OPERATING INSTRUCTIONS

Zenotec select hybrid
with / without material changer
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1 List of Parts

1 x Power cord
1 x USB cable
8 x Disc holders

1 Set of extra screws for the disc holder and the tool measuring plate
1 x Drill 2.8 mm for tool changer inserts
1 x Machine dongle

1 x Calibration set consisting of a micrometer gauge and calibration discs
1 x Maintenance unit for compressed air operation
1 x Spindle Maintenance Kit
1 x Allen key 2.5 mm for disc change

1 x Key for emergency release of the front flap

1 x Hose connection for external extraction

1 x Compressed air hose Ø 6 mm

2 x Tool changer inserts made of rubber

1 x Allen key 3 mm to tighten blocks in the IPS e.matrix
2 Description of Zenotec select hybrid components

Figure 1: Zenotec select hybrid - description

Figure 2: Milling chamber - description
### 2.1 Introduction

**Dear Customer**

Thank you for having purchased the Zenotec select hybrid milling system. It is a modern 5-axis milling system for dental applications. The milling system has been designed according to the latest industry standards. Inappropriate use may damage the equipment and be harmful to personnel. Please observe the relevant safety instructions and read the Operating Instructions carefully.

*Enjoy working with the Zenotec select hybrid.*

<table>
<thead>
<tr>
<th>No.</th>
<th>Component description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Front flap with safety contact and safety interlock</td>
</tr>
<tr>
<td>B</td>
<td>Working chamber or milling chamber</td>
</tr>
<tr>
<td>C</td>
<td>Synchronous spindle SFS300P</td>
</tr>
<tr>
<td>D</td>
<td>Disc holder with tool magazine</td>
</tr>
<tr>
<td>E</td>
<td>Measuring sensor for tool length measurement</td>
</tr>
<tr>
<td>F</td>
<td>Material changer chamber</td>
</tr>
<tr>
<td>G</td>
<td>Release for disc holder</td>
</tr>
<tr>
<td>H</td>
<td>A-axis: Rotation range +/- 360°</td>
</tr>
<tr>
<td>I</td>
<td>B-axis: Rotation range +/- 30°</td>
</tr>
<tr>
<td>K</td>
<td>Measuring sensor for tool length measurement</td>
</tr>
<tr>
<td>L</td>
<td>Tool changer for 16 tools</td>
</tr>
</tbody>
</table>
## 2.2 Signs and symbols

The signs and symbols in these Operating Instructions facilitate locating important points. They have the following meanings:

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Note</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Exclamation Mark]</td>
<td>General warnings. Failure to observe them may lead to injury</td>
</tr>
<tr>
<td>![Exclamation Mark]</td>
<td>Notes on preventing a hazard</td>
</tr>
<tr>
<td>![Red Triangle]</td>
<td><strong>HAZARD</strong> describes a dangerous situation which may lead to severe bodily injury or death</td>
</tr>
<tr>
<td>![Yellow Triangle]</td>
<td><strong>WARNING</strong> describes a dangerous situation which may lead to severe bodily injury or death</td>
</tr>
<tr>
<td>![Yellow Triangle]</td>
<td><strong>CAUTION</strong> describes a dangerous situation which may lead to light or medium bodily injury</td>
</tr>
<tr>
<td>![Blue Triangle]</td>
<td><strong>NOTE</strong> describes a situation which may lead to damage to the product or in the vicinity of the product</td>
</tr>
<tr>
<td>![Red Triangle]</td>
<td>HAZARD indicates immediate electrical danger</td>
</tr>
<tr>
<td>![Plug]</td>
<td>Note on disconnecting the machine from its power source</td>
</tr>
<tr>
<td>![Exclamation Mark]</td>
<td>Note on the risk of stumbling and falling</td>
</tr>
<tr>
<td>![No Entry]</td>
<td>Note on the risk of injury by cutting and crushing</td>
</tr>
<tr>
<td>![Ear]</td>
<td>Note on the risk of hearing damage due to loud noise</td>
</tr>
<tr>
<td>![Hand]</td>
<td>Note on specific conditions ensuring trouble-free operation of the machine</td>
</tr>
</tbody>
</table>
### 2.3 Action requests

<table>
<thead>
<tr>
<th>M</th>
<th>Manual action step</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>Action step in the software</td>
</tr>
</tbody>
</table>
2.4 Notes regarding the Operating Instructions

Machine concerned: Zenotec select hybrid with and without material changer
Target group: Dental technicians, dental health professionals, CNC technicians

This machine may only be operated by trained specialists.
These Operating Instructions facilitate the correct, safe and economical use of the milling system. Should you lose these Operating Instructions, you can order extra copies from the respective service centre or download them from www.wieland-dental.de.

2.5 Different voltage versions

The system is equipped with a multi-voltage power pack and can be operated in power networks with the following specifications:

- AC network
  - 100 – 240 V
  - 50 – 60 Hz
- Country-specific power plug

In these Operating Instructions, the milling system is powered via a Schuko plug, as an example.
Please note that the plug shown in the Figures may differ depending on the country-specific version of your milling system.

2.6 Figures in the Operating Instructions

All Figures and illustrations in these Operating Instructions are used for exemplification. The details are not authoritative for the construction of the milling system. They are symbols which may slightly differ from the original, e.g. due to simplification.
3 Safety

This chapter is especially important for individuals who work with the Zenotec select hybrid milling system or who have to carry out maintenance or repair work. This chapter and the corresponding instructions must be read and followed carefully!

3.1 General safety notes

Carefully read these Operating Instructions before you operate the machine. Follow the listed safety instructions to eliminate risks and prevent any possible severe injuries.

The operating personnel must be informed about the intended use of the machine. They must observe the stipulated safety instructions and protective regulations (see chapter 3).

Inspect the machine in general and the protective equipment in particular for any damage. Damaged protective equipment or parts must be repaired or replaced by a service technician authorized by Wieland Dental + Technik, if not otherwise indicated in the Operating Instructions.

Apart from during maintenance procedures, Zenotec select hybrid with and without material changer must only be operated with the front flap closed and with the safety interlock activated. It is forbidden to circumvent the existing safety equipment of the machine or to shut them down.

- Children and animals have to be kept away from the machine.
- Do not operate the machine unsupervised if the operating conditions described in chapter 3 and 5 cannot be fulfilled.
- Operating the machine in the service mode is only permitted for personnel authorized by Wieland Dental + Technik.
- Please also observe the information regarding tool selection and setting of the tool parameters (see chapter 7 and 8).

Figure 3: Zenotec select hybrid with closed front flap
### 3.2 Warnings

<table>
<thead>
<tr>
<th>icon</th>
<th>Warning</th>
</tr>
</thead>
</table>
| ![Exclamation Mark] | **Use of damaged cables**  
Mortal danger by electric shock!  
- Disconnect the machine from the power source and protect the machine from accidental operation.  
- Consult Customer Service.  
- Replace the damaged cables with original replacement cables. |
| ![Exclamation Mark] | **Troubleshooting during operation**  
Mortal danger by electric shock!  
- Consult Wieland Service before you rectify a malfunction.  
- Disconnect the machine from the power source and protect the machine from accidental operation. |
| ![Exclamation Mark] | **Operating the machine in the service mode with the front flap open.**  
Risk of injury by cutting and crushing!  
Hazard due to ejected shavings!  
Apart from during maintenance procedures, Zenotec select hybrid must only be operated with the front flap closed and with the safety interlock activated. It is forbidden to circumvent the existing safety equipment of the machine or to shut them down. |
| ![Exclamation Mark] | **Milling of materials hazardous to health**  
Respiratory disorders by inhalation of hazardous substances!  
- Work only with the extraction system switched on.  
- Use only materials that do not present a hazard to health provided the extraction system is properly used.  
- Always operate the extraction system with the filter intended for this purpose by the manufacturer. |
Contamination of processing materials by other materials after material change

- Thoroughly clean the machine before and after processing CoCr alloys, so as to avoid damage to the subsequently milled restorations.

Loud operating noise of the machine

Damage to hearing caused by loud noise!

- Examine the fixation of the work pattern, the condition of the tool and the processing materials.
- If loud operating noise cannot be prevented, use hearing protectors during milling.

Open pneumatic connections

Hazard from loose pneumatic components under compressed air!

- Disconnect the machine from the compressed air supply.
- Consult Customer Service.

