



**OPERATION & INSTRUCTION MANUAL
ABRASIVE CUTTING**

METACUT 302

EC Declaration of Conformity

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- Model No** : METACUT 302

Herewith declares that;

Metallographic Cutting Machine

- is in conformity with the provisions of the Machinery Directive **(directive 2006/42/EEC)**, as amended, and with national implementing legislation;
- is in conformity with the provisions of the Low Voltage Directive **(directive 2014/35/EU)**, as amended, and with national implementing legislation;
- is in conformity with the provisions of the EMC Directive **(directive 2014/30/EU)**, as amended, and with national implementing legislation;

And furthermore declares that

- the following (parts/clauses of) standards have been applied

EN ISO 12100:2010, TS EN 60204-1, TS EN IEC 61000-6-2, TS EN 61000-6-4

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DESCRIPTION

Design

METKON chop cutting machine METACUT 302 is the ideal abrasive cut-off machine for metallographic samples, offering perfect solutions for efficient, versatile and high-quality cutting.

- Modern stylish outlook
- Compact and powerful
- Easy and quick operation
- Designed for cutting large and irregular workpieces
- Manually controlled cutting lever
- Max. safety with electronic brake and interlocking safety device
- Stainless steel cutting bed
- Suitable for both Ø300 mm and Ø250 mm cut-off wheels
- High cutting capacity

METKON chop cutting machine METACUT 302 is designed for wet cutting of large and small, regularly or irregularly shaped workpieces of metallic, ceramic or composite materials. METACUT 302 is a tabletop high quality cutting machine suitable for Ø300 and Ø250 mm cut-off wheels. It has the capacity to cut solid sections up to 115 mm in diameter.

The side access port permits the sectioning of extra-long workpieces, as well. The machine is equipped with a powerful motor, driving the cut-off wheel towards the workpiece. The bottom part of the machine is a large robust alloy base casting. The cutting table is provided with T-Slots increasing the versatility so that different clamping sets can be mounted. Spacious cutting chamber and extra-large cutting table enables easy clamping of the specimens to be cut. The quick-clamping devices are removable to permit the installation of conventional clamping tools to hold larger or more intricate workpieces.

The complete system is enclosed in a protective hood with a large shatterproof window to observe the cutting process. The cutting chamber inside is illuminated with a powerful LED.

New design sloping base of the cutting chamber provides easy flowing of the cutting fluid back to the recirculating unit, preventing the accumulation of the cooling fluid. METACUT 302 is available as both tabletop unit and optional rigid Floor Cabinet. START, STOP, Pump and Lamp touchpad buttons are mounted on the front panel. METACUT 302 has the highest safety standards. The interlocking safety device does not allow the motor to be started unless the hood is closed. The hood cannot be opened before the motor is stopped. The electronic brake system, which is a standard feature, brings the cutter to a quick full stop in seconds after it has been switched off.



Technical Data

Model Order No	METACUT 302 10 05
Cutting Power, kW [S1]	3
Cutting Power, kW [S3]	4.6
Wheel Speed, RPM	2800
Operation	Manual
Wheel Diameter, [mm]	Ø300 / Ø250
Cutting Capacity, Ø [mm]	Ø115 / Ø90
Cutting Capacity, # [mm]	50 x 195 / 50 x 165
T-Slot Table Dimension, [mm]	255 x 250
T-Slot Dimension, [mm]	12
Size, WxDxH, [cm]	58 x 68 x 49
Weight, [kgs]	132
Cooling Unit, [lt]	60

Warranty

The METACUT 302 is guaranteed against defective material or workmanship defects for a period of 12 months from the date of receipt by the customer or latest 18 months after the shipping date. The warranty is not valid if inspection shows evidence of misuse or unauthorized repair. Warranty covers only replacement of defective materials. If this unit need to be returned to our factory for service, please contact your distributor for authorization and include the following details: Serial Number of the unit, Invoice number and date. Transport costs belong to the customer.

NOTE

Disabling Safety switch on the METACUT 302 will void warranty.

NOTE

Warranty does not cover the safety switch. Do not apply excessive force to open the front door when safety switch is locked. Otherwise, it can be broken in a short time.



Using any other brand consumables apart from METKON brand (cut-off wheels, cooling fluids) this warranty will not cover:

- Painting deformation and rusting on the components
- Deformation and corrosion occurred on Motor, Bearings, Clamping Devices, bearing housings, etc.

Safety Precautions

Read the below instructions carefully before use.

- Place the machine on a sturdy and safe platform.
- The equipment must be installed in compliance with local safety regulations.
- Only use approved METKON accessories and consumables to achieve maximum safety and lifetime.
- The equipment is not for use with saw-blade type cut off wheels.
- Follow the instructions and safety regulations when lifting and carrying the equipment.
- Be sure that the sample is securely fixed in the clamping devices. Handle the large and sharp samples in a safe way.
- Do not put your hand in the cutting chamber during positioning of the cutting wheel.
- Do not put your hand through the opening on the side to cut long pieces during the operation.
- The equipment emits only moderate noise. However, during the cutting process the emitted noise may be higher. Wearing hearing protection is recommended.
- Disconnect the electrical connection before servicing the equipment.
- After cutting operation, heat and sharp edges may occur. Using protection gloves are recommended.
- Do not bypass the safety switch.
- Follow the periodically maintenance and keep the door open when not working.



NOTE

METKON Instruments Inc. can make any changes without notice on the equipment, accessories, consumables and miscellaneous products. Consequently; visual or written information on the instruction manuals, technical materials, catalogues, website, product videos and other marketing materials may show inconsistencies and may be different from the product.

