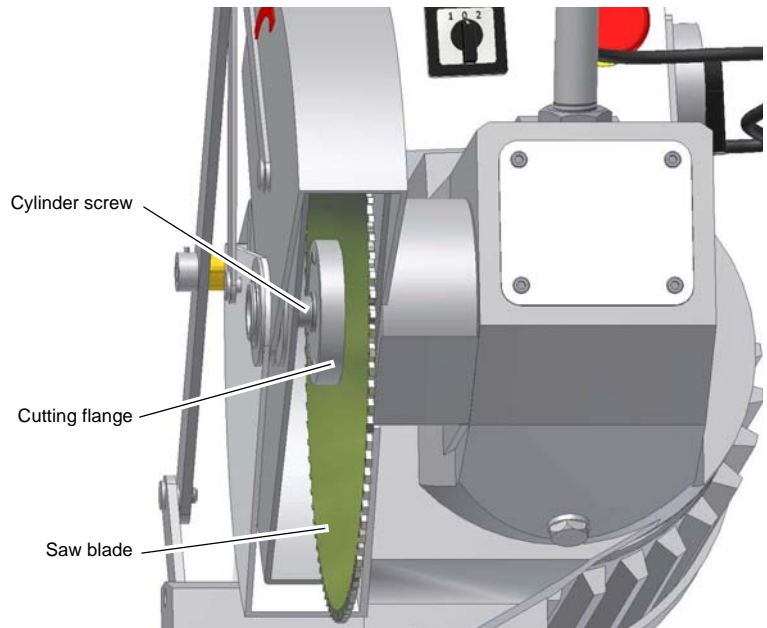


Fig.5-6: Mounting and replacing the saw blade

- When mounting the saw blade, make sure that the saw blade is correctly positioned on the flange of the spindle.

5.3.1 Dimensions of sawing flange

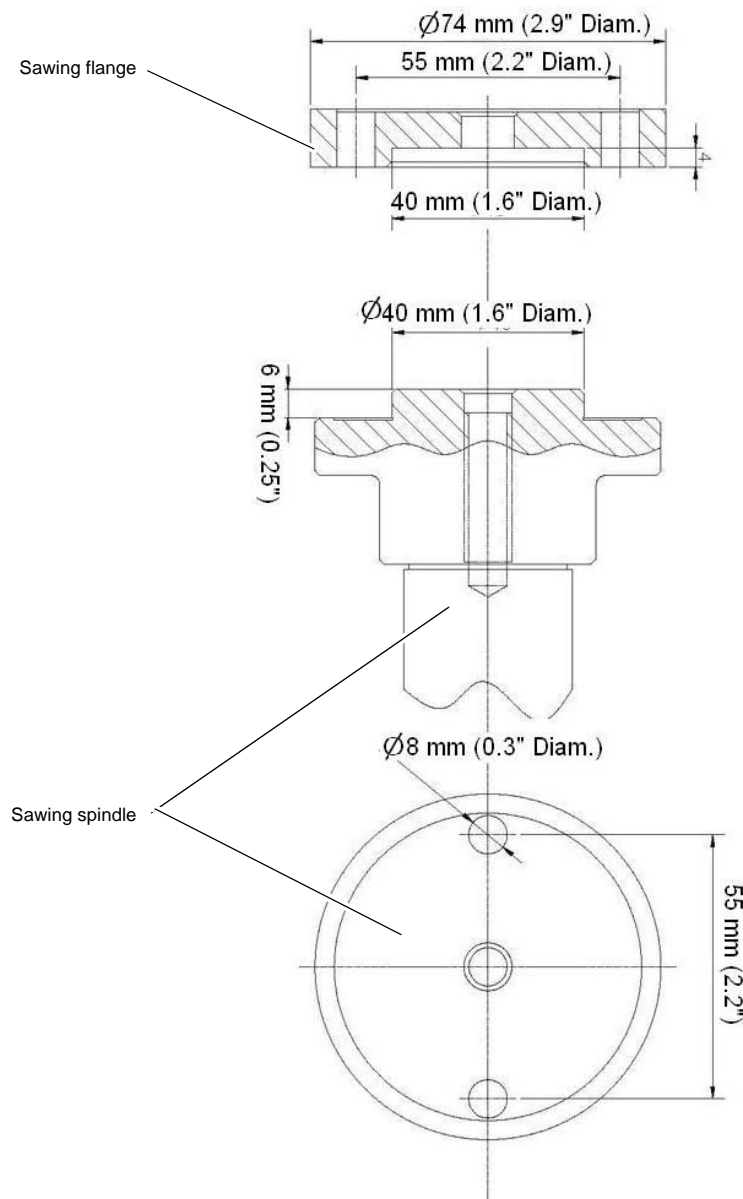


Fig.5-7: Sawing flange CS250/ CS350

5.4 Repair

Repairs must be carried out only by qualified technical staff; and must follow the instructions and guidelines given in this manual. Should technical assistance be required, contact LDS Industries at 1-630-785-6437

Optimum Maschinen - Germany and LDS Industries are not liable for, nor do they warranty against, damage or operating malfunctions resulting from alteration, abuse, lack of maintenance or this product's use for other than its intended purpose. Failure to read and follow this operating manual is not covered.

For repairs only use

- Proper and suitable tools,
- Parts purchased from Optimum, or its authorized agent.

