

MD-Alto

User Guide

Original Instructions



Doc. no.: 5080K000_D_en
Item no.: 50800177
Date of release: 2021.04.28

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1 Intended use

MD-Alto is a resin-bonded abrasive grinding surface for ductile materials, such as stainless steel and nickel-based alloys.

The device is for use in a professional working environment (e.g. a materialographic laboratory).

The device must be operated only by skilled/trained personnel.

The device is designed to be used only with Struers equipment designed for this purpose.

2 Device description

MD-Alto is to be used in combination with an MD-Disc of the same diameter size.

MD-Alto has a steel backing that keeps it in place on a magnetic MD-Disc.

The grinding result obtained with MD-Alto is comparable to the result obtained with SiC paper of grit size P220, and it should be followed by finer grinding and polishing steps.

Before use, check that the steel backing is intact and has no visible damage. The steel backing must not be bent or have any visible dents.

Never try to repair MD-Alto.

Place MD-Alto on the magnetic MD-Disc and make sure that it is securely fixed.

MD-Alto is self-dressing. If you experience that the surface is not performing as expected, a diamond tool can be used to dress the surface.

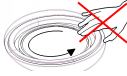
Operating environment

There are no specific safety requirements for operating MD-Alto.

3 MD-Alto safety precautions



3.1 Read carefully before use



1. When the disc is rotating, make sure your hands are kept completely clear of its periphery and out of the splash bowl.
2. Do not exceed a rotational speed of 600 rpm. The recommended speed is 300 rpm.
3. Do not use MD-Alto if it is damaged.
4. Always read the safety precaution sheet and the instruction manual for the machine you are going to use with MD-Alto.

4 Instructions for use

Placing MD-Alto on the MD-Disc

1. Make sure that the contact faces on both the MD-Disc and the MD-Alto are clean and dry.
2. Align the edge of the MD-Alto with the MD-Disc.
3. Place the MD-Alto on the MD-Disc with the steel backing facing the MD-Disc.

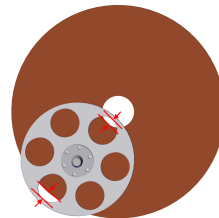


Note

If you are using MD-Alto with fully automated equipment, see the Instruction Manual for the equipment for instructions.

4.1 Placing the specimen holder

When you prepare your specimens, the specimens should extend at least 2 mm beyond both edges of the grinding surface. If this is not the case, adjust the specimen holder/mover plate accordingly.



**Note**

Make sure that the specimen holder is placed so that the specimens run on both the inner and outer edges of the surface to obtain maximum planeness and to avoid creating a ledge on the grinding surface.

You can also change the specimen mover head position on a regular basis so that the specimens alternately run over either the inner or the outer edge of the grinding surface.

4.2 Usage

- Large scratches can appear on the surface when you use it. This is normal and has no effect on the performance of MD-Alto.
- The wear of the MD-Alto can be different on the inner and the outer edges of the surface.
- The pattern on the surface will gradually fade after you start using it. This is normal and has no effect on the performance of MD-Alto.

**Note**

If you are using MD-Alto on a machine with **Removal mode**, make sure that you compensate for the wear of the surface.

4.3 Cooling fluid

- Always use water as cooling fluid.

**Hint**

The recommended water flow is 200-600 ml/min. If the specimens are warm after grinding, increase the water flow.

**Note**

If you are using a recirculation cooling unit with your grinding/polishing machine, we recommend that you use tap water when using MD-Alto, since cooling additive in a recirculation cooling unit can have a decreasing impact on the self-dressing ability of MD-Alto.

**Note**

Never run MD-Alto without water.

4.4 Applied force

The recommended force is 30 N for specimens with a 30 mm diameter.

- If needed, reduce the force for smaller specimens, and increase the force for larger specimens.

**Note**

Higher force increases the removal rate, but can also increase deformation of the specimens and reduce the lifetime of MD-Alto.