Mess at the workplace

Risk of stumbling and falling!

- Keep the work station clean.
- Store peripherals, such as Zenotec cyclon, in a safe place.

Ergonomics of the work station

Consequential damage by continuous one-sided physical stress!

- Arrange the work station in an ergonomic fashion.
- Ensure optimum seat height, screen position and lighting.

Mounting of milling tools

Cutting injuries by sharp cutting edges!

- Grasp the milling tools by the shafts only, not the cutting edges.
- Make sure not to injure yourself or others when handling the tools.

Disposal

The machine must not be disposed in the normal domestic waste. Please correctly dispose of old devices according to the corresponding EU Council Directive. Information regarding disposal can also be found on the respective national Wieland Dental + Technik website. The packaging may be discarded with the regular household refuse.
3.3 Indications

Zenotec select hybrid is designed for easy to medium-hard milling procedures in the field of dental technology. Please note that only the indications, materials and milling strategies approved by the manufacturer ensure processing without damage to the machine. In-house modifications and thus possible damage to the machine void all warranty services provided by the manufacturer.

The machine has been designed for milling the following materials:

- Wax*
- Telio CAD® for Zenotec, PMMA Cast and other commercially available dental resins*
- Composites*
- Zirconium dioxide*
- Glass-ceramics* (IPS e.max® CAD for Zenotec, IPS Empress CAD® for Zenotec)
- CoCr alloys (Zenotec NP)

* Basically, all Wieland Dental + Technik and Ivoclar Vivadent materials of the respective categories are suitable for processing with the machine. The processing of materials from other manufacturers with this system is not recommended due to the lack of coordination of the milling strategies and tool harmonization.

If the machine is used for any purpose other than the above designated uses, the system may be damaged. The protective equipment must not be circumvented or suspended. The indications also include observing these Operating Instructions and following the maintenance instructions therein. In order to ensure the product safety and warranty services, the product must be exclusively operated with the original accessories from Wieland Dental + Technik. The user bears the risk of using not approved accessories. Wet grinding is only permitted in conjunction with Zenotec hydro.

Should you make any modifications to the system or remove the housing without prior written consent by a Wieland Dental + Technik Service Centre, all warranty claims are void. The machine may be operated unsupervised, provided the national and local laws and provisions allow for such action and provided that they are observed. Furthermore, the requirements of the respective insurance company must be met.

The following requirements must be met to ensure unsupervised operation:

| ⚠️ | Never operate the machine with the milling chamber uncleaned. |
| ⚠️ | The machine must be protected from intervention by unauthorized individuals. |
| ⚠️ | The room in which the machine is operated must be equipped with an automatic fire detection system. |

The operation of Zenotec select hybrid requires a compressed air connection and a RCD breaker.

Dry milling is only admissible in combination with Zenotec cyclon.

Insufficient extraction and/or cooling during dry/wet processing results in machine damage.
4 Product description

4.1 General aspects

Zenotec select hybrid is a state-of-the-art 5-axis milling system for dental applications. The Zenotec milling system is suitable for the fabrication of digital restorations. It has been designed in such a way that various materials can be processed. The milling procedure is controlled via an electronic system with the corresponding software.

The Zenotec select hybrid system consists at least of the following components:

- CNC milling machine
- CNC software with PC
- Zenotec cyclon extraction system
- Optional: Zenotec hydro (see chapter 11)

4.2 Technical data

4.2.1 Basic system

- Dimensions (w/d/h): approximately 490 x 445 x 540 mm (Zenotec select hybrid), approximately 692 x 445 x 540 mm (Zenotec select hybrid with material changer)
- 5-axis mechanics; traversing range (x/y/z): 140 x 98 x 76 mm
- Precision ball screw spindles in the 3 linear axes with 4 mm spindle pitch
- Repeat accuracy ± 0.003 mm
- Complete housing of the working chamber with safety contact and safety interlock at the front flap
- Working chamber lighting
- Negative pressure sensor for monitoring the extraction system
- Disc dimensions: Ø 98.5 mm (± 0.2 mm), with shoulder
- Disc height: 10 mm to 30 mm
- Weight: approximately 75 kg (Zenotec select hybrid), approximately 95 kg (Zenotec select hybrid with material changer)
- Compressed air consumption of max. 80 l/min

4.2.2 Rotation axes

- Clearance-free rotation axes with Harmonic-Drive®
- Rotation angle: 360 degrees (A axis), ± 30 degrees (B axis)
- Automatic measurement of the rotation axis and automatic axis compensation for precise results
- Integral disc holder for 98.5 mm discs (Zenotec select hybrid)
- Open disc holder for 98.5 mm discs (Zenotec select hybrid with material changer)
4.2.3 Spindle
- Synchronous spindle with speeds of up to 60,000 rpm
- Nominal capacity under permanent operation: 300 Watt
- Maximum output (P_max): 600 Watt
- 4-fold bearing
- Hybrid ceramic ball bearings
- Pneumatic collet Ø 3 mm
- 1 compressed air nozzle for dry processing
- 3 liquid nozzles for wet processing
- Cone cleaning
- Sealing air

4.2.4 Tool changer
- Automatic tool changer for 16 tools
- Automatic tool length measurement and fracture monitoring by means of a measuring sensor
- Use of diamond tools possible
- Compressed air monitoring for automatic tool change

4.2.5 Electronic controls
- 5-axis microstep electronic controls
- Simultaneous activation of 5 axes
- Smooth running and high precision due to microstep operation
- Quick processing due to exponential acceleration ramps and automatic switchover to full-step operation
- Continuous path due to look-ahead function
- Included control software for the convenient output of the milling data generated by the postprocessor
- Travel speeds: 0.003 mm/s to 55 mm/s

4.2.6 Material changer
(only Zenotec select hybrid with material changer)
- Mounting of up to 8 material holders
- Safety contact at the material changer front flap
- Automatic delivery of the selected material into the work chamber
- Pneumatically driven slide flap between the work chamber and the material changer

4.2.7 Sound emission
The sound emission strongly varies depending on the processed material and the milling conditions. If the machine is too loud, change the milling conditions. Examine the fixation of the work pattern, the condition of the tool and the processing materials.

If loud operating noise cannot be prevented, use hearing protectors during milling.

Measuring conditions:
- Tool (service life already elapsed)
- Measuring distance to the sound source 1 m
- Extraction system activated
- Measurement according to ISO 3746, accuracy class 3

### Operating status

<table>
<thead>
<tr>
<th>Operating status</th>
<th>Maximum value of A-rated noise intensity levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milling of the measuring disc (milling conditions see above)</td>
<td>77 dB(A)</td>
</tr>
<tr>
<td>All other action movements (tool change, axis movement, etc)</td>
<td>&lt; 70 dB(A)</td>
</tr>
</tbody>
</table>
4.3 Hazardous areas and safety equipment

Description of the hazardous areas of the machine:

<table>
<thead>
<tr>
<th>Hazardous area</th>
<th>Machine chamber/Milling chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of risk</td>
<td>Risk of injury</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous area</th>
<th>Opening and closing mechanism</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of risk</td>
<td>Risk of crushing</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazardous area</th>
<th>Electrical components</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of risk</td>
<td>Risk of electrical shock</td>
</tr>
</tbody>
</table>

Description of the safety equipment of the machine:

<table>
<thead>
<tr>
<th>Safety equipment</th>
<th>Protective effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Protective conductor</td>
<td>Protection from electrical shock</td>
</tr>
<tr>
<td>Electrical fuses</td>
<td>Protection from electrical shock</td>
</tr>
<tr>
<td>Machine housing and hood</td>
<td>Protection from electrical shock, burning and crushing</td>
</tr>
</tbody>
</table>
5 Installation and initial start-up

5.1 Installation and orientation

At least two people are recommended for the installation of the system. Installation and orientation must be performed by a service technician authorized by Wieland Dental + Technik.

5.1.1 Requirements placed upon the installation site

The location for the machine must meet the following requirements:

The milling system should neither be placed nor operated in areas where there is an explosion hazard.