6 Spare parts

6.1 CS250/ CS350

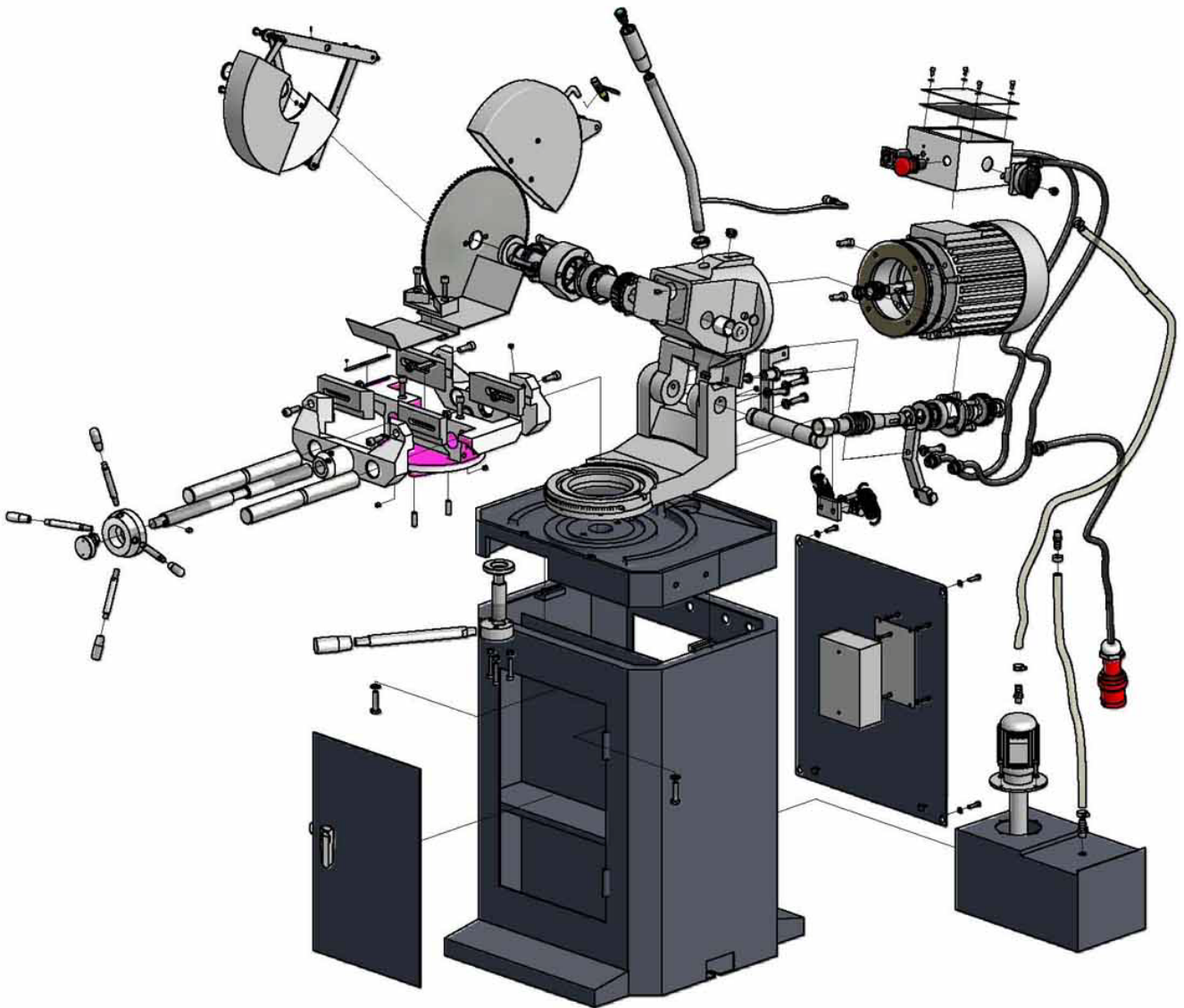


Fig.6-1: CS250/ CS350

6.1.1 Spare parts

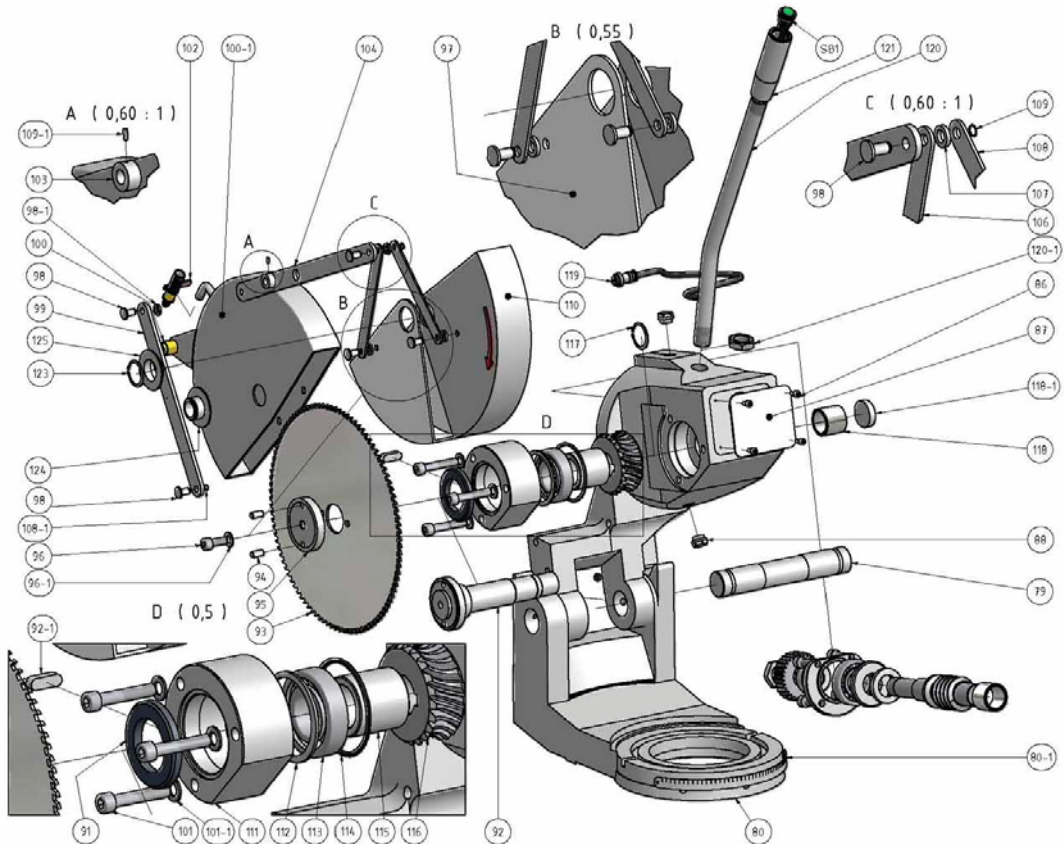


Fig.6-2: Front view - CS250/ CS350

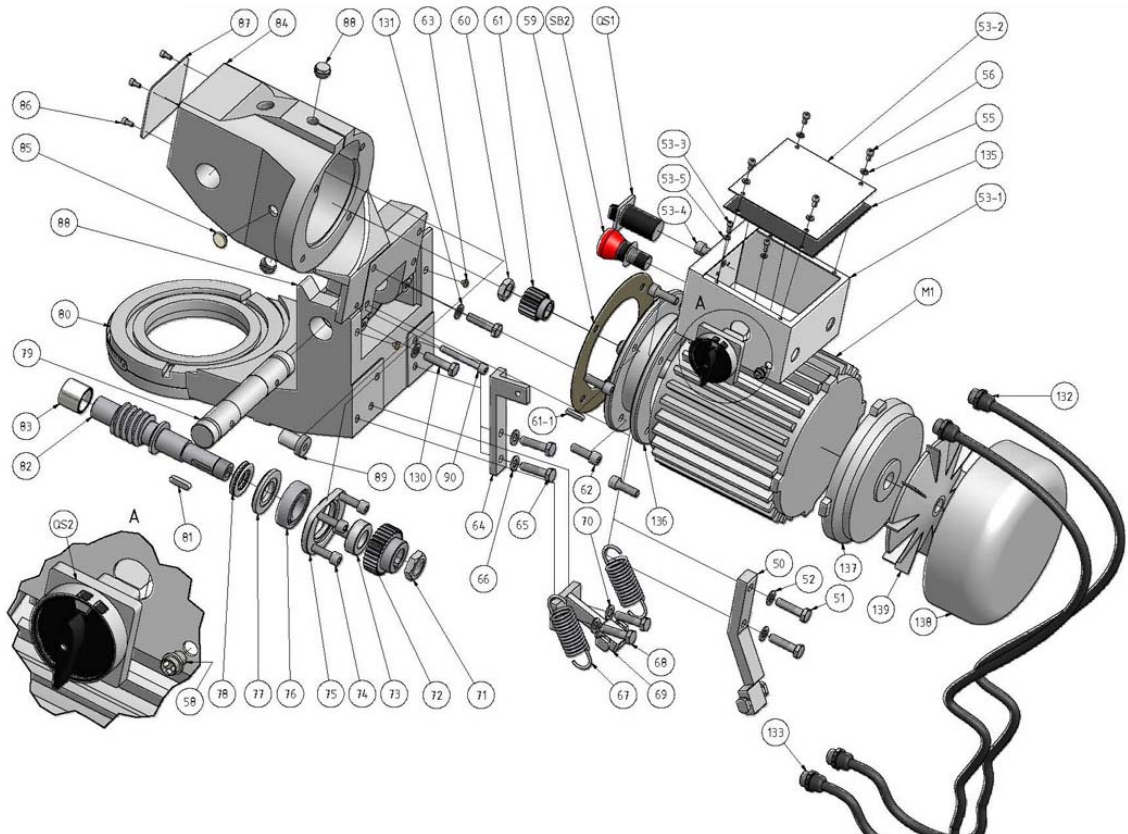


Fig.6-3: Rear view- CS250/ CS350

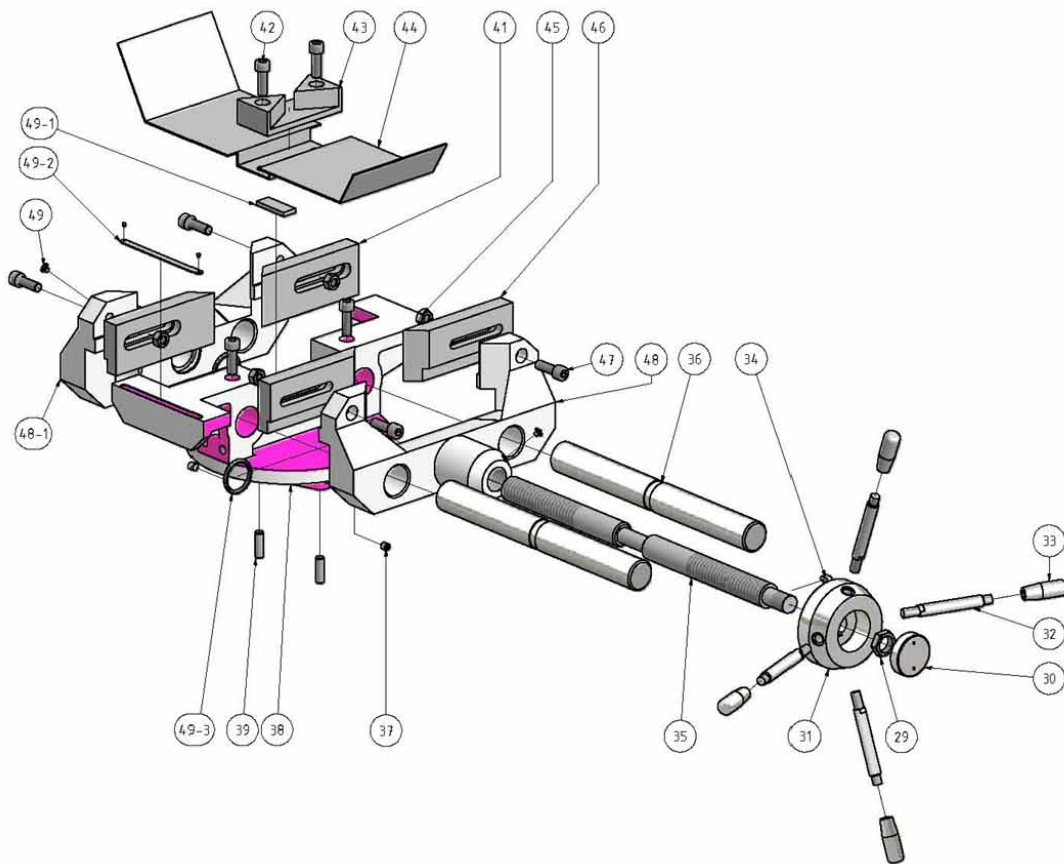


Fig.6-4: Machine vice - CS250/ CS350

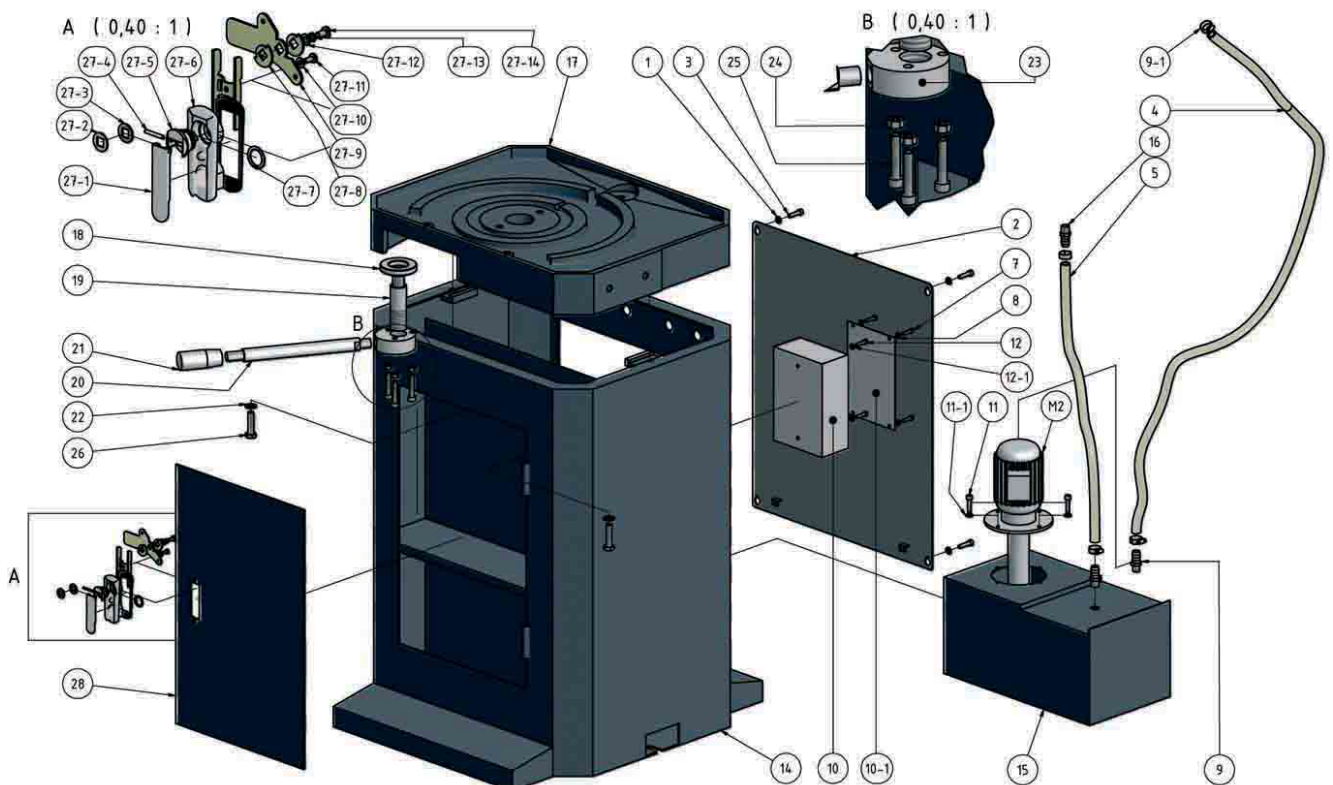


Fig.6-5: Machine stand CS350

6.1.2 Spare parts list - CS250

Pos.	Description	Qty.	Size	Item no.
1	Socket-head cap screw	8	M5x10	
2	Cover	1		0330227502
3	Washer	1	Ø5	
4	Cooling agent hose	1	Ø10	0330227504
5	Cooling agent hose	1	Ø12	0330227505
7	Socket-head cap screw	4	M5x10	
8	Washer	4	Ø5	
9	Reducer / Hose clip	1		0330227509
9-1	Hose clamp	4		03302275091
10	Electrical box	1		0330227510
10-1	Cover plate	1		0330227510-1
11	Socket-head cap screw	4	M6x20	
11-1	Washer	4	Ø6	
12	Socket-head cap screw	4	M5x20	
12-1	Washer	4	Ø6	
13	PG-screw connection	5		0330227513
14	Machine stand	1		0330227514
15	Coolant tank	1		0330227515
16	Reducer	1		0330227516
17	Baseplate	1		0330227517
18	Ring	1		0330227518
19	Threaded part	1		0330227519