4.5 Rotational speed

The recommended speed is 300 rpm.

If the grinding machine allows it, you can safely use MD-Alto with a rotational speed of up to 600 rpm.

A higher rotational speed will increase the removal rate.

**Note**

Make sure that the grinding machine is safe and stable enough before using the MD-Alto with a rotational speed higher than 300 rpm.

If you are running MD-Alto at a higher rotational speed, make sure to adjust the water flow accordingly.

4.6 Ready-to-use

You can use MD-Alto out of the box. The removal rate is constant throughout the lifetime of the grinding surface.

4.7 Dressing

Under normal conditions, dressing the surface is not necessary.

You can use a diamond dressing tool if you need to dress MD-Alto. The tool removes grinding debris and exposes fresh abrasives.

Diamond dressing tools are available separately.

**Note**

You should never use dressing sticks of sintered alumina on MD-Alto.

Using the dresser tool

- Always dress from the middle of the disc moving outwards.
- Use a moderate force.
- Make sure that you use the entire diamond tip surface when you dress, and not only the edge.

4.8 Removing MD-Alto

1. Lift MD-Alto by the edges and remove it from the MD-Disc.



Note

Be careful not to permanently bend the steel backing.
If the steel backing has been permanently bent, you must discard the surface.

5 Cleaning

It is not necessary to clean the grinding surface of MD-Alto.

5.1 Cleaning MD-Alto

1. Clean the steel backing with a brush.
2. Use compressed air to dry the surface.

5.2 Cleaning the MD-Disc

Clean the MD-Disc thoroughly every time you replace an MD-surface.

1. Use a cleaning agent that has a slightly grinding effect. We recommend that you use a Struers cleaner for this purpose.
2. Scrub the contact face with a brush or a hard sponge.
3. Wipe the contact face with a soft sponge and rinse with clean water.
4. Wipe the surface thoroughly with a soft cloth.



Note

It is essential that you keep the contact face clean.
Due to its magnetic properties, the MD-Disc can collect metallic particles from the preparation process. These particles will become compacted as they corrode.

5.3 Troubleshooting

Problem	Cause	Solution
The surface of the disc becomes black and there is little or no removal.	The surface is not self-dressing with your specific setup of specimens and grinding parameters.	Increase the grinding force of the specimen holder/specimen mover plate and/or dress the surface regularly.
A ledge has formed on the surface causing rounding of the edges on the specimens.	Specimens do not cover the entire surface track.	Change the position of the grinding head, so that the specimens run over both edges of the surface. See Placing the specimen holder ► 5 Use another sample holder if you cannot change the position of the sample holder you are using. Shift the position of the grinding head regularly to move from edge to edge so that the entire surface track width is worn.
The surface is wearing down too fast.	Usually, this is due to a combination of a large specimen area and high grinding forces.	Decrease the grinding force.

6 Technical data

Subject	Specifications
Dimensions [Diameter, thickness, bore size]	200 x 2.0 x 32 mm
	250 x 2.0 x 35 mm
	300 x 2.0 x 45 mm
	350 x 2.0 x 45 mm
Safety standards	EN 12413:2019 Type: 35 <16 m/s

7 Marking and storing MD-Alto

Use a waterproof pen to write the application data needed on the free space on the smooth part of the metal backing on MD-Alto. Make sure that you do not cover the code.

**Note**

Never place an adhesive label on the back side of MD-Alto as this can change the thickness of the surface.

7.1 Storage

**Note**

Never store a wet disc in a plastic bag.

1. Make sure that the surface is dry.
2. Store MD-Alto in a well-ventilated place.
3. Protect MD-Alto against contamination.
4. When MD-Alto is not in use, place it in an MD-Concert/MD-Concertino cabinet or similar.

8 Disposal

**Note**

Always follow local regulations.

The MD-Alto does not contain any components classified as hazardous.

The steel backing is tin-plated. When the surface is worn out, you can dispose of MD-Alto as metal waste.

9 Manufacturer

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

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