- Place the machine on a stable, even surface constructed to hold the weight of the machine.
- The control computer should, if possible, be connected to a separately secured circuit (supply voltage fluctuations caused by other equipment should be prevented, if possible).
- The room temperature should be between 18 °C (64.4 °F) and 25 °C (77 °F); maximum room temperature 32 °C (89.6 °F).
- The machine location should be free of dust, since ambient air is aspirated.
- Maximum relative humidity 80%, non-condensing
- A/C power connection with 100 – 240V and 50 / 60 Hz
- In-bound compressed air at least 6.5 to 7 bar (94.27 to 101.5 psi), free of oil and water
- There must be sufficient clearance to the wall on the right side of the machine to prevent the air vents from being blocked (at least 10 cm).
- On the left and the rear of the machine, there must be enough clearance to access the machine connections.
- Required connections: Compressed air connection, as well as one socket each for the machine, extraction system and laptop and/or PC

Connect the machine to a separately secured circuit or make sure that no devices are connected that cause severe supply voltage fluctuations when switched on. These fluctuations interfere with the electronic controls and may cause failure of the system.
5.2 Setting up the machine

Use only the original cables intended for the system for the connections at the switching outputs.
The system must exclusively be controlled via the Wieland CAM computer and the control must not be modified. The Zenotec cyclon is recommended for optimum utilization of the system.

M1. Unpack the milling machine. Keep the packaging of the machine to use it if you have to send in the machine for maintenance or repair.

M2. Connect the supplied maintenance unit to the standard compressed air connection of your compressed air supply (see chapter 5.3).

The blue compressed air hose must be inserted into the connection marked in blue at the lower left of the connection panel of the machine (see Figure 4).

If the compressed air hose is not connected, the machine does not start!

When connecting the compressed air hose, make sure to insert it only into the socket provided for that purpose.

M3. Check the pressure indicated on the manometer. If the indicated pressure is not 6.5 - 7 bar (94.27 - 101.5 psi), set the compressed air supply accordingly (see chapter 5.4.1).

M4. Connect the Wieland CAM computer using the USB port of the machine.

M5. Attach the extraction hose to the connection of the machine intended for this purpose.

M6. Insert the machine dongle in a USB port of the CAM computer.

M7. Connect the power cord with the machine.

M8. Connect the machine to a separately secured circuit or make sure that no devices are connected that cause severe supply voltage fluctuations when switched on (e.g. compressor, etc).

M9. Make sure that the front flap is closed.

M10. Switch on the machine with the master switch.
5.3 Compressed air connection

The SFS 300P spindle requires a compressed air connection. This compressed air connection must supply 6.5 - 7 bar (94.27 - 101.5 psi) during non-stop operation. The spindle with automatic tool change requires the compressed air in order to activate the pneumatic collet. Furthermore, sealing air is required to prevent foreign objects from entering the spindle. The air consumption of the machine is 80 l/min.

The delivery form of your machine also contains a maintenance unit for the compressed air supply. The incoming pressure for the machine can be regulated at the maintenance unit. The built-in water separator with a filter cartridge should prevent air contaminated with humidity or dirt particles from entering the machine.

The incoming compressed air must be dry and oil-free according to ISO 8573-1, since the water separator can only filter out minor residual quantities. Compressed air that does not meet these requirements may lead to failure of the bearings and electrical damage to the spindle.

Air purity according to ISO 8573-1:

<table>
<thead>
<tr>
<th>Solid matter particles</th>
<th>Class 3</th>
<th>Filter rate better than 5 μm for solid matters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Class 4</td>
<td>Maximum pressure condensation point + 3°C</td>
</tr>
<tr>
<td>Total oil content</td>
<td>Class 3</td>
<td>Maximum oil content 1 mg/m³</td>
</tr>
</tbody>
</table>

5.4 Connecting the maintenance unit

The maintenance unit can either be mounted to the housing or directly connected to the compressed air supply. For the choice of mounting, it is important to consider that the maintenance unit must be clearly visible during daily operation to enable regular inspection. The following text describes the mounting of the maintenance unit to the housing. Please observe the steps M3. to M5. for connecting the maintenance unit directly to the compressed air supply.

The maintenance unit must always be installed upright. If this is not done, the function of the water separator cannot be ensured.

M1. Remove the two blind screws below the air vents on the side panel of the milling machine.

M2. Attach the maintenance unit in an upright position using the cylinder-head screws supplied.

Risk of injury by escaping compressed air or uncontrolled compressed air hoses. In a first step, connect the maintenance unit with the machine, before connecting it to the compressed air supply. Otherwise there is a risk of injury.
5.4 Setting the air pressure

Setting the air pressure is only necessary, if the pressure indicated by the manometer is not between 6.5 and 7 bar (94.27 and 101.5 psi).

To set the air pressure, the maintenance unit must be connected to the compressed air supply.

M1. Pull the control knob on top of the maintenance unit slightly out.

M2. Regulate the pressure (in the direction of the arrow “+” you increase the pressure, in the direction of the arrow “-“, you reduce it) until the value indicated is 6.5 and 7 bar (94.27 and 101.5 psi).

M3. Subsequently, press the knob down again.

The compressed air setting is now locked in place and cannot be accidentally changed.
## 6 Installing the software

The control software can only be installed and the milling machine operated with the dongle connected.

For the installation of the software, the CAM computer must be connected with the machine and switched on.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S1.</td>
<td>Insert the dongle supplied in a USB port of the CAM computer.</td>
</tr>
<tr>
<td>S2.</td>
<td>Run setup.exe.</td>
</tr>
<tr>
<td>S3.</td>
<td>Follow the installation steps of setup.exe.</td>
</tr>
</tbody>
</table>

Further information about the CNC software can be found in chapter 8 under: Operating the CNC software.
7 Operating the machine

7.1 Introduction to the operation

Once you have made sure that all cables and hoses are correctly connected, you can switch on the machine by means of the master switch at the rear of the machine.

For a milling job, you only need the discs you want to use, as well as the corresponding tools. As the machine is operated via the software, all the additional information regarding the operation of the machine can be found in the software manual.

The machine is equipped with a safety contact and safety interlock at the front flap. Given the safety interlock, the front flap cannot be opened during the milling procedure.

The machine may only be operated if the safety interlock is activated.

7.2 Extraction system

You can find all information regarding the operation, installation and maintenance of the extraction system in the corresponding operating instructions. Improper handling or use for purposes other than intended may detrimentally affect the safe operation of the system.

Operate the machine only with the extraction system switched on and make sure that the connection of the extraction system is not obstructed. Otherwise, flying shavings may reach sensitive parts of the machine, such as bearings or ball screws, and cause damage.

It is imperative to set the extraction system to the maximum level for operation.

The machine is equipped with a negative pressure sensor to measure the extraction output. Make sure that the extraction system is switched on and that the connection of the extraction system is not obstructed. The integrated sealing air concept of the work chamber prevents dust and shavings from entering the mechanical and electronic components of the machine and thus reduces wear and maintenance efforts.
7.3 SFS 300P synchronous spindle

For the operation, installation and maintenance of the spindle, the provisions of occupational safety apply. Improper handling or use for purposes other than the ones intended considerably compromise the safety during operation!

The SFS 300P synchronous spindle is a precision component, which must not be subject to the use of force, e.g. striking!

Remember that the submersion depth and travel speed must not be too high during processing. This may result in the work pattern being ripped out and the tool getting jammed, which may cause irreparable damage to the machine and/or the spindle.

For optimum milling results, use the milling strategies provided in Zenotec CAM from Wieland Dental + Technik. If other or modified milling strategies are used, Wieland Dental + Technik will not accept any liability.

Do not use tools with a large unbalance (single-blade cutters, gravers) in combination with a high spindle speed. The unbalance puts very high strain on the ball bearings, which may cause damage to the bearings.

Please note that wet grinding will reduce the service life of the spindle due to the harder materials processed and the higher spindle speed.

7.4 Tools

The tools for the individual materials are predefined in the CNC software (see chapter 8.1.6 and 8.2.2).

For operation, it is imperative that the corresponding tools are inserted in the respective, defined slots.

In addition to the standard cutters, what is known as sister tools can be inserted into the tool holder as an option. If a standard tool has reached its wear limit, the corresponding sister tool is automatically used for further milling.
7.4.1 Cutters

The standard tools for the dry processing of wax, PMMA, zirconium dioxide, CoCr and model material are listed in the table below.

Please use the designations and article numbers of the tools for your orders.