20	Lever	1		0330227520
21	Handle	1		0330227521
22	Washer	2	Ø10	
23	Tightening nut	1		0330227523
24	Nut	2	M8	0330227524
25	Socket-head cap screw	2	M8x45	0330227525
26	Hexagon head screw	2	M10x40	0330227526
27	Opener/ Closer (complete)	1		0330227527
27-1	Grip	1		03302275271
27-2	Washer	1		03302275272
27-3	Lock washer	1		03302275273
27-4	Cylinder bolt	1		03302275274
27-5	Holder (grip)	1		03302275275
27-6	Holder	1		03302275276
27-7	Gasket	1		03302275277
27-8	Stop plate	1		03302275278
27-9	Plate (Opener/ Closer)	1		03302275279
27-10	Washer	1		
27-11	Socket-head cap screw	1	M4x10	033022752711
27-12	Washer	1		
27-13	Washer	1		
27-14	Socket-head cap screw	1	M5x10	033022752714
28	Door	1		0330227528
29	Nut	1	M20	
30	Cover	1		0330227530
31	Hub	1		0330227531
32	Lever	4		0330227532
33	Handle	4		0330227533
34	Key	1	6x12	0330227534
35	Spindle	1		0330227535
36	Guide shaft	2		0330227536
37	Threaded pin	2	M8x10	
38	Lower part	1		0330227538
39	Cylindrical pin	2	2	0330227539
41	Chuck jaws	2		0330227541
42	Socket-head cap screw	2	M10x30	
43	Supporting block	1		0330227543
44	Shield	1		0330227544
45	Nut	4	M10	
46	Chuck jaws	2		0330227546
