

ECO
mini
dry

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OTEC Präzisionsfinish



Einer der weltweit führenden Entwickler und Hersteller von innovativen Schleif- und Poliermaschinen für die Schmuckindustrie. Diese Spitzenposition verdankt das Unternehmen seinen technologisch hochentwickelten Produkten und einem exzellenten Angebot an Serviceleistungen.

One of world-wide leaders in manufacturing and developing of innovative grinding and polishing machines for the jewellery industry. The company owes its top position to its technologically advanced products as well as extensive and excellent services.



Operating Instructions

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Introduction



Foreword

We would like to take this opportunity to thank you for deciding to purchase our ECO-mini.

OTEC conducts trial runs with the machine to check its functions. As a result of these trial runs, you may find that traces of the finishing material that was used (walnut granulate and polishing paste) remain in the machine.

To ensure that you operate the machine properly and achieve good finishing results on your work pieces with the machine, please read the Operating Instructions carefully. OTEC Präzisionsfinish GmbH does not assume any liability for damages to the machine or to work pieces if these are attributed to non-observance of the following Operating Instructions.



Introduction

Safety Information

- The Owner must make the Operating Instructions accessible to the machine operator and must take the necessary time to ensure that he/she has read the instructions and understands them fully.
- The machine may only be operated with an earth leakage circuit breaker. (ELCB, FI)
- Please check to see if the machine is suitable for your voltage supply.
The manufacturer will not accept any liability for damages caused by an incorrect voltage supply.
- Use only the media recommended by OTEC. Acids and abrasive materials can damage the machine and endanger your safety.
- Always disconnect the electrical lead if the machine is not used or serviced.

Set up of the machine

The ECO-mini “dry” is a bench type machine and must stand on a flat surface to avoid machine damages and incorrect work piece finishing. The air supply to the ventilation flap on the lower side of the machine must always be guaranteed. Insert the electrical plug into a socket. Ensure the voltage supply is correct. The machine is now ready for use.

Technical Data

	Tank capacity [l]	Width/Depth [mm/inch]	Height [mm/inch]	Weight [kg/lb]	Power input [W]	Voltage [V]	Frequency [Hz]
ECO-mini “dry”	3	220 / 9	340 / 13	3.7 / 8	50	230*	50 / 60*

* Further versions on request



Use and Function of the Machine

Disc finishing process

The ECO-mini disc finishing machine is used for dry surface finishing of jewellery. As with hand polishing, some material is removed from the surface. The top of the process container is open and the disc at the bottom is designed to rotate. The container wall itself does not rotate. If grinding or polishing media is put into the container and the disc starts to rotate, then this produces a toroid movement inside the container, which enables the finishing of suitable work pieces.

Capacities and work piece sizes

Maximum granulate capacity	[l]	1.5
Maximum weight per work piece (where several pieces are involved)	[g]	8
Maximum weight of all work pieces in the machine	[g]	100
Work piece size	[mm]	> 1

Caution: The size of the selected granulate must always be smaller than the thickness of the work piece.

Example: Workpiece thickness = 1.2 mm,
Granulate HN1/500, not HN1/100



Use and Function of the Machine

Work pieces

The ECO-mini “dry” is especially suitable for the following work pieces:

- Rings, even with zircons, precious stones, amber, plastics or pearls
- Necklaces larger than 4 mm (thinner necklaces can be tangled up)
- Earrings
- Brooches
- Pendants

Please note:

- Never process more than 100 g of goods at one time. Although you can process maximum quantities of work pieces with a round shape, e.g. rings, you may find that work pieces with large, flat areas or edges can get “dinged”.
- Always close all necklaces before processing, as otherwise these can get tangled up very easily.
- Never process any work pieces together whose individual weight exceeds 8 grams. Larger pieces such as bracelets should be processed individually.
- Gold and silver alloys can also be processed together. Gold-plated goods should never be polished for longer than 30 minutes in HN1/500.
- Labels do not need to be removed for the polishing process, but there is the danger that these can wear off and/or the area to which the label is fastened may not be polished properly.