INSTALLATION & SET UP

Unpacking & Checking Contents of Package

Carefully remove the outer packing material and check contents of the package. If any components are missing or damaged, save the packing list and materials and advise your distributor and the carrier of the discrepancy.



WARNING

METACUT 302 weights approximately 132 kg and be sure that there are enough people (at least 4) to lift the equipment safely for transportation. It is recommended to wear safety shoes during transportation.



ATTENTION

METACUT 302 is bolted to a wood base for protection during shipping. Remove the bolt securing the unit to the wood base.

- METACUT 302 is available either as bench top or with cabinet.
- METACUT 302 should be placed on a sturdy and safe platform. Please be sure that the platform is large enough and can stand its weight.
- In order to work with equipment comfortably, it is recommended to leave at least 1 m space from all side of the equipment.
- You can see the dimensions and weight of METACUT 302 as below:

Without Cabinet			
Dimensions	W	D	H
	58 cm	68 cm	49 cm
Weight	Approx. 132 kgs		

With Cabinet			
Dimensions	W	D	H
	58 cm	68 cm	132 cm
Weight	Approx. 140 kgs		

- If METACUT 302 ordered without cabinet, you will need enough space for recirculating cooling tank under the bench.



- You can see the dimensions of recirculation cooling tank with pump as below:

Dimensions	W	D	H
	55 cm	42 cm	58 cm

- It is recommended to leave at least 30 cm space from all side of the recirculating cooling tank.

Step by Step Unpacking

If Sent in a Carton Box (Equipment without Cabinet)

- Carefully remove the outer stretch wrap, cut the strips and remove the cover.



- Place the upper box on the ground.



- Open that box. Remove consumables and recirculation coolant tank.



- Open the other box. Insert the two ropes on the inner side of the machine feet. Put a sponge material between the ropes and machine to prevent any risk of damage.



- Carefully remove the equipment from the box by using a lifting equipment. Please consider weight of equipment while lifting it.



- Carefully remove the protective bubble wrap. Be careful not to damage equipment while using a knife. Remove the protective foam on the touch screen.



If Sent in a Carton Box [Equipment with Cabinet]

- Carefully remove the outer stretch wrap, cut the strips and remove the cover.



- Open the box and remove filling materials inside the box.



- Remove the box and carefully remove the protective bubble wrap on the equipment. Be careful not to damage equipment while using a knife.



- Open the cabinet. Remove the consumables and recirculation coolant tank.



- Equipment is fixed on the wooden base with bolts. Lift the equipment from the wooden base by using a lifting equipment and then carefully remove these bolts.



- Insert the lifting profiles inside the cabinet and lift the equipment with a forklift.



If Sent in a Wooden Case

- Carefully remove the outer stretch wrap.



- Open the top cover of wooden case by removing screws.



- Open the back, front and side covers in the same way and remove filling materials inside the case.



- Carefully remove the protective bubble wrap on the equipment. Be careful not to damage equipment while using a knife.



- Open the cabinet (if available). Remove the consumables and recirculation coolant tank.



- Equipment is fixed on the wooden base with bolts. Lift the equipment from the wooden base by using a lifting equipment and then carefully remove these bolts.



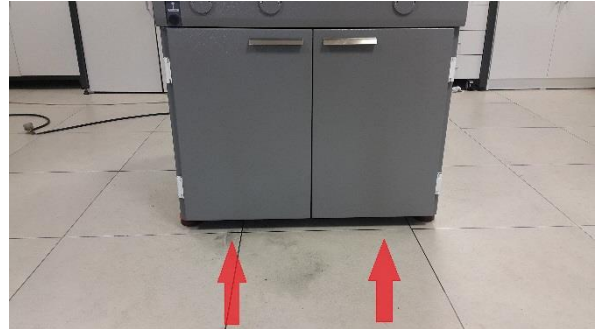
- Insert the lifting profiles inside the cabinet and lift the equipment with a forklift.



Lifting and Transportation

If equipment is sent with cabinet, follow below steps to lift and transport:

- Place the lifting profiles under the machine.
- Carefully lift the equipment with a pallet jack or a forklift by considering the weight center.
- Carefully place it to the ground.



Lifting Profiles

- Alternatively, you can lift the equipment from the side with two pallet jacks or a forklift.
- Use two pallet jacks to lift the equipment.
- Lift from right side and left side of the equipment at the same time.
- Consider the center of gravity when lifting equipment.
- Slowly lift, move and place on the ground.

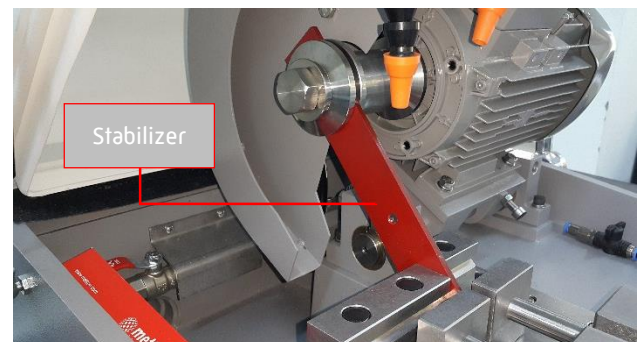


Lifting from Side with Pallet Jacks



NOTE

To avoid movement of cutting motor during transportation, the cutting shaft is fixed to the vise assemblies or directly to the T-table with a red stabilizer. Disassemble the stabilizer before operating.



Stabilizer

Installation and Set-Up



CAUTION

Follow approved procedures and take all necessary preventive safety measures when lifting and installing this equipment. Improper lifting can result equipment damage.

Locate the METACUT 302 with convenient access to a 3-phase power source. Be sure to allow a minimum space of 50 cm at the rear of the machine.