47	Socket-head cap screw	4	M10x30	
48	Clamping jaw	1		0330227548
48-1	Clamping jaw	1		0330227548-1
49	Grease nipple	2	10	0330227549
49-1	Plate	1		03302275491

Pos.	Description	Qty.	Size	Item no.
49-2	Scale	1		03302275492
49-3	O-ring	2	B2840	03302275493
50	Angle pull-spring	1		0330227550
51	Hexagon head screw	2	M10x25	
52	Washer	2	Ø10	
53-1	Electric box housing	1		03302275531
53-2	Electric box cover	1		03302275532
53-3	Socket-head cap screw	4	M5x10	
53-4	Socket-head cap screw	4		
53-5	Washer	4	Ø5	
54	PG-screw connection	2	Ø16	0330227554
55	Washer	4	Ø5	
56	Socket-head cap screw	4	M5x10	
59	Seal	1		0330227559
60	Nut	1	20	
61	Gear wheel	1	Z=17; m=2	0330227561
61-1	Key	1	6x20	03302275611
62	Socket-head cap screw	4	M10x20	
63	Grease nipple	2	10	0330227563
64	Assembly angle	1		0330227564
65	Hexagon head screw	2	M10x25	
66	Washer	2	Ø10	
67	Spring	2		0330227567
68	Hexagon head screw	2	M10x25	
69	Angle pull-spring	1		0330227569
70	Washer	2	Ø10	
71	Nut	1	M25x1,5	
72	Gear wheel	1	Z=31; m=2	0330227572
73	Space ring	1		0330227573
74	Socket-head cap screw	4	M8x25	
75	Lock washer	1		0330227575
76	Bearing	1	3207A-RS	0403207.2R