<table>
<thead>
<tr>
<th>Material (Dry processing)</th>
<th>Designation</th>
<th>Article Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wax</td>
<td>Zenotec special cutter 0.3 select</td>
<td>662917</td>
</tr>
<tr>
<td>PMMA</td>
<td>Zenotec basic cutter 0.7 select</td>
<td>662916</td>
</tr>
<tr>
<td>Zirconium dioxide</td>
<td>Zenotec basic cutter 1.0 select</td>
<td>662915</td>
</tr>
<tr>
<td></td>
<td>Zenotec basic cutter 2.5 select</td>
<td>662914</td>
</tr>
<tr>
<td>Model</td>
<td>Zenotec special cutter 1.5 F select</td>
<td>662920</td>
</tr>
<tr>
<td></td>
<td>Zenotec special cutter 2.4 F select</td>
<td>662921</td>
</tr>
<tr>
<td>CoCr</td>
<td>Zenotec special cutter 0.6 N mini/select*</td>
<td>679927</td>
</tr>
<tr>
<td></td>
<td>Zenotec special cutter 1.0 N mini/select*</td>
<td>679928</td>
</tr>
<tr>
<td></td>
<td>Zenotec special cutter 1.5 N mini/select*</td>
<td>679929</td>
</tr>
<tr>
<td></td>
<td>Zenotec special cutter 2.0 N mini/select*</td>
<td>679930</td>
</tr>
</tbody>
</table>

* Only suitable for the dry processing of Zenotec® NP material and for the following disc heights: 10 mm, 12 mm, 13.5 mm, 15 mm

Indications: Crowns and bridges with up to 6 units (ISO 22674, type 3 alloy)

7.4.2 Grinders

The standard tools for the wet processing of glass-ceramics are listed in the table below. Please use the designations and article numbers of the tools for your orders.

<table>
<thead>
<tr>
<th>Material (Wet processing)</th>
<th>Designation</th>
<th>Article Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lithium disilicate glass-ceramic block</td>
<td>Zenotec special grinder 0.5 C select**</td>
<td>667023</td>
</tr>
<tr>
<td></td>
<td>Zenotec special grinder 1.0 B select**</td>
<td>667019</td>
</tr>
<tr>
<td></td>
<td>Zenotec special grinder 2.0 B select**</td>
<td>667021</td>
</tr>
<tr>
<td></td>
<td>Zenotec special grinder 3.0 B select**</td>
<td>667022</td>
</tr>
</tbody>
</table>

** Only suitable for the wet processing of IPS e.max CAD for Zenotec | IPS Empress CAD for Zenotec
7.5 Changing discs (Zenotec select hybrid without material changer)

The discs are secured in the clamping fixture by means of a clamp washer. When the machine is in its home position, the disc can be changed as follows (See Figure 8).

1. Loosen the 4 screws (A).
2. Rotate the clamp washer (B) and lift it off.
   The screws may remain in the clamping fixture.
3. Position the clamp washer (B) and centre it by aligning it with the screws (A).
4. Position the screws (A) and tighten them crosswise.

Tightening the screws too much may result in tensions, which might damage the disc!

7.6 Material changer (Zenotec select hybrid with material changer)

7.6.1 Loading the disc holder

1. Loosen the 4 screws (A) at the disc holder.
2. Position the disc.
3. Turn in the hold-down bracket (B).
4. Position the screws (A) and tighten them crosswise.

Make sure to mark the position of the disc in the disc holder in order to avoid tool fractures and damage to the spindle when inserting the disc again.

Tightening the screws too much may result in tensions, which might damage the disc!

Only insert the material intended for the respective milling job into the disc holder. Inserting the wrong material may result in tool fracture or increased load on the spindle.
7.6.2 Mounting the disc holder

To operate the material changer in the software, please observe the corresponding chapter in the software manual.

The front flap of the material changer is equipped with a safety contact. The material changer can only move if the flap is closed.

If the machine is switched on and both front flaps are closed, you can position the disc holder in the material changer as follows:

1. Select a disc position in the software. The material changer turns until the holder changing position is reached.
2. Open the front flap of the material changer.
3. Hold the disc holder by its grip area (C) opposite the clamping pin (D).

Risk of crushing by movement of the clamping lever! Hold the disc holder only by its grip area. Do not hold the disc holder in the area of the clamping pin!

4. Press the holder release (E) and keep it pressed down. The clamping lever (F) at the holder changing position (G) opens.
5. Insert the disc holder at the holder changing position (perpendicular position).
6. You can now let go of the holder release. The clamping lever closes and secures the disc holder.
### 7.7 Procedure in case of a power failure
(Zenotec select hybrid with material changer)

If a short power failure occurs while the material changer is not in use, it is sufficient to just switch on the machine again.

If a power failure occurs during processing, however, follow the instructions of the software to enable referencing of the machine.

In case of a prolonged power failure or a defect in the power line, you can deactivate the safety interlock with the emergency key to remove the disc from the machine.

If the power supply is interrupted while the material changer is in use, it is not sufficient to just switch on the machine again. In such a case, the disc changer would trigger an emergency-off signal before the referencing of the machine. This is a safety feature to prevent damage to the machine.

If the machine fails while the material changer is in use, the following steps are required to bring the machine back to its home position.

1. Switch off the machine using the master switch and disconnect the machine from the power supply.

2. Set the pressure at the maintenance unit to 0 bar/psi or disconnect the compressed air line from the main line.

3. Open the front flap of the material changer.

4. Insert the key for the emergency-release of the front flap into the opening on the right of the material changer LED.

5. Deactivate the safety interlock of the front flap by turning the key in an anti-clock-wise direction until it stops.

   The front flap of the working chamber can now be opened.

6. Open the front flap of the working chamber.

7. Open the gripper and remove the disc holder, provided it is not locked in place in the milling chamber (see Figure 13).

---

![Figure 11: Deactivate safety interlock](image)

![Figure 12: Open the Zenotec select hybrid front flap](image)

![Figure 13: Closed gripper](image)
8. Close the gripper (Figure 14).

If you cannot reach the gripper, move the release slide towards the material changer until you can reach the gripper.

Slide the gripper to the left stop only while it is closed to prevent damage to the machine!

9. Hold the slide flap open with one hand and push the release slide towards the material changer with the other hand until it stops.

10. Push the gripper away from the working chamber up to the left stop.

11. Open the gripper.

The release slide is in its home position.

12. Close the front flap of the working chamber.

13. Activate the safety interlock of the front flap by turning the key in a clock-wise direction until it stops.

Make sure that the safety interlock has again been activated. The machine may only be operated if the safety interlock is activated!

14. Switch on the machine again.

The machine executes a reference run and is then again ready for operation.
8 Operating the CNC software

The CNC software can be directly started as an independent program and is also used as the machine control program. With this software, the data calculated by the CAM software are transmitted to the machine.

By right-clicking the button in the software, the function of the button is indicated in the information bar at the bottom of the window.

8.1 Milling job

This is the main page of the program and it is displayed when the program is started.

It shows the details of the milling job, an overview of the tools in the tool changer as well as various indicators and functions, which will be explained in more detail below.
8.1.1 Details of the milling job

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
</table>
| ![Milling](image) | **Milling of the selected job**  
The milling job can be started with this button. If the status indicator of the selected job is green, all the details for this job are correct (inserted tools, disc height, etc.) and milling can be started immediately. If the indicator is red, no suitable tools have been allocated for this job.  

⚠️ **Milling cannot be started if the indicator is red!** |
| ![Air-cleaning](image) | **Air-cleaning of the disc after milling**  
With this button, you can define whether or not the milled object will be blasted with compressed air to remove rough milling dust. Once the spindle has deposited the tool, it moves over the work pattern and air-cleans it via the air jet of the machine as well as the air jet for cone cleaning. |
| ![Water pump](image) | **Water pump**  
This button activates (blue) or deactivates the water pump for wet grinding. The water pump is automatically controlled by the software during milling. |
| ![Deleting](image) | **Deleting a job**  
The current job can be deleted using this button. The job will be completely deleted from the software and cannot be restored. |
8.1.2 Tool changer

The picture above shows the allocated tools in the tool manager of the CNC software.
The sequence of the tool positions shown in the CNC software corresponds with the actual sequence of the positions in the machine. The tools required for the individual milling jobs are marked by the green status indicator. The progress bars represent the operating counter, while the number behind it indicates the respective operating hours. As soon as the defined maximum service life of a tool has been reached, the indicator turns red. If a sister tool has been placed at another position, it will automatically be used.