ATTENTION

The safety switch is set to the "UNLOCK" position to lock the front door closed for transportation. The motor does not work after pressing the "START" button but all the display functions are normal. Set the safety switch to the "LOCK" position to allow the motor to run.

Electrical Installation

Before making electrical connections, check that the voltage and frequency stated on the specification plate correspond to the local voltage and frequency. Check that the values for three-phase voltage, is compatible with the intended electrical supply before installation.

- Connect the mains cable of the METACUT 302 to an appropriate electrical outlet.
- Check the safety interlock switch is in the correct position.
- Open the hood, remove the bolt and flange from the hub, disassemble the stabilizer before operating.
- Close the door. Turn the instrument on from the main switch, which is on the right hand side of the instrument.
- See [Cutting Operation](#) section for operation.
- Press "START" and "STOP" buttons and observe from the window that the cutting wheel shaft rotates clockwise when looked at from the left.
- If the shaft rotation is incorrect, then see [Cut-Off Wheel Rotation Direction](#) section.



ATTENTION

Connect the unit to the grounded mains voltage. The METACUT 302 requires a 3-phase electrical supply and Earth/Ground. A neutral (N) conductor is not required.



WARNING

Electrical Shock Hazard. A qualified electrical technician should perform all hard wiring and electrical maintenance.

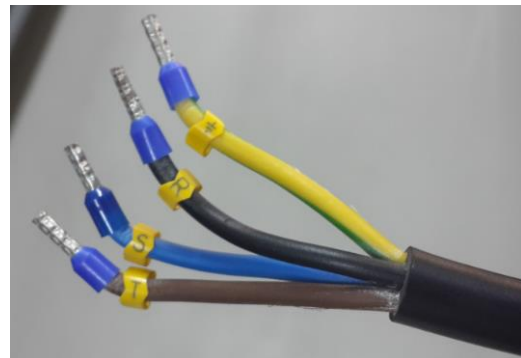
- Disconnect the power supply before making any electrical adjustments.
- Make sure that the supply voltage and frequency is correct. Check the values from the machine identification plate located at the rear of the machine

Voltage / Frequency	Operational Power Range	Fuse Rating
230 V, 50/60 Hz. 3 ph.	200 - 250 V	20 A [C Type]
400 V, 50/60 Hz. 3 ph.	360 - 440 V	10 A [C Type]



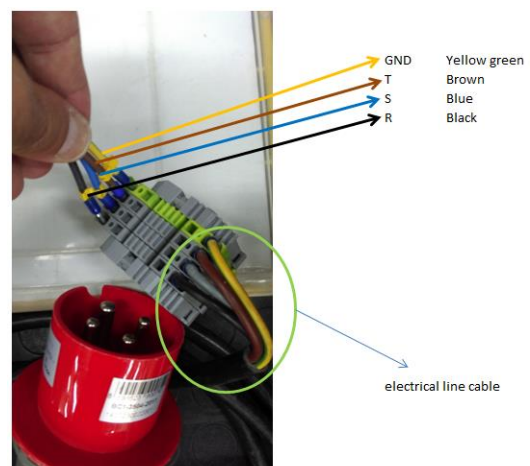
Identification Plate

- Connect the equipment to the grounded mains voltage.
- Please supply suitable 3-phase power plug according to power socket.



Power Cable

- You can see an example of connection method using an electric terminal.



Power Connection

Cooling Unit

- Recirculating cooling tank is an optional accessory of METACUT 302. So, it is not required to connect the METACUT 302 to the city water and drain.
- Recirculating cooling tank should be placed under the bench level.
- All connection hoses for recirculating cooling tank will be supplied with the equipment.



Recirculation Cooling Tank

- If you ordered METACUT 302 as benchtop, in this case you may need to open a hole on the bench for water hoses or leave enough space at the backside of the bench. Please be sure that the hole or space is large enough for water hoses.
- Outer diameters of water inlet and drain hose of recirculating cooling tank are as below:
One x Water inlet hose (Black): \varnothing 23 mm
One x Drain hose (White): \varnothing 58 mm

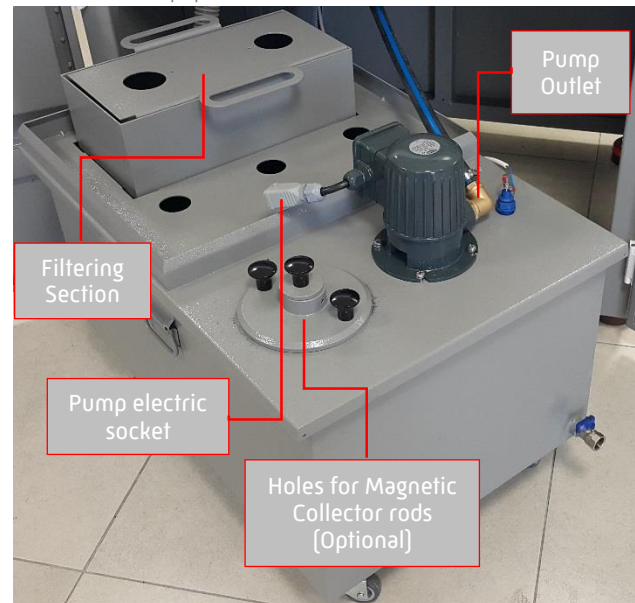


The cutting surface is cooled by four spray nozzles whose water jets hit both the cutting wheel and the specimen. This provides an efficient cooling of the sample and prevents the overheating of the surface structure.