The following work pieces are unsuitable for the ECO-mini “dry”:

- Collars
- Chains, thinner than 4 mm
- Hollow chains (can get squashed)
- Work pieces smaller (thinner) than 1 mm should not be processed in the ECO-mini “dry”. They can get jammed under the plate.
- Jewelry with loose stones, clasps, broken links, etc.



Finishing Process

Both dry grinding and dry polishing can be done in the ECO-mini.

Walnut-shell granule of various grain sizes, impregnated with polishing paste or grinding paste, is generally used for processing.

The coarser the granulate, the better its smoothing property.

The finer the granulate, the better the shine.

Dry grinding

Work pieces with a strongly scratched surface or that has been pre-processed too roughly can be processed instead of wet grinding.

Dry polishing

Customer jewelry that has lost its shine or tarnished store window exhibits can be dry polished.



Finishing Process

Observe the following under all circumstances:

We recommend examining the work pieces for their suitability of being processed in the ECO-mini. The manufacturer does not guarantee work pieces with weak areas, which have a high probability of breakage. Well-set stones do not normally fall out when finishing with the ECO-mini "dry". The manufacturer does not assume any liability if this should however occur.

Steps for the finishing process

1. Fill the granulate into the process-container (max. 1.5 litres).

2. Set finishing time.

Turning the timer in a clockwise direction sets the finishing time and also starts the machine. Maximum time: 15 hours (at 115 V: 12 hours). The machine switches off automatically after the time set has expired. The machine switches off immediately when the timer is manually turned back to "0".

3. Add work pieces.

4. If possible, the goods should be cleaned after processing in ultrasonic bath to remove any polishing paste residues.

Tip: Always start finishing using only a few work pieces. This allows you to gain experience in the handling of larger quantities. Do not overload the machine with too many pieces as this may result in pieces damaging each other in the machine.



The process timer with the scale (shows the time in hours) serves at the same time as START/STOP switch



Finishing Process

Finishing examples for dry polishing

- **Finishing of emerypaper-treated jewelry**

If you want to avoid wet or dry grinding you should treat jewelry or chains with sandpaper (minimum 600 grain size sandpaper) first. Fill 1.5 litre of HN1/100 (coarse walnut-shell granule) into the process-container. Set the finishing time by turning the timer in a clockwise direction. The machine starts automatically. Finishing can take up to 15 hours depending on the surface.

Now use the fine walnut-shell granule (HN1/500) for approximately 30 minutes.

If want to decrease your process times, we recommend to wet grind the jewellery before in an ECO-wet.
- **Finishing jewelry with fine scratches**

Fill 1.5 litres of HN1/100 (coarse walnut-shell granule) into the process-container. Set the finishing time by turning the timer in a clockwise direction. The machine starts automatically. Finishing time: 1-3 hours.

Now use the fine walnut-shell granule (HN1/500) for approximately 30 minutes.
- **Finishing dull jewelry**

Fill 1.5 litres HN1/500 (fine walnut-shell granule) into the process-container. Set the finishing time by turning the timer in a clockwise direction. The machine starts automatically.

Finishing time: approx. 30 minutes. The machine switches itself off automatically after the time set has expired.



Finishing Process

Finishing examples for dry grinding

- Roughly pre-finished work pieces or strongly scratched surfaces
Fill 1.5 litres H2/100 (coarse walnut-shell granule impregnated with grinding paste) into the process-container. Set the finishing time by turning the timer in a clockwise direction. The machine starts automatically.
Finishing time: 2 – 4 hours, depending on the condition of the surface.
Now use the fine walnut-shell granule (HN1/500) for approx. 1 – 3 hours.
Please note: When dry grinding in the ECO-mini, you should have a second container, as constantly changing between grinding and polishing material causes the container to become dirty, as a result of which the required effect can no longer be achieved.



Finishing

Use of Granulates

HN1/100 (coarse walnut-shell granule)

- for finishing jewelry which have been treated with emerypaper
- for finishing scratched jewelry

Lasts for up to 100 operating hours.