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Image" /></td>
<td>Replacing tools, resetting the operating counter&lt;br&gt;Once you have replaced a tool by a new one, the operating hours can be reset to the maximum value by means of the icon behind the operating hours of every tool.</td>
</tr>
<tr>
<td><img src="image2.png" alt="Image" /></td>
<td>Loading the tool magazine&lt;br&gt;The tool magazine can be loaded via this symbol. It opens a window with the positions of the tool magazine. They have already been selected for the respective allocated positions. Simply select the positions you would like to have loaded. It is also possible that you have to select one preselected position after the other.</td>
</tr>
</tbody>
</table>

Only reset the operating counter if you have replaced the worn down tools by new ones.
8.1.3 Functions

Depending on the machine type connected (e.g. machines with or without material changer), buttons that are not required remain invisible. Most of the functions have to be manually performed only during maintenance work.

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
</table>
| ![Machine status icon] | Machine status  
Connected with the machine. |
| ![Machine status icon] | Machine status  
Not connected. |
| ![Machine status icon] | Machine status  
Machine running. |
| ![Machine status icon] | Machine status  
Machine hood open. |
| ![Machine status icon] | Machine status  
Machine idle. |
| ![Machine status icon] | Machine status  
Emergency-off activated. |
<table>
<thead>
<tr>
<th><strong>Home position</strong></th>
<th>If this button is activated, the machine returns to its home position. Here, the discs are changed and the tool changer can be loaded.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Extraction system</strong></td>
<td>The extraction system can be switched on and off by means of this button. The extraction system is automatically controlled by the software during milling.</td>
</tr>
<tr>
<td><strong>Cleaning the working chamber</strong></td>
<td>The spindle and the disc holder are moved into a position which renders the working chamber easier to access for a cleaning procedure.</td>
</tr>
<tr>
<td><strong>Tool removal / spindle maintenance</strong></td>
<td>The spindle automatically runs to the centre of the processing chamber and opens the collet after confirmation. The tool must be removed manually. Depending on the degree of contamination, the collet must be cleaned in the respective intervals.</td>
</tr>
</tbody>
</table>

*As soon as the collet is opened, the tool drops and can be damaged!*  

*Use special caution when changing the tools manually!*  
Cutting injuries or burns by the tools may occur during tool removal.
### 8.1.4 Inlets

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Collet" /></td>
<td><strong>Collet</strong>&lt;br&gt;The collet can be manually opened and closed by means of this button. Furthermore, the status of the collet is indicated (black icon = closed / blue icon = open).</td>
</tr>
<tr>
<td><img src="image" alt="Sealing air" /></td>
<td><strong>Sealing air</strong>&lt;br&gt;Activates (blue button) or deactivates the sealing air. The sealing air is automatically controlled by the software and prevents shavings from entering the spindle.</td>
</tr>
<tr>
<td><img src="image" alt="Air jets" /></td>
<td><strong>Air jets</strong>&lt;br&gt;Activates (blue button) or deactivates the air jets. The air jets are automatically controlled by the software during milling.</td>
</tr>
<tr>
<td><img src="image" alt="Cone cleaning" /></td>
<td><strong>Cone cleaning</strong>&lt;br&gt;Activates (blue button) or deactivates the cone cleaning. For that purpose, air is automatically blown through the open collet during tool change.</td>
</tr>
<tr>
<td><img src="image" alt="Water pump" /></td>
<td><strong>Water pump</strong>&lt;br&gt;Activates (blue button) or deactivates the water pump for wet grinding. The water pump is automatically controlled by the software during milling.</td>
</tr>
<tr>
<td><img src="image" alt="Material contact of the spindle" /></td>
<td><strong>Material contact of the spindle</strong>&lt;br&gt;Indicates the material contact of the spindle (blue button). This is only for your information. This symbol can light up in various situations, such as during calibration, etc.</td>
</tr>
<tr>
<td><img src="image" alt="Tool measuring sensor" /></td>
<td><strong>Tool measuring sensor</strong>&lt;br&gt;Indicates the activation of the button by the tool (button turns blue). This is only for your information. The measuring sensor button lights up during tool length measurement as well as during tool fracture monitoring.</td>
</tr>
<tr>
<td><img src="image" alt="Pressure sensor" /></td>
<td><strong>Pressure sensor</strong>&lt;br&gt;Indicates the air pressure.</td>
</tr>
<tr>
<td><img src="image" alt="Negative pressure sensor" /></td>
<td><strong>Negative pressure sensor</strong>&lt;br&gt;Indicates the existence of the required negative pressure in the working chamber.</td>
</tr>
</tbody>
</table>

**Milling or grinding is only possible with the extraction system switched on!**
8.1.5 Operating the material changer

Mounting the material holder
By clicking the desired position in the material changer, the selected position is moved to the material holder changing position. The current position of the material holder changing position is indicated in green.

The mounting of the material holders is described in detail in chapter 7.5 and 7.6.

Loading the material holder into the working chamber
There are two methods to load the desired material into the working chamber:

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
</table>
| ![Start symbol](image) | **Start symbol**  
With this button, the material holder is loaded into the working chamber and the desired milling job is started. |
| ![Loading / unloading button](image) | **Loading / unloading the material holders**  
By clicking the loading/unloading button and a subsequent click on the desired material changing position, the material holder is loaded into the working chamber or unloaded accordingly. After that, the respective position number is displayed in blue in the centre of the material changer. |
| ![Virtual loading / unloading of discs](image) | **Virtual loading / unloading of discs**  
When **loading** discs virtually, you assign the disc holder currently loaded in the working chamber a certain position in the material changer, without the Zenotec select hybrid actually loading it in the allocated position.  
When **unloading** discs virtually, you set the status of the working chamber in the CNC software to “Empty”, without the Zenotec select hybrid actually unloading the disc holder.  
Before loading a disc virtually, make sure there is no disc holder in the respective material changing position. |

Improper virtual loading may result in damage to the Zenotec select hybrid.
The tools that have been successfully generated are shown on the left side of the tool manager. The right side shows the tool magazine of the machine.

The tools may be physically dragged from the left side and dropped into the tool magazine on the right side (keeping the left mouse-button depressed). In this way, the tool changer can be loaded in the software. You can generate three magazines – one for zirconium tools, once for resin tools and a mixed magazine.
<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
</table>
| ![Image](43x614 to 92x662) | **Removing tools from the tool magazine**  
If a tool is no longer required, you can return it to the Library using the arrow symbol. Once there, it can be removed via the recycle bin symbol. |
| ![Image](43x480 to 92x528) | **Replacing tools / Resetting the operating counter**  
If you replace a worn down tool by a new one with identical tool geometry, you can reset the counter for the operating hours to the respective maximum value. |
| ![Image](44x551 to 93x599) | **New tool**  
The software can manage up to thirty tools. Use this icon to add tools. |
8.1.7 Milling protocol

The most important data of the milling jobs are logged in the milling protocol. This includes the job ID, any possible error codes, start/ completion time, milling duration and material type.

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Restoring a job button]</td>
<td><strong>Restoring a job</strong></td>
</tr>
<tr>
<td>Milling jobs can be restored within the defined filing period and can be milled again.</td>
<td></td>
</tr>
</tbody>
</table>
### 8.2 Software settings

#### 8.2.1 User-defined program settings

<table>
<thead>
<tr>
<th>Setting</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>Selecting the program language.</td>
</tr>
<tr>
<td></td>
<td><strong>i</strong> After a change, the program has to be restarted.</td>
</tr>
<tr>
<td>User profile</td>
<td>The standard user profile is “User”.</td>
</tr>
<tr>
<td></td>
<td><strong>i</strong> The service mode is only used by service technicians.</td>
</tr>
<tr>
<td>Cleaning reminder</td>
<td>If this option is activated, a dialogue window with the reminder that the machine should be cleaned appears once a day at the most.</td>
</tr>
<tr>
<td>Number of days of data storage</td>
<td>Define how long the data of completed milling jobs should be stored. After the indicated period, the data will be deleted.</td>
</tr>
<tr>
<td>Mark disk position</td>
<td>If this function is activated, the discs are marked at the disc edge. This facilitates reclamping the disc in the same position.</td>
</tr>
<tr>
<td>Tool measurement with lower tolerance (WDT tool tolerance)</td>
<td>By clicking this button, the tool measuring tolerance is set to 0.05 mm. By default, the tool measuring tolerance is set to 0.4 mm. The activation of this button is recommended when processing Zenotec NP or other grinding materials in order to avoid tool fractures.</td>
</tr>
<tr>
<td>Button</td>
<td>Function</td>
</tr>
<tr>
<td>--------</td>
<td>----------</td>
</tr>
<tr>
<td><img src="image" alt="Port number" /></td>
<td>Setting-up of the USB connection between the machine and the computer upon connecting the machine.</td>
</tr>
</tbody>
</table>

### 8.2.2 CNC tool allocation

Here, all the tools are listed that are offered by Wieland Dental+Technik for the connected machine. If a new tool is added to the tool manager, it will appear in the drop-down menu shown above.
All possible technical data regarding the connected machine are indicated under machine geometry. This includes, for example, the measuring sensor position, tool position and the position of the axes. These data are used either by service technicians or the machine, for example, for the axis compensation.