Coolant is lost during the cutting process because of evaporation or left in the cutting chamber or components. For the best cutting performance and corrosion protection, replace the coolant regularly (max. 3 months)

Follow below steps to make recirculating cooling tank ready to use:

- Put the pump inside the cooling tank and fix it using four screws.
- Fix the small hose to the pump outlet by using hose clips.
- Connect the power cable to of the METACUT 302 to the electric socket of the pump.
- Put the magnetic collector rod (optional) inside the cooling tanks.
- Put a filter paper inside the filtration section.



Connection and Components of Recirculation Cooling Tank

- Move the cooling tank inside the cabinet.
- Put the large drain hoses inside filtration section.
- Fill the tank with a mixture at a ratio of 95% clean water + 5% METCOOL cutting fluid until the mixture level comes to 2-3 cm below the top. Water hardness should be 5-20 °dH in German Hardness and should not contain bacteria and chemical salts. METCOOL ratio should not less than 3% and should not more than 6%. If concentration is below 3%, corrosion may occur inside the cutting chamber. If concentration is more than 6%, foaming effect may occur.



Inside the Cabinet of METACUT 302

Leveling the position of the equipment

You should adjust the level of the machine before use. Otherwise, there may be vibration during cutting operation and problem on the water drainage. Follow below instruction to level the machine.

- Put a levelling tool on the T-slotted table in both X-axis and Y-axis direction. It is best to use two levelling tool at the same time, one of them is put in X-axis and the other one is put in Y-axis direction.
- Check if the bulb is between the lines. If the bulb is not between the lines, adjust the height of the foot by turning the nuts with a wrench tool.



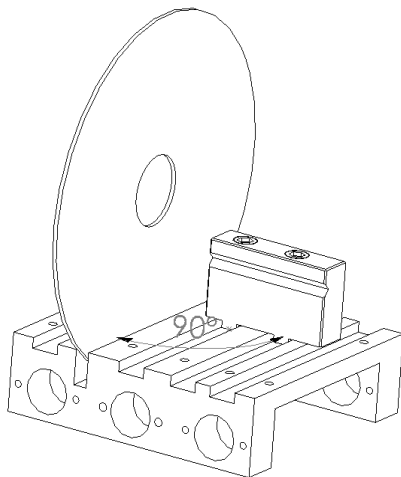
Levelling Tool

Foot

Mounting Clamping Devices

When assembling the rear jaw of a clamping device, make sure it is positioned perpendicular to the cutting wheel. You can check it with a set square. Otherwise, the cut side of the specimen will not be square to the sample axis.

If you are using two clamping devices, the jaws at the both sides will need to be set to the same alignment.



Perpendicularity

Safety

THE METACUT 302 machines conform to the highest standards of safety regulations. The cutting motor cannot be started unless the front door are closed. Opening the front door during cutting operation is not possible. The front door can be opened by the operator only after the cutting motor had stopped. The electronic brake system brings the cutting motor to a standstill in a few seconds.



The safety switch is delivered on UNLOCK position for safety transportation. If you START the equipment in this situation all the functions (light, table movement, and pump) will work except cutting motor. SET THE SAFETY SWITCH TO "LOCK" POSITION TO ALLOW MACHINE OPERATION.



Safety Switch (Located on the right side of equipment)

Cut-Off Wheel Rotation Direction

The cutting wheel shaft has to rotate clockwise when looked at from left of the equipment. Do not operate the equipment if the cut-off wheel is rotating in the wrong direction.

If the cut-off wheel rotates in the wrong direction, follow the steps below.

- Disconnect all electrical power
- Interchange two of the phase supply leads in the plug.
- Reconnect the electrical power and recheck.

Noise Level

Approximately 65 dB is measured at idle running at a distance of 1 meter from the machine.





CONTROL PANEL

METACUT 302 has simple and easy to use operator panel with buttons. Cooling pump, LED illumination and cutting motor can be controlled easily.



METACUT 302 Control Panel

Control Button Functions

	Light
	Pump
	Start
	Stop

Loading & Unloading of Specimen

In order to load the specimen into the cutting chamber, the lid must be raised first. Be sure that the hood is completely opened. After the specimen is loaded and clamped, lower the lid carefully.

Be sure that the upper part of the Safety Switch on the lid has interlocked to the bottom part. After that, you can start the cutting operation.

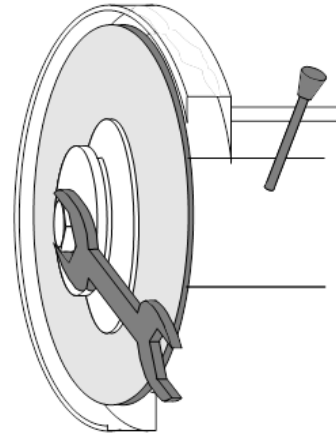


Loading and Clamping Specimen

OPERATION

Mounting of Abrasive Wheel

Insert the arbor pin in the hole of the hub and loosen the bolt with a wrench by turning it clockwise. Take the arbor pin out. Remove the bolt and the flange. Remove the abrasive wheel carefully.



Spindle Locking and Mounting of Abrasive Wheel

Mount the new wheel onto the arbor by placing cardboard disc on either side of the wheel to prevent damage. Then refit flange and bolt, tightening the bolt slightly with the wrench. Remove the arbor pin.

For a final check, spin the wheel by hand to see if it has been installed correctly and confirm that the wheel remains in a vertical alignment as it rotates.



IMPORTANT

Do not leave the arbor pin inserted in the hub. Injury or damage may happen if motor is started accidentally.