77	Ring	1		0330227577
78	Axial-thrust bearing	1	81206	04081206
79	Shaft	1		0330227579
80	Bearing block	1		0330227580
80-1	Scale	1		03302275801
81	Key	1	8x30	0330227581
82	Worm shaft	1		0330227582
83	Needle bearing	1	BK3026	040BK3026
84	Sawing head housing	1		0330227584
85	Sight glass	1		0330227585
86	Socket-head cap screw	4	M4x8	
87	Label	1		0330227587
88	Plug	1	NPT 3/8	0330227588
89	Knurled nut	1		0330227589
90	Socket-head cap screw	1	M10x75	
91	Seal	1	B4565	0330227591
92	Sawing spindle	1		03302275922
92-1	Key	2	10x28	03302275921
93	Saw blade	1	HSS 4 ZpZ	3357444
93	Saw blade	1	HSS 6 ZpZ	3357446
93	Saw blade	1	HSS 8 ZpZ	3357448
94	Cylindrical pin	2		0330227594
95	Sawing flange	1		0330227595
96	Socket-head cap screw	1	M10x25-LH	0330227596
96-1	Washer	1	Ø10	
97	Joint hood	1		0330227597
98	Bolt	4		0330227598
98-1	Washer	1		03302275981
99	Coupling rod	1		0330227599
100	Centering bushing	1		03302275100
100-1	Protection hood	1		033022751001
101	Socket-head cap screw	3	M10x65	
101-1	Washer	3	Ø10	
102	Shut-off valve	1		03302275102
103	Ring	1		03302275103
104	Coupling rod	1		03302275104
106	Coupling rod	1		03302275106