<table>
<thead>
<tr>
<th>Button Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Exporting the machine geometry data</strong></td>
</tr>
<tr>
<td>With this button, the machine geometry data can be exported to a text file. This file is then stored in the installation directory of the software.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Button Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Manual tool change</strong></td>
</tr>
<tr>
<td>Manual tool change can be activated for the respective position by means of the hand symbol. In this way, the selected position can be manually loaded with tools, for example, in case of defective rubber inserts in the tool magazine. If the manual tool change is activated for a position, the respective hand symbol is shown in blue.</td>
</tr>
</tbody>
</table>
8.2.4 Machine control

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
</table>
| ![Milling a calibration corpus](image) | **Milling a calibration corpus**  
A calibration corpus is milled to determine deviations of the spatial axis position, which is subsequently adjusted by software compensation (see chapter 8.3). |
| ![Drilling tool changer inserts](image) | **Drilling tool changer inserts**  
With the help of this button, new rubber inserts for your tool changer can be drilled, if the previous inserts are worn down. The procedure is described in chapter 8.4: Drilling fixing plates for tool changer. |
| ![Displaying the dongle](image) | **Displaying the dongle**  
Shows the details of the dongle used.  

These details are only required when requested by the service technician. |
### Searching for updates

This button can be used to search for software updates. Please note that this function requires an internet connection.

### Firmware version

The current firmware version is shown when this button is clicked.

### 8.3 Milling a calibration corpus

In order to mill a calibration corpus, select “Program settings” in the “Settings” window and click the “Milling calibration corpus” button. The disc position must be manually selected in advance. The software will then guide you through the process.

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
</table>
| ![Milling a calibration corpus](image) | Milling a calibration corpus  
By clicking the button, the already calculated milling file for the calibration corpus is loaded as a milling order. |

Before the start, make sure that a 10 mm calibration disc has been inserted and that the required tools have been loaded.

After clicking the milling calibration corpus button, the following screen is shown:
You can now start the milling procedure for the calibration corpus by means of the start button. Subsequently, the progress indicator will show a list of the processes being executed. After the milling procedure, remove the calibration corpus from the machine and measure the indicated points with the help of the micrometer gauge that is included in the delivery. Enter the measured values in the corresponding fields of the following window and confirm to continue.

Calibration should only be conducted by trained personnel. Make sure that the values entered are correct, as the machine executes the axis compensation on the basis of the values entered!
A saved calibration cannot be cancelled.
8.4 Drilling fixing plates for tool changer

Before you start the procedure, return the machine to its home position. Loosen the four Allen screws and remove the cover plate of the tool changer. Remove the four worn rubber inserts of the tool changer, position the new undrilled inserts and replace and secure the cover plate.

Click the button “Drilling tool changer insert” in the window “Settings” – “Program Settings”. The software will then guide you through the process.

<table>
<thead>
<tr>
<th>Button</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Drilling fixings plates for tool changer" /></td>
<td>Drilling fixing plates for tool changer</td>
</tr>
</tbody>
</table>

The fixing plates for tool changer are drilled by clicking this button.

Once the button is clicked, the following screen is shown.

Start the drilling procedure using the start button. The procedure can be aborted with the Stop symbol. The machine switches to the emergency mode and a prompt appears, whether or not the procedure should be continued or stopped.

A window opens, in which you are prompted to manually insert the drilling tool (2.8 mm drill) into the spindle.
Continue to hold the tool. Confirm the next window to continue and close the chuck. Remove your hand from the milling chamber and confirm the notice “Next”.

Subsequently, the progress indicator will show the drilling procedure in the form of a list of processes being executed.

Once the drilling procedure has been completed, the drilling tool has to be manually removed. Confirm the following dialogue to open the collet chuck in order to remove the tool.
## 9 Maintenance and cleaning

Maintenance and cleaning are necessary to ensure smooth operation of the machine. Furthermore, cleaning positively affects the service life of your tools.

Wieland Dental + Technik reserves the right not to accept liability for warranty claims in case of failure to observe the cleaning procedures. Please observe the prepared cleaning plan in the Appendix and also use it as a monitoring instrument.

### 9.1 Cleaning and maintenance cycles

The following cleaning and maintenance procedures have to be performed:

<table>
<thead>
<tr>
<th>Component</th>
<th>Interval</th>
<th>Prerequisite/remark</th>
<th>Working chamber</th>
</tr>
</thead>
<tbody>
<tr>
<td>Disc holders, Measuring sensor</td>
<td>Daily (more frequently, if required)</td>
<td></td>
<td>Contaminated interior</td>
</tr>
<tr>
<td>Collet</td>
<td>Weekly (more frequently, if required)</td>
<td></td>
<td>Out-of-round running of the spindle, poor milling results</td>
</tr>
<tr>
<td>Maintenance unit</td>
<td>Weekly</td>
<td></td>
<td>Condensate in the water separator, filter cartridge dirty</td>
</tr>
<tr>
<td>Material changer</td>
<td>Weekly</td>
<td></td>
<td>Cleaning with a vacuum cleaner and brush</td>
</tr>
<tr>
<td>Housing</td>
<td>Monthly</td>
<td></td>
<td>Cleaning with a cloth and, if necessary, a cleaning agent</td>
</tr>
<tr>
<td>Calibration of the axes</td>
<td>Only, if required!</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maintenance by Wieland Dental + Technik Service</td>
<td>Annually</td>
<td></td>
<td>Contact your Service Centre. The corresponding addresses can be found in the jacket.</td>
</tr>
</tbody>
</table>
9.2 Cleaning of the interior (working chamber, disc holder, measuring sensor, material changer)

Never use compressed air to clean the interior, since this may result in shavings reaching sensitive components, such as the linear guides or the spindle bearings. Clean the machine regularly to prevent dirt or shavings from accumulating in the guide rails and other sensitive machine components. Use only a vacuum cleaner and brush for cleaning.

If you only use a brush for cleaning, switch on the extraction system in the software so that the shavings are immediately removed.

Cleaning of the working chamber and disc holders

Make sure that you remove all material residues in the working chamber with the brush and/or vacuum cleaner.

Cleaning of the measuring sensor

The measuring sensor should be separately cleaned using a brush to remove all contaminants.

Cleaning of the material changer (only Zenotec select hybrid with material changer)

To clean the material changer, remove all the disc holders from the machine and clean them. Clean the interior of the material changer using a vacuum cleaner and a moist cloth. The release slide is best reached by lifting the slide flap from the working chamber.

Use the cleaning function in the software for that purpose.
9.3 Cleaning the spindle / collet

Only use the original spindle maintenance set for cleaning the spindle or the collet chuck.

Cleaning of the collet is described in detail in the Instructions for Use of the Maintenance Kit.

Never use compressed air to clean the spindle, as this will damage the bearings of the spindle.

Clean the collet once a week as follows:
1. Click the button “Remove tool” in the CNC module of the software.
2. Confirm the prompt to open the collet.
3. Open the front flap.
4. Manually unscrew the collet using the knurled screw of the Spindle Maintenance Kit. Make sure that a measuring pin is in place while unscrewing the collet to avoid a deformation of the collet.
5. Clean the inner cone of the spindle with the cleaning cone of the Maintenance Kit.
6. Clean the collet using the brush of the Maintenance Kit and make sure that the sealings in the collet do not fall off.
7. Take a small quantity of the collet grease from the Maintenance Kit and apply it on the slopes of the collet.