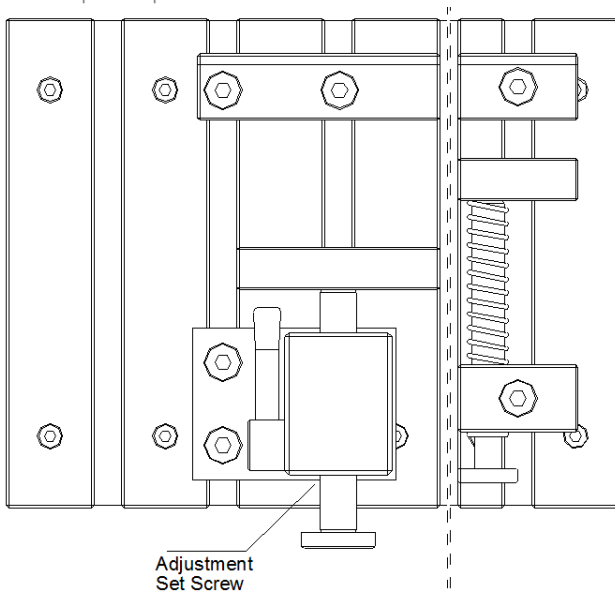
ATTENTION

Be sure that the cut-off wheel is suitable with your specimen. Choose an appropriate cut-off wheel according to your specimen material. Inappropriate cut-off wheels may cause serious damages on the mechanical parts on the machine, due to high vibration, heat generation and strain. The damages due to wrong cut-off wheel usage or non-METKON brand wheels are out of warranty!

Sample Clamping and Positioning

It is very important to ensure that the sample is fixed firmly in the clamping device. The METACUT 302 can be equipped with a left – hand cam activated quick acting clamping device and a right – handspring type clamping vise (or other optional vises) mounted on the T-slotted table capable of handling any kind of samples to be cut.

It is possible to detach the complete device so that very large parts can be clamped directly on the T-table. It is also possible to replace the vises on the T-table, if required. The standard clamping devices of METACUT 302 can fix most of the sample shape and size.



Vise Assembly

- Be sure that the clamping device is fixed properly on the T-table.
- Be sure that the specimen is clamped properly. Check the specimen with your hand after clamping.

Follow below directions to clamp specimen on the cam activated quick clamping device:






1. Release the clamping lever and open the vises completely.
 2. Place the sample and push clamping jaws against the sample rigidly.
 3. Push clamping lever so that the sample is held firmly.
- When clamping the object to be cut, it should be positioned to obtain equal support on both sides of the cut.
 - DO NOT apply excessive force when pushing the clamping levers as this can damage the cams. Use moderate hand pressure.
 - Fix long and big specimens from two side at least.

Cutting Operation

- Turn on the equipment from the main power switch to the right side of the machine.



Main Power Switch

- Turn on the light from the control panel.
 - 
- Clamp your specimen on the table correctly.
- Adjust water nozzles according to specimen. Turn on the pump from the control panel. Be sure that water flow is good.
 - 
- Close the hood and run the cutting motor by pressing "START" button from the control panel.
 - 
- Slowly feed the cutting wheel to the sample by cutting arm at the right side of the equipment.
- Do not apply excessive during cutting. If you feel vibration, strain and see a lot of spark, reduce the force. Otherwise, there may be burns on the sample surface, cut-off wheel can be broken and machine can be overloaded.
- At the end of the cutting process, return the lever to its starting position and turn off the machine by pressing "STOP" button from the control panel.
 - 
- Turn off the pump from the control panel.
 - 
- Open the hood and take your sample.

SERVICE AND MAINTENANCE

Maintenance

METACUT 302 may be exposed to harsh conditions especially when cutting large parts. Therefore, it is very important to carry out all maintenance steps on time to use machine without problem for a long time.

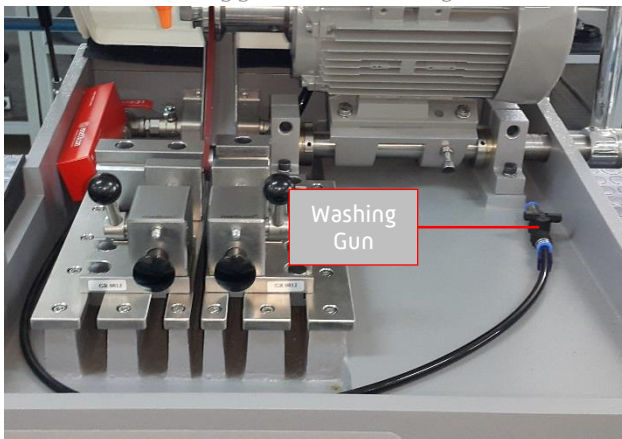
Strictly follow daily, weekly and monthly maintenance recommendations.

Use only "METCOOL" cutting fluids to obtain maximum corrosion protection and cooling properties.
Use only "METCOOL-NF" cutting fluid if you continuously cut reactive metals like copper, brass, cobalt, aluminum, tungsten carbide, etc... METCOOL-NF has perfect corrosion protection for the machine when cutting these parts.

Daily Maintenance

CLEAN THE CUTTING CHAMBER

At the end of working day, clean all area of the cutting chamber with washing gun inside the cutting chamber.



Washing Gun

If you do not clean the cutting chamber, the small metallic particles will cause corrosion in any parts inside the cutting chamber (T-table, clamping devices, shafts, paintings etc...).

KEEP DRY THE CUTTING CHAMBER

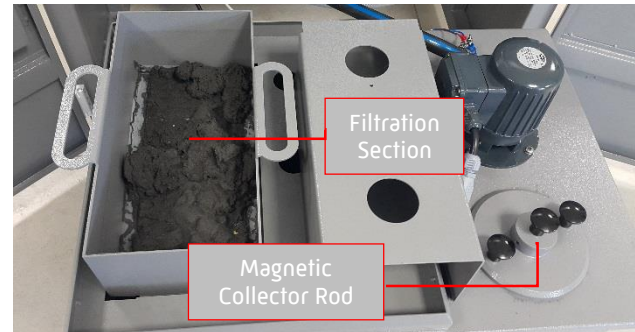
After cleaning, dry the cutting chamber and clamping devices with an air gun. If you leave the cutting chamber wet, this may cause corrosion in any parts inside the cutting chamber (T-table, clamping devices, shafts, paintings etc...).