Spare parts

Pos.	Description	Qty.	Size	Item no.
107	Spacer	1		03302275107
108	Coupling rod	1		03302275108
108-1	Snap ring	1	8	033022751081
109	Snap ring	5	8	03302275109
109-1	Setscrew	1		033022751091
110	Protection hood	1		03302275110
111	Bearing cover	1		03302275111
112	Snap ring	1	72	03302275112
113	Bearing	1	3207A-RS	0403207.2R
114	O ring	1	71x2,65	03302275114
115	Socket	1		03302275115
116	Worm gear	1		033022751161
117	Snap ring	1	32x1,5	03302275117
118	Needle bearing	1	BK3026	040BK3026
120	Lever arm	1		03302275120
120-1	Nut	1	M22-7H	033022751201
121	Handle	1		03302275121
123	Snap ring	1	30	03302275123
124	Socket	1		03302275124
125	Washer	1		03302275125
130	Hexagon head screw	2	M10x40	03302275130
131	Washer	1	10	
132	Electric cable	1		03302275132
133	Electric cable	1		03302275133
135	Gasket	1		03302275135
136	Motor flange	1		03302275136
137	Motor cover	1		03302275137
138	Fan cover	1		03302275138
139	Fan	1		03302275139
1M1	Sawing motor	1	YDJ100L-4/8	03302275M1
1M2	Cooling pump	1	AB12	03302275M2
1S9	Step switch	1	H25-20/4/380V	03302275QS1
1S8	Power switch	1		03302275QS2
1K1	Motor contactor	1	LC1K0910	03302275KM
1T1	Transformer	1	400V/24V	03302275TC
1S3	Push button ON/ OFF	1	LAS1-A	03302275SB1
1S1	Emergency stop switch	1		03302275SB2

6.1.3 Spare parts list - CS350

Pos.	Description	Qty.	Size	Item no.
1	Socket-head cap screw	8	M5x10	
2	Cover	1	KS315-00-34	0330230002
3	Washer	4	Ø5	
4	Cooling agent hose	1	Ø10	0330230004
5	Cooling agent hose	1	Ø12	0330230005
7	Socket-head cap screw	4	M5x10	
8	Washer	4	Ø5	
9	Reducer / Hose clip	1	KS315-00-60	0330230009
9-1	Hose clamp	4		03302300091
10	Electrical box	1	KS315-00-52	0330230010
10-1	Cover plate	1	KS315-00-53	0330230010-1
11	Socket-head cap screw	4	M6x20	
11-1	Washer	4	Ø6	
12	Socket-head cap screw	4	M5x20	
12-1	Washer	4	Ø6	
13	PG screw connection	5	Ø16	0330230013
14	Machine stand	1	KS315-00-29	0330230014
15	Coolant tank	1	KS315-00-47	0330230015
16	Reducer	1	KS315-00-60	0330230016
17	Baseplate	1	KS315-00-01	0330230017
18	Ring	1	KS315-00-24	0330230018
19	Threaded part	1	KS315-00-48	0330230019
20	Lever	1	KS315-00-41	0330230020
21	Handle	1	KS315-00-51	0330230021
22	Washer	2	Ø10	
23	Tightening nut	1	KS315-00-25	0330230023
24	Nut	2	M8	
25	Socket-head cap screw	2	M8x45	
26	Hexagon head screw	2	M10x40	
27	Opener/ Closer (complete)	1		0330230027
27-1	Grip	1		03302300271
27-2	Washer	1		03302300272
27-3	Lock washer	1		03302300273
27-4	Cylinder bolt	1		03302300274
27-5	Holder (grip)	1		03302300275
27-6	Holder	1		03302300276
27-7	Gasket	1		03302300277
27-8	Stop plate	1		03302300278
27-9	Plate (Opener/ Closer)	1		03302300279
27-10	Washer	1		
27-11	Socket-head cap screw	1	M4x10	033023002711
27-12	Washer	1		
27-13	Washer	1		
27-14	Socket-head cap screw	1	M5x10	033023002714
28	Door	1		0330230028
29	Nut	1	M20	
30	Cover	1	KS315-00-45	0330230030
31	Hub	1	KS315-00-08	0330230031
32	Lever	1	KS315-00-09	0330230032
33	Handle	1		0330230033
34	Key	1	6x12	0330230034
35	Spindle	1	KS315-00-05	0330230035
36	Guide shaft	1	KS315-00-04	0330230036
37	Threaded pin	1	M8x10	
38	Lower part	1	KS315-00-03	0330230038
39	Cylindrical pin	2	KS315-00-31	0330230039
41	Chuck jaws	2	KS315-00-06	0330230041
42	Socket-head cap screw	2	M10x30	
43	Supporting block	1	KS315-00-07	0330230043
44	Shield	1	KS315-00-33	0330230044
45	Nut	1	M10	
46	Chuck jaws	2	KS315-00-11	0330230046
47	Socket-head cap screw	4	M10x30	
48	Clamping jaw	1	KS315-00-10	0330230048
48-1	Clamping jaw	1	KS315-00-30	03302300481
49	Grease nipple	2	10	0330230049
49-1	Plate	1	KS315-00-46	03302300491