HN1/400 (medium walnut-shell granule)

- for filigree jewelry, necklaces or bracelets where HN1/100 (coarse walnut-shell granule) could get caught because of its size.

Lasts for up to 100 operating hours.

HN1/500 (fine walnut-shell granule)

- for high gloss polishing (after pre-polishing with HN1/100) and for tarnished jewelry.

Lasts up to 50 operating hours.

H2/100 (walnut-shell granule impregnated with grinding paste)

- is used for dry grinding

Lasts for up to 100 operating hours.

Please note: To achieve ideal constant polishing results, we recommend replacing the granulate following the operating hours shown above.



Finishing Process

Dosing of polishing and grinding pastes

New walnut-shell granule from OTEC is already impregnated with polishing or grinding paste. No additional paste has to be added during the first 10 operating hours.

During dry polishing

After 4 – 6 operating hours add 2 – 3 cm polishing paste P 6 from the tube into the cold granule, by allowing the machine to run for a few minutes without any work pieces. By adding HL 06, you can refresh granule if it got too dry already.

During dry grinding

Add a 1/2 teaspoon of grinding paste into the cold granulate before every processing and leave the machine running without any work pieces for a few minutes.

The residue from the grinding and polishing paste, which can collect under the disc, should be removed at least once a month (see mechanical malfunctions and remedies).

Tip: If the walnut-shell granule stands open for a longer period its polishing effects reduced. The granulate can be refreshed by adding some polishing paste.



Recommended Grinding and Polishing Materials



Dry polishing

- OTEC walnut-shell granule **HN1/100 (coarse) ... HN1/500 (fine)**
- OTEC polishing paste **P 6**

Dry grinding

- OTEC walnut-shell granule **H2/100**
- OTEC grinding paste **SP26**

While using dry grinding granulates a higher wear of the machine is to be expected.

Caution: Keep grinding and polishing materials away from children!



Finishing Problems and Remedies

Problem: After dry polishing, especially with flat work pieces, the surface looks like “orange skin”.


Cause: The grinding chips during the wet grinding process may have been too rough (too abrasive).

Remedy: Re-grind in the ECO-mini “wet” with KX 10 (white cones) or try it with dry polishing after the wet grinding in the ECO-mini “dry”.

Problem: The work piece surface has a lot of little “pimples” after polishing.

Cause: The compound/water mixture during wet grinding was either too dirty or the casting quality is not good enough.

Remedy: Optimise your wet grinding process before dry finishing.



Finishing Problems and Remedies

Problem: The granulate is very wet.

Cause: The polishing paste dose was too high.

Remedy: Take the granulate out of the machine and let it dry in the air for a few days. Use fresh granulate in the meantime.

Problem: The granulate is very dry – it is dusty.

Cause: The polishing paste dose was too low.

Remedy: Add 2 – 3 cm polishing paste P 6 from the tube into the cold granule.



Mechanical Malfunctions and Remedies

Problem: The machine is making “squeaking” noises.

Cause: Work pieces can have worked their way underneath the disc.

Remedy: Remove the disc. Loosen the screw in the centre with a size 3 Allan key. Remove the pieces underneath the disc, put 2 teaspoon fine granule under the disc, and refasten disc on reverse sequence.

Problem: The disc blocks.

Cause: The disc is either strongly worn along the outside edge or work pieces have worked their way underneath the disc.

Remedy: Examine the disc for intense wear and replace it, if necessary.



Guarantee

The guarantee period lasts for 6 months after purchase.

Presenting the purchase receipt (invoice) showing the date and machine number is a condition for the guarantee.

No guarantee liability exists if the machine has been operated contrary to this Operating Instructions, and especially if

- inappropriate work pieces have been used
- other granulate or pasts have been used in addition to or instead of the products recommended by OTEC,
- the machine is not protected by an earth leakage circuit breaker (ELCB, FI)

There is no warranty for wear parts.



Quick Help

Please do not hesitate to ask your distributor if you have any questions on operating the machine or on the processing technology.

You can find further information in the Internet at: **www.eco-mini.com**

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Händler / Representative:



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Für Druckfehler keine Haftung.

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