KEEP HOOD OPEN

If you do not use the equipment for a long time, keep the hood open to avoid humidity inside the cutting chamber. The humidity may cause corrosion in any parts inside the cutting chamber (T-table, clamping devices, shafts, paintings etc...).

CHECK THE FILTRATION SECTION OF THE RECIRCULATION COOLING TANK

At the end of working day, check the filtration section. Depending on the intensity of use, it can be filled quickly with the swarfs.



Filtration Section

If the filtration section is filled with swarfs, empty the swarfs inside the filtration section and clean or replace the paper filter.

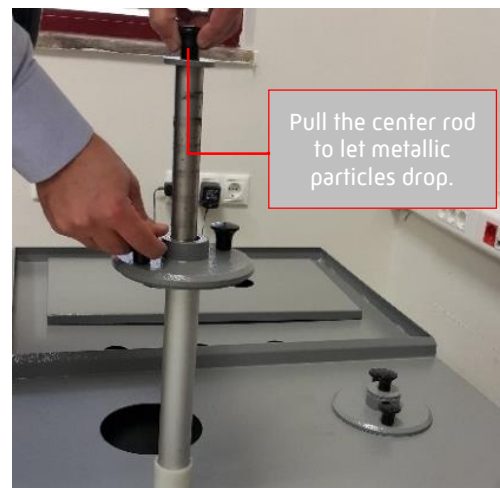


Filter

If recirculating cooling tank is equipped with optional magnetic collector rod, check them if they filled with magnetic particles. If they full, empty them by pulling the center rod.



Removing the Magnetic Collector Rod



Cleaning the Magnetic Collector

Weekly Maintenance

CHECK THE CUTTING FLUID

Open the lid of the cooling water tank. Check the pH value of the cooling fluid. If the pH value is below the 8.5, change the cooling fluid with the new mixture at a ratio of 95% clean water + 5% METCOOL.

If pH value is not below 8.5, only check whether the water level is low. If water level is low, add 95% clean water + 5% METCOOL cutting fluid mixture until the water level comes to 2-3 cm below the top.

Monthly Maintenance

CHANGE THE CUTTING FLUID

The cutting fluid should be changed periodically. Because, it may lose its cooling, anti-corrosion and anti-bacterial properties as you use it.

Follow below steps to change the cutting fluid:

- Move out the cooling tank from the cabinet.
- Remove the hoses and the cable connection of the pump.
- Remove filter basket and magnetic collector rod [optional].
- Open the lid of the tank and drain all the cutting fluid.
- Clean inside the tank, lid, pump, filter basket and magnetic collector rod properly.
- Fill the tank with a mixture at a ratio of 95% clean water + 5% METCOOL cutting fluid until the mixture level comes to 2-3 cm below the top. Water hardness should be 5-20 °dH in German Hardness and should not contain bacteria and chemical salts. METCOOL ratio should not less than 3% and should not more than 6%. If concentration is below 3%, corrosion may occur inside the cutting chamber. If concentration is more than 6%, foaming effect may occur.
- Close the lid, put the filter basket and magnetic collector rods, connect to hoses, the pump and cable connection.
- Place the cooling tank inside the cabinet.



Recirculation Cooling Tank

LUBRICATE THE CLAMPING DEVICES

Lubricate the all-moving parts of the clamping devices with a slideway oil or thin grease. [Never use grease containing Molybdenum Disulphide or graphite, which can impair the clamping ability of the Vise.]



Lubricating the Clamping Devices

Check the clamping force of the cam activated quick clamping devices. When insufficient, readjust the clamping force, by using the setscrew as shown in below:



Adjusting Clamping Force

Troubleshooting

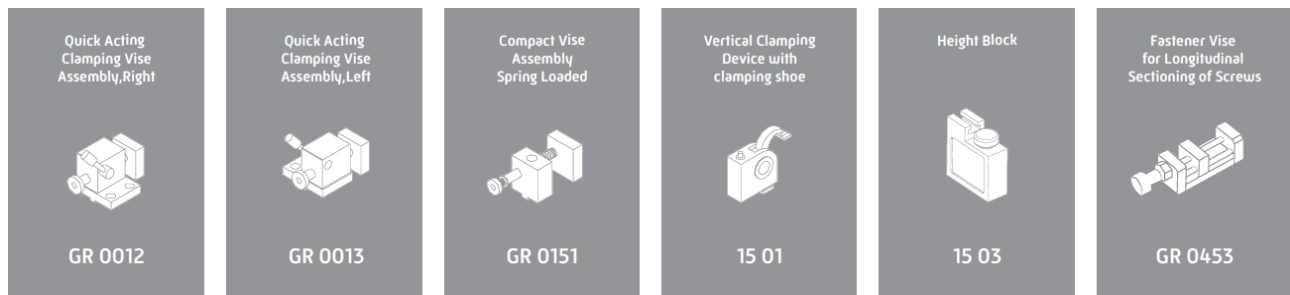
ERROR	DESCRIPTION	ACTION
The cut-off wheel is not rotating	The Safety Switch may be in UNLOCK position	Turn the safety switch to LOCK position.
	The hood may not closed properly	Close the hood properly.
Burning remarks on the cutting surface	The cut-off wheel is not compatible with the cut piece	Use proper cut-off wheel. See consumables section for the correct cut-off wheel selection.
	High cutting force	Reduce the force
	Insufficient cooling	*Check that there is enough cooling fluid in the tank. *Be sure that the cooling nozzles are correctly positioned on the specimen surface and the cut-off wheel.
Unwanted burrs on the sample	The cut-off wheel is not compatible with the cut piece	Use proper cut-off wheel. See consumables section for the correct cut-off wheel selection.
	High cutting force at the end of cycle	Reduce the force before the end of the operation.
	Improper clamping of the sample	Support the sample from both sides.
Cut-off wheel breaks	Incorrect mounting of the cut-off wheel	Check the mounting of the cut-off wheel and be sure that the nut and the flange is set properly
	The cut-off wheel is not compatible with the cut piece	Use proper cut-off wheel. See consumables section for the correct cut-off wheel selection.
	High cutting force	Reduce the force
	Improper clamping of the sample	Support the sample from both sides.
The Lexan window is blurred	Insufficient cleaning	Clean the Lexan window with a mild soapy water (Do not use the cooling fluid with cleaning hose)