Spare parts

Pos.	Description	Qty.	Size	Item no.
49-2	Scale	1	KS315-00-56	03302300492
49-3	O-ring	1	B2840	03302300493
50	Angle pull-spring	1	KS315-00-26	0330230050
51	Hexagon head screw	2	M10x25	
52	Washer	2	Ø10	
53-1	Electric box - housing	1	KS315-00-61	03302300531
53-2	Electric box - cover	1	KS315-00-62	03302300532
53-3	Socket-head cap screw	4	M5x10	
53-4	Socket-head cap screw	4		03302300534
53-5	Washer	4	Ø5	
54	PG screw connection	2	Ø16	0330230054
55	Washer	4	Ø5	
56	Socket-head cap screw	4	M5x10	
59	Seal	1		0330230059
60	Nut	1	20	
61	Gear wheel	1	KS315-00-18	0330230061
61-1	Key	1	6x20	03302300611
62	Socket-head cap screw	4	M10x20	
63	Lubrication fitting	2	10	0330230063
64	Assembly angle	1	KS315-00-37	0330230064
65	Hexagon head screw	2	M10x25	
66	Washer	4	Ø10	
67	Spring	2	KS315-00-44	0330230067
68	Hexagon head screw	2	M10x25	
69	Angle pull-spring	1	KS315-00-27	0330230069
70	Washer	2	Ø10	
71	Nut	1	M25x1,5	
72	Gear wheel	1	KS315-00-17	0330230072
73	Space ring	1	KS315-00-32	0330230073
74	Socket-head cap screw	4	M8x25	
75	Lock washer	1	KS315-00-23	0330230075
76	Bearing	1	3207A-RS	0403207.2R
77	Ring	1	KS315-00-22	0330230077
78	Axial-thrust bearing	1	81206	04081206
79	Shaft	1	KS315-00-13	0330230079
80	Bearing block	1	KS315-00-12	0330230080
80-1	Scale		KS315-00-43	03302300801
81	Key	1	8x30	0330230081
82	Worm shaft	1	KS315-00-14	0330230082
83	Needle bearing	1	BK3026	040BK3026
84	Sawing head housing	1	KS315-00-16	0330230084
85	Sight glass	1	A10	0330230085
86	Socket-head cap screw	4	M4x8	
87	Label	1		0330230087
88	Plug	2	NPT3/8	0330230088
89	Knurled nut	1	KS315-00-36	0330230089
90	Socket-head cap screw	1	M10x28	
91	Seal	1	B4565	0330230091
92	Sawing spindle	1		03302300922
92-1	Key	1	10x28	03302300921
93	Saw blade	1	HSS 4 ZpZ	3357454
93	Saw blade	1	HSS 6 ZpZ	3357456
93	Saw blade	1	HSS 8 ZpZ	3357458
94	Cylindrical pin	2	KS315-00-35	0330230094
95	Sawing flange	1	KS315-00-12	0330230095
96	Socket-head cap screw	1	M10x25	
96-1	Washer	1	Ø10	
97	Joint hood	1	KS315-00-28-2	0330230097
98	Bolt	4	KS315-00-28-1	0330230098
98-1	Washer	1	KS315-00-28-1	03302300981
99	Coupling rod	1	KS315-00-38	0330230099
100	Centering bushing	1	KS315-00-28-1	03302300100
100-1	Protection hood	1	KS315-00-28-1	033023001001
101	Socket-head cap screw	3	M10x65	
101-1	Washer	3	Ø10	
102	Shut-off valve	1		03302300102
103	Ring	1	KS315-00-28-1	03302300103
104	Coupling rod	1	KS315-00-28-5	03302300104
106	Coupling rod	1	KS315-00-28-4	03302300106

Pos.	Description	Qty.	Size	Item no.
107	Spacer	1	KS315-00-28-1	03302300107
108	Coupling rod	1	KS315-00-28-3	03302300108
108-1	Snap ring	1	8	033023001081
109	Snap ring	1	8	03302300109
109-1	Setscrew	1		033023001091
110	Protection hood	1	KS315-00-28-1	03302300110
111	Bearing cover	1	KS315-00-19	03302300111
112	Snap ring	1	72	03302300112
113	Bearing	1	3207A-RS	0403207.2R
114	O ring	1	71x2,65	03302300114
115	Socket	1	KS315-00-21	03302300115
116	Worm gear	1		033023001161
117	Snap ring	1	32x1,5	03302300117
118	Needle bearing	1	BK3026	040BK3026
120	Lever arm	1	KS315-00-42	03302300120
120-1	Nut	1	M22-7H	033023001201
121	Handle	1	KS315-00-57	03302300121
123	Snap ring	1	30	03302300123
124	Socket	1	KS315-00-28-1	03302300124
125	Washer	1	KS315-00-28-9	03302300125
130	Hexagon head screw	2	M10x40	
131	Washer	1	10	
132	Electric cable	1		03302300132
133	Electric cable	1		03302300133
135	Gasket	1		03302300135
136	Motor flange	1		03302300136
137	Motor cover	1		03302300137
138	Fan cover	1		03302300138
139	Fan	1		03302300139
1M1	Sawing motor	1	YDJ100L-4/8	03302300M1
1M2	Cooling pump	1	AB12	03302300M2
1S9	Step switch	1	H25-20/4/380V	03302300QS
1S8	Power switch	1		03302300QS
1K1	Motor contactor	1	LC1K0910	03302300KM
1T1	Transformer	1	400V/24V	03302300TC
1S3	Push button ON/ OFF	1	LAS1-A	03302300SB1
1S1	Emergency stop switch	1		03302300SB2