Make sure that no grease enters the longitudinal slots and the interior of the collet and use only the collet grease supplied with the Maintenance Kit to avoid damaging the spindle.
8. Screw the collet into the spindle until it stops using the screw-in piece. Make sure that a measuring pin is in place while screwing the collet into the spindle to avoid a deformation of the collet.

9. Click the button “Basic settings”.

### 9.4 Cleaning of the exterior (housing)

- Basically, powder-coated surfaces should be cleaned with a soft, dry cloth in a first step. If any contamination cannot be removed in this way, the cloth may also be moistened. If necessary, a cleaning agent with a neutral pH may be used.

- Basically, contact of alkaline or acidic substances with the powder coating must be prevented. Metallic powder coating is particularly sensitive. During cleaning, particular attention should be paid to the stick-on label to make sure that it is not peeled off. The adhesive letters are particularly sensitive to friction and strong cleaning agents.

### 9.5 Compressed air maintenance

- Check on a weekly basis if water has accumulated in the water separator and empty the container, if necessary, by opening the discharging screw (see Figure 4 on Page 21). The condensate is then blown out under pressure. Condensate in the separator usually indicates that the compressed air is insufficiently dry. In this context, please observe our requirements regarding air purity in chapter 5.

- In case of severe contamination, the filter cartridge in the water separator must be cleaned or replaced. A severely contaminated cartridge may lead to a decline in the compressed air output.
1. Disconnect the machine from the compressed air supply.
2. Unscrew the bowl of the water separator.
3. Unscrew the filter screw below the filter cartridge.
4. Pull out the filter cartridge.
5. Check the filter cartridge, clean it or replace it, if necessary.
6. Insert the new or cleaned filter cartridge.

If the compressed air meets the purity requirements of ISO 8573-1, the filter cartridge usually does not have to be replaced. If the filter cartridge is contaminated, please check the purity level of your compressed air.

### 9.6 Calibration

The machine is supplied in a calibrated condition. As long as your milling results are impeccable, renewed calibration is not necessary. If inaccuracies occur, however, calibration is required. In case of a problem, please consult a service technician before you recalibrate the machine. Calibration is time-consuming and may lead to poorer milling results if performed incorrectly. Therefore, check the operating conditions first. Check the fixation of the work pattern, the condition of the tool and the material to be processed before you execute a calibration procedure.

Details on conducting the calibration procedure can be found in the Software Manual.

### 9.7 Machine maintenance (by Wieland Dental + Technik Service)

Wieland Dental+ Technik recommends having a service technician regularly perform maintenance on the machine.

Machine maintenance should be conducted at least once a year.
10 Notes

Safety notes

The Zenotec select hybrid milling system has been designed based on the following standards:

Applicable EC Directives
- 2006/42/EC Machine Directive
- 2004/108/EC EMC Directive

Applied harmonized standards
- EN 61326-1:2006 - IEC 60204-1:2005
- EN 61326-2-1:2006 - IEC 61010-1:2010
- EN 61000-3-3:2008

Radio protection, electromagnetic compatibility:
- EMC tested

10.1 Acceptable operating conditions

Acceptable ambient temperature range:
The room temperature should be between 18 °C (64.4 °F) and 25 °C (77 °F); maximum room temperature 32 °C (89.6 °F)

Acceptable humidity range:
Max. relative humidity 80% for temperatures up to 31 °C (87.8 °F), condensation excluded.

Acceptable ambient pressure:
The furnace is tested for use at altitudes of up to 2000 m above sea level.

10.2 Acceptable transportation and storage conditions

Acceptable temperature range: 10 °C to 35 °C (50 °F to 95 °F)
Acceptable humidity range: Max. 80% relative humidity
Acceptable ambient pressure: 500 mbar to 1060 mbar

Use only the original packaging together with the corresponding foam material for shipping purposes.
11 Zenotec hydro
## List of parts (Zenotec hydro)

<table>
<thead>
<tr>
<th>No.</th>
<th>Component description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Control cable for membrane pump</td>
</tr>
<tr>
<td>B</td>
<td>Power pack</td>
</tr>
<tr>
<td>C</td>
<td>Power cord</td>
</tr>
<tr>
<td>D</td>
<td>3 Fine filter cartridges</td>
</tr>
<tr>
<td>E</td>
<td>3 Coarse filter pads</td>
</tr>
<tr>
<td>F</td>
<td>Fluid hose</td>
</tr>
<tr>
<td>G</td>
<td>Assembly tool for filter change</td>
</tr>
<tr>
<td>H</td>
<td>Metal sealing plug</td>
</tr>
<tr>
<td>I</td>
<td>Set of rollers</td>
</tr>
<tr>
<td>K</td>
<td>Connecting hose</td>
</tr>
</tbody>
</table>
12.1 Indications of Zenotec hydro

This manual enables you to use the Zenotec hydro from Wieland Dental + Technik, as well as the corresponding accessories, in a safe and reliable way. Please read these Operating Instructions carefully and observe the notes contained therein.

Should you have any questions, please contact Wieland Dental + Technik directly.

Zenotec hydro may only be operated with the housing and in conjunction with the Zenotec select hybrid models (with/without material changer) and Zenotec cyclon from Wieland Dental. Only the materials listed in these Operating Instructions may be processed.

When using Zenotec hydro, a residual current-operated protective device (RCD) must be installed in the electric circuit of Zenotec select hybrid, Zenotec cyclon and Zenotec hydro.

Do not move the Zenotec hydro during operation!
If the wet-grinding module is equipped with rollers, the roller brakes must be activated when operating the wet-grinding module.

If the machine is used for any purpose other than the above designated use, the system may be damaged. The protective equipment must not be circumvented or suspended. The indications also include observing these Operating Instructions and following the maintenance instructions therein.

In order to ensure product safety and the validity of the warranty, the product must be exclusively operated with the original accessories from Wieland Dental. The user bears the risk of using nonapproved accessories. Zenotec hydro must be operated exclusively with the lubricating coolant Synergy 905. Please also observe the notes regarding the disposal of the milling emulsion (see Product Data Sheet). Should you make any modifications to the device or remove the housing of the electronic controls without prior written consent by a Wieland Service Centre, all warranty claims are void.

Zenotec hydro may be operated unsupervised. In this context, please observe the conditions for the unsupervised operation of Zenotec select hybrid and the notes on operating Zenotec hydro.

The space where the pump and controls of the Zenotec hydro are located must remain dry. Remove any accumulated fluid immediately.
12.2 Warnings

Use of damaged cables
Mortal danger by electric shock!
■ Disconnect the machine from the power source and protect the machine from accidental operation.
■ Consult Customer Service.
■ Replace the damaged cables with original replacement cables.

Troubleshooting during operation
Mortal danger by electric shock!
■ Consult Wieland Service before you rectify a malfunction.
■ Disconnect the machine from the power source and protect the machine from accidental operation.

Operation of the Zenotec hydro without a residual current protective device (RCD)
Mortal danger by electric shock!
■ When using Zenotec hydro, a residual current-operated protective device (RCD) must be installed in the electric circuit of Zenotec select hybrid and Zenotec hydro.
■ Consult Wieland Service if an RCD is not installed.

Incorrect installation of water-carrying lines
Mortal danger by electric shock!
■ Make sure that no lines containing water are installed across electrical lines or electrical devices.
■ Consult Wieland Service if an RCD is not installed.