ACCESSORIES AND CONSUMABLES

Clamping Devices and Accessories

Many sample preparation applications require the sectioning of a specimen from a small or irregularly shaped sample or component part. A small size or irregular shaped sample can create positioning and clamping difficulties for the operator. To overcome these difficulties, METKON offers a number of special clamping devices for use with our METACUT abrasive cutters. METKON cut-off machines are equipped with stainless T-slot clamping tables. All clamping devices are made of stainless steel and can be attached to the cutters T-slot beds in seconds, for fast and positive clamping of parts having virtually any configuration. Please see below, the clamping devices and accessories table, as well as clamping device drawings.

Order No	Clamping Devices for METACUT 302
GR 0012	Quick Acting Clamping Vise Assembly, Right, for MTC 302 (Stainless Steel)
GR 0013	Quick Acting Clamping Vise Assembly, Left, for MTC 302 (Stainless Steel)
GR 0151	Compact Vise Assembly, Spring Loaded, for MTC 302/SRC 302 (Stainless Steel)
15 01	MBU 1011 Vertical Clamping Device with clamping shoe, clamping height up to 90 mm
15 03	MK 10 21 Height Block, 60 mm
GR 0453	Fastener vise for longitudinal sectioning of screws, fasteners, tubes, etc. from 12 to 45 mm. in length



Order No	Cooling Systems for METACUT 302
GR 0019	Recirculation cooling tank with pump system, 60 lt tank capacity
YM 8813	Fine filter sheets for recirculation cooling tank (GR 0018/0019/1675/1945), 10 pcs
GR 1540	Magnetic collector rod for recirculation cooling tank

Order No	Accessories for METACUT 302
GR 0939	Cabinet for floor model, MTC 302

Order No	Spare Part Kit for METACUT 302
GR 1962	Recommended Set of Spare Parts, METACUT 302 *GAS SPRING, 2 pcs. *SPRING, MOTOR TENSIONER, 1 pc. *LED, 400 mm, 1 pc. *BUSHING, Ø30, 2 pcs. *LED CONTACTOR CARD 113MET03 (PRINTED), 1 pc. *CONTROL CARD, MTC 302, 1 pc.

Consumables

Abrasive cut-off wheels

The most commonly used abrasives for the cutting of different materials are SiC and Al₂O₃. Silicon carbide is suitable for non-ferrous metals, whereas Aluminum oxide is preferred for ferrous metals. Hard wheels are used for cutting soft materials while soft wheels are recommended for cutting harder materials.

Order No	Code	TRENO Series Abrasive Cut-Off Wheels, for Superior Surface Quality
19-019	TRENO-Ti	Ø250 mm, for Titanium and Very Ductile Materials, 10 pcs/pack
19-020	TRENO-NF	Ø250 mm, for Non-Ferrous Metals, 10 pcs/pack
19-021	TRENO-H	Ø250 mm, for Soft Steels < 23 HRC, 10 pcs/pack
19-022	TRENO-M	Ø250 mm, for Medium Hard Steels > 23-55 HRC <, 10 pcs/pack
19-023	TRENO-S	Ø250 mm, for Hard Steels > 50-60 HRC <, 10 pcs/pack
19-024	TRENO-SS	Ø250 mm, for Very Hard Steels > 60 HRC, 10 pcs/pack
19-040	TRENO-NF	Ø300 mm, for Non-Ferrous Metals, 10 pcs/pack
19-041	TRENO-H	Ø300 mm, for Soft Steels < 23 HRC, 10 pcs/pack
19-042	TRENO-M	Ø300 mm, for Medium Hard Steels > 23-55 HRC <, 10 pcs/pack
19-043	TRENO-S	Ø300 mm, for Hard Steels > 50-60 HRC <, 10 pcs/pack
19-044	TRENO-SS	Ø300 mm, for Very Hard Steels > 60 HRC, 10 pcs/pack
Order No	Code	Long Life Abrasive Cut-off Wheels
19-026	TRENO-DUR	Ø250 mm, for Extremely Low Consumption Rate with Optimum Surface Quality for High Volume Cutting Operations, Cut-Check Applications, etc., 10 pcs/pack
Order No	Code	Ultra Thin Abrasive Cut-off Wheels
19-031	TRENO-HT	Ø250 mm, 1.0 mm Thickness, for Soft Steels > 20-35 HRC <, 10 pcs/pack
19-032	TRENO-MT	Ø250 mm, 1.0 mm Thickness, for Soft & Medium Hard Steels > 38-58 HRC <, 10 pcs/pack
Order No	Code	CUTO Series Abrasive Cut-off Wheels, for Routine Laboratory Applications
19-022/A	CUTO-M	Ø250 mm, for Soft & Medium Hard Steels up to 50 HRC, 10 pcs/pack
19-023/A	CUTO-S	Ø250 mm, for Hard Steels > 50-60 HRC <, 10 pcs/pack
19-042/A	CUTO-M	Ø300 mm, for Soft & Medium Hard Steels up to 50 HRC, 10 pcs/pack
19-043/A	CUTO-S	Ø300 mm, for Hard Steels > 50-60 HRC <, 10 pcs/pack



Diamond Cutting Discs

Metal bonded wheels are used for cutting brittle materials, such as ceramics or minerals, while resin bonded wheels are used for ductile materials, such as sintered carbides or composites that contain predominantly hard phases. Several factors are important for choosing the appropriate wafering blade.