6.2 Wiring diagram

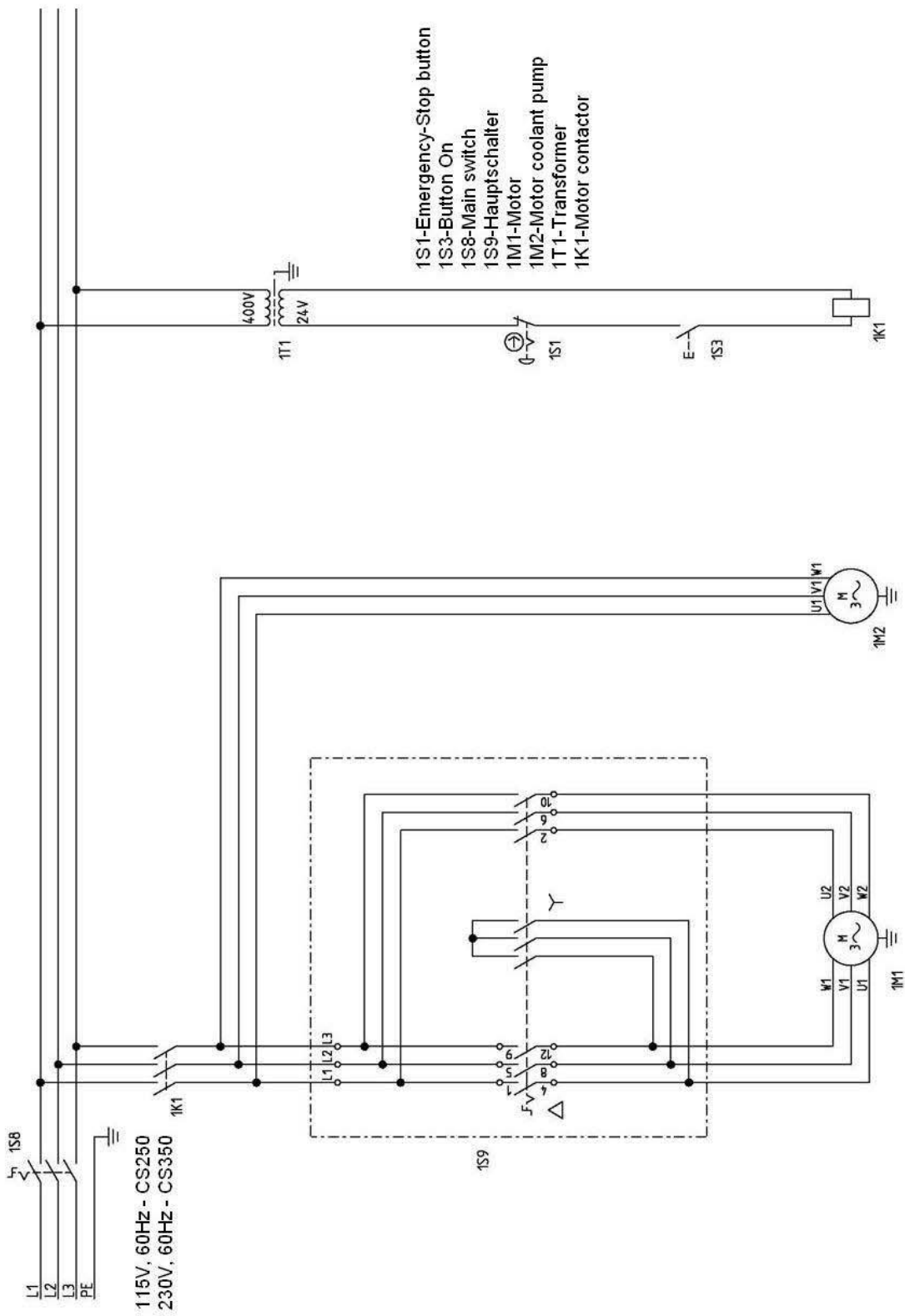


Fig.6-6: Wiring diagram

7 Troubleshooting

7.1 Troubleshooting the cold saw

Problem	Cause / Possible effects	Solution
Saw motor overloaded	<ul style="list-style-type: none"> Suction of motor cooling air hindered Motor not correctly wired Power unit for saw blade not correctly fixed 	<ul style="list-style-type: none"> Check and clean Requires technical service! Have the machine repaired in the workshop
Motor is not running	<ul style="list-style-type: none"> Motor connected incorrectly Relay or motor defective Step switch is switched to position 0/ OFF Thermal protection of the motor is defective 	<ul style="list-style-type: none"> Request help of electrical specialists
Short life of saw blade (Teeth dull)	<ul style="list-style-type: none"> Quality of saw blade not suitable for this material An incorrect toothing causes breakage of teeth (the broken tooth in the workpiece blunts the other teeth) Missing cooling Cutting speed too high 	<ul style="list-style-type: none"> Saw blade with higher quality Select correct toothing Use coolant system Reduce cutting speed
Breaking of teeth	<ul style="list-style-type: none"> Chip space in the saw belt full, toothing incorrect 	<ul style="list-style-type: none"> Use saw blade with different toothing or reduce feed
Twisted cut (saw blade deviating)	<ul style="list-style-type: none"> Saw blade blunt Cutting pressure too high Saw blade defective (irregular set) 	<ul style="list-style-type: none"> Replace Reduce Replace
Saw excessively jerks or breaks	<ul style="list-style-type: none"> Cutting speeds too high Teeth too blunt or too small gaps between the teeth Saw jerks as chips remain in the gaps of the saw blade The saw is installed reverse to the turning direction 	<ul style="list-style-type: none"> Have saw blade ground and the gaps between the teeth polished Turn round the saw and check the teeth
Cut not rectangular, but parallel	<ul style="list-style-type: none"> Material not resting on both vice rails Vice jaws not adjusted to 90° 	<ul style="list-style-type: none"> Support material properly Correctly adjust the cold saw
Cooling does not work	<ul style="list-style-type: none"> The valve on the sawing hood is closed The pump is not connected Pump defective Coolant tank empty Suction tube of the coolant pump is blocked Wrong turning direction of the pump 	<ul style="list-style-type: none"> Open coolant valve Connect coolant pump Replace pump Fill tank (approx. 8 qts.) Clean or replace suction tube Pump impeller should turn CCW (looking at bottom of impeller)

8 Appendix

8.1 Copyright

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8.2 Terminology/ Glossary

TERM	EXPLANATION
Work piece	<ul style="list-style-type: none">• Piece to be sawed
Material stop	<ul style="list-style-type: none">• Position for several sawings• Sawing stop
Protective cover of saw blade	<ul style="list-style-type: none">• Casing on the saw blade
Clamping jaws	<ul style="list-style-type: none">• Clamping rail of the machine vice
Quick-action vice	<ul style="list-style-type: none">• Clamping device for the workpiece
Drive motor	<ul style="list-style-type: none">• Sawing motor
High-strength cable gasket	<ul style="list-style-type: none">• Strain relief of the electrical connection

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