These include:

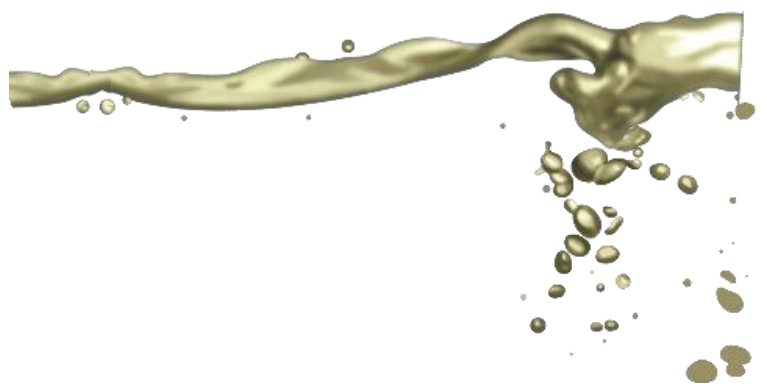
"High & low concentration metal bonded diamond wheels", "Diamond size (fine or medium)", "blade diameter" and "blade thickness". The diamond concentration is important because it directly affects the load, which is applied during cutting. For example, brittle materials such as ceramics require higher effective loads to section, whereas ductile materials such as metals require more cutting points. The result is that low concentration blades are recommended for sectioning hard brittle materials such as ceramics and high concentration blades are recommended for ductile materials containing a large fraction of metal or plastic.

Order No	Code	DESCRIPTION
19-250	DIMOS	Ø250 mm, Diamond Cut-off wheels (Metal Bonded, High Concentration)
19-251	DIMOS	Ø250 mm, Diamond Cut-off wheels (Resin Bonded, High Concentration)
19-300	DIMOS	Ø300 mm, Diamond Cut-off wheels (Metal Bonded, High Concentration)
19-301	DIMOS	Ø300 mm, Diamond Cut-off wheels (Resin Bonded, High Concentration)

Cutting Fluid

Cutting fluid is one of the most important thing to protect sample surface and the machine. Its function is to reduce heat generation between cut-off wheel and specimen surface during cutting operation. Second function is to prevent corrosion from specimen surface and the machine parts. METCOOL has special anti-corrosion additives as well as perfect cooling properties. It is nature friendly, boron-free and anti-bacterial. METCOOL-NF provides perfect corrosion protection when cutting reactive metals like copper, brass, cobalt, aluminum, tungsten carbide, etc... Mixing ratio is 95% water + 5% METCOOL.

Order No	Code	DESCRIPTION
19-902	METCOOL	Nature Friendly Soluble Oil, 5 lt.
19-906	METCOOL-NF	Nature Friendly Soluble Oil, 5 lt. Perfect corrosion protection for reactive metals like copper, brass, cobalt, aluminum, tungsten carbide, etc.



TECHNICAL DOCUMENTATION

Recommended Spare Part List

Order No	DESCRIPTION
GR 0655-00	PUMP GROUP BP22 230/400V
GR 1422-00	METACUT 251 MOTOR GROUP
YM 0047-01	FLANGE CUTTING SHAFT MTC 251
YM 0115-00	EMERGENCY STOPXB4-BS8445 SCHNEIDER
YM 0146-00	ADDITIONAL CONTACTOR, ZBE-102 TELEMEX
YM 0416-00	BALL VALVE 1/2" RED
YM 0598-00	PACCO SWITCH VCF-0 25A SCHNEIDER
YM 1086-00	CONTACTOR LC1D18 B7 SCHNEIDER
YM 1092-00	MECHANICAL LOCK-UP, LAD-9R1 TELEMECANIQUE
YM 1195-01	GAS SPRING, 1506126 70N TOF.MUY.M8
YM 2322-00	SAFETY SWITCH, XCSTE7311
YM 2323-00	KEY SWITCH, XCS Z13
YM 2386-00	BRACKET SAFETY SWITCH.MTC 250
YM 5604-00	PLATE T SLOT TABLE ,MIDDLE SRC 301
YM 5605-00	PLATE T SLOT TABLE ,SIDE SRC 301
YM 5711-00	BALL VALVE BC 20-0802
YM 6381-00	LED CONTROL CARD 113MET03
YM 6725-00	MOTOR, Q2E90L2DE-KG-H
YM 6727-00	TENSION SPRING ,MOTOR MTC251
YM 6730-00	CONTACTOR, LC1-K0610 SCHNEIDER
YM 6731-00	THERMIC, LRD14 7-10A SCHNEIDER
YM 6732-00	THERMIC, LR 2-K 0304 0,36-0,54A
YM 6734-00	TRANSFORMER, MTC 251/351
YM 6735-00	CONTROL CARD, MTC 251/351
YM 6831-00	THERMIC, LRD16 9-13A SCHNEIDER

Customer Service

Our factory-trained assembly personnel are at your disposal for customer service. Please contact the following address:

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