Use of the wrong lubricating coolant
Injuries to health!
■ Only use the lubricating coolant Synergy 905 recommended by Wieland Dental + Technik.
<table>
<thead>
<tr>
<th>Safety Instruction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mess at the workplace</strong></td>
</tr>
<tr>
<td><strong>Risk of stumbling and falling!</strong></td>
</tr>
<tr>
<td>- Keep the work station clean.</td>
</tr>
<tr>
<td>- Store the Zenotec hydro in a safe place.</td>
</tr>
<tr>
<td>- If the Zenotec hydro is equipped with rollers, the roller brakes must be activated during operation.</td>
</tr>
<tr>
<td><strong>Liquids escaping at the work station</strong></td>
</tr>
<tr>
<td><strong>Risk of stumbling and falling!</strong></td>
</tr>
<tr>
<td>- Keep your work station clean.</td>
</tr>
<tr>
<td>- Store the Zenotec hydro in a safe place.</td>
</tr>
<tr>
<td>- Wipe off escaping liquid immediately.</td>
</tr>
<tr>
<td><strong>Skin contact with lubricating coolant</strong></td>
</tr>
<tr>
<td><strong>Erythema or irritation of the skin!</strong></td>
</tr>
<tr>
<td>Upon contact of the lubricating coolant or milling emulsion with the skin, thoroughly rinse under running tap water.</td>
</tr>
<tr>
<td><strong>Drinking of lubricating coolant</strong></td>
</tr>
<tr>
<td><strong>Nausea and diarrhoea!</strong></td>
</tr>
<tr>
<td>Store lubricating coolant in clearly marked containers in order to avoid that it is confused with foodstuffs.</td>
</tr>
<tr>
<td><strong>Mounting of the module insert</strong></td>
</tr>
<tr>
<td><strong>Danger of crushing!</strong></td>
</tr>
<tr>
<td>- When mounting the module insert, always grasp it by the handles.</td>
</tr>
<tr>
<td>- Take care not to jam the finger of any other person when inserting the module.</td>
</tr>
<tr>
<td><strong>Disposal</strong></td>
</tr>
<tr>
<td>The machine must not be disposed in the normal domestic waste. Please correctly dispose of old devices according to the corresponding EU Council Directive. Information regarding disposal can also be found on the respective national Wieland Dental + Technik website. The packaging may be discarded with the regular household refuse.</td>
</tr>
</tbody>
</table>
12.3 Transport and storage

- Zenotec hydro must always be transported upright.
- Always transport Zenotec hydro separately.
- Modules must not be stacked on top of each other.
- If the liquid container is full, remove the liquid container and transport it separately.
- The ambient temperature for storage and transport must be between 10 °C (50 °F) and 35 °C (95 °F).
- Store Zenotec hydro only with the liquid and filter containers empty.
- Store the module insert always upright to prevent the housing foot from breaking off.

Weight of the individual components:
- Housing: approx. 15 kg
- Module insert: approx. 16 kg
- Accessories: approx. 3 kg

Keep the packaging of the module to use it if you have to send the module in for maintenance or repair.
12.4 Components of Zenotec hydro
<table>
<thead>
<tr>
<th>No.</th>
<th>Component description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Handles</td>
</tr>
<tr>
<td>B</td>
<td>Module insert</td>
</tr>
<tr>
<td>C</td>
<td>Display</td>
</tr>
<tr>
<td>D</td>
<td>Housing</td>
</tr>
<tr>
<td>E</td>
<td>Housing foot / roller</td>
</tr>
<tr>
<td>F</td>
<td>Coarse filter drawer</td>
</tr>
<tr>
<td>G</td>
<td>Fine filter container</td>
</tr>
<tr>
<td>H</td>
<td>Membrane pump</td>
</tr>
<tr>
<td>I</td>
<td>Flat filter pad</td>
</tr>
<tr>
<td>K</td>
<td>Measuring station</td>
</tr>
<tr>
<td>L</td>
<td>Leg support</td>
</tr>
</tbody>
</table>
12.5 Technical data

12.5.1 Basic system
- Dimensions with housing feet (w/d/h): approx. 382 x 455 x 580 mm
- Dimensions with rollers (w/d/h): approx. 382 x 455 x 640 mm
- Empty weight of the module: approx. 34 kg
- Separation of grinding dust and moisture
- Coarse filter drawer for coarse dirt
- Removable liquid container
- Labyrinth air cooling
- All metal parts are made of stainless steel
- Ultrasound sensor to measure the liquid level
- Power pack with an output voltage of 24 V DC, 60 W
- Input current membrane pump: 2A

12.5.2 Controls
- Integrated RGB display
- Automatic control of the membrane pump via the software possible
- Integrated operating hours counter
- Liquid volume indicator (in per cent)
- Deactivation of the membrane pump if the liquid level is low

12.5.3 Filter
- Coarse filter pad for coarse dirt
- Flat filter pad
- Fine filter cartridge with a pore size of 5 μm
12.6 Synergy 905

Synergy 905 is a synthetic, water-soluble lubricating coolant that is free of chlorine, mineral oil and ester oil. It can be used with soft and hard water (0-20 dH).

![Warning]

Prevent the new or used water emulsion from entering the soil, water or the sewage water system (see the Safety Data Sheet for more information).

12.7 Sound emission

The sound emission strongly fluctuates depending on the processed material and the milling conditions. If the machine is too loud, check the milling conditions. Examine the fixation of the work pattern, the condition of the tool and the materials processed.

![Earphones]

If loud operating noise cannot be prevented, use hearing protectors during milling.
13 Installation

13.1 Conditions governing location

The location for the wet-grinding module requires the following conditions:

- The conditions required for the location of Zenotec select hybrid also apply to Zenotec hydro.
  
  **The device should neither be placed nor operated in areas where there is an explosion hazard.**
  
- Place the machine on a stable, even surface constructed to hold the weight of Zenotec hydro.
- The room in which the module is set up must be well-ventilated as humid air is released into the room.
- The room temperature should be between 18 °C (64.4 °F) and 25 °C (77 °F); maximum room temperature 32 °C (89.6 °F)
- The machine has been designed for use in altitudes of up to 2000 m above sea level
- Maximum relative humidity 80%, non-condensing
- A/C power connection with 100-240 V and 50 / 60 Hz

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**Use of damaged cables**

**Mortal danger by electric shock!**

- Disconnect the machine from the power source and protect the machine from accidental operation.
- When using Zenotec hydro, a residual current-operated protective device (RCD) must be installed in the electric circuit of Zenotec select hybrid, Zenotex cyclon and Zenotec hydro.
- Consult Customer Service.
- Replace the damaged cables with original replacement cables.
13.1 Mounting the rollers

The wet-milling module is delivered ex works with stable feet. Wieland Dental + Technik recommends mounting the rollers if the wet-grinding module is stored readily accessible on the floor or beneath a table. In this way, the module is easier to reach for refilling the liquid or if the filter needs to be replaced.

During mounting of the rollers there is a risk of injury.

1. Remove the module insert and the liquid container from the housing.
2. Set the housing aside so that you can reach the bottom side of Zenotec hydro.
3. Remove the nuts and the housing feet.
4. Attach the rollers instead of the housing feet. Make sure to attach the two rollers with the built-in brakes pointing to the front.
5. Mount each roller with four washers each and four nuts.

Make sure that the roller brakes are always engaged during operation.

After moving the Zenotec hydro, check all connections and supply lines for possible damage.
### 13.3 Placing Zenotec hydro

- Make sure that no electrical devices are located beneath the wet-grinding module. Do not install any lines containing water across electrical lines or electrical devices.

In order to prevent any suction performance loss, the connecting hose must not be longer than 1.5 metres. This restricts the distance between Zenotec select hybrid and Zenotec hydro.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>M1.</strong></td>
<td>Unpack Zenotec hydro. Please keep the packaging of the machine in case you need to send in the machine for maintenance or repair.</td>
</tr>
<tr>
<td><strong>M2.</strong></td>
<td>Set up Zenotec hydro. The following images show possible set-up options.</td>
</tr>
</tbody>
</table>

- The hookup of the connecting hose at Zenotec hydro may not be set up higher than the suction hose connection of the Zenotec select hybrid!
### 13.4 Connections of Zenotec hydro

Use only the original cables provided with the system for the connections at the switching outputs. Make sure to connect the liquid hose to the socket intended for that purpose.

Do not set Zenotec hydro into operation before you have made sure that all the cables and hoses are correctly connected.

---

<table>
<thead>
<tr>
<th>No.</th>
<th>Component description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Switching output for membrane pump</td>
</tr>
<tr>
<td>B</td>
<td>Liquid connection for the membrane pump</td>
</tr>
<tr>
<td>C</td>
<td>Extraction connection</td>
</tr>
<tr>
<td>D</td>
<td>Liquid discharge (closed, as not used)</td>
</tr>
<tr>
<td>E</td>
<td>Connection for the extraction hose</td>
</tr>
<tr>
<td>F</td>
<td>Hookup for the connecting hose</td>
</tr>
<tr>
<td>G</td>
<td>Liquid connection</td>
</tr>
<tr>
<td>H</td>
<td>Switching input for membrane pump</td>
</tr>
<tr>
<td>I</td>
<td>Connection for the power pack</td>
</tr>
</tbody>
</table>
## 13.5 Mounting the components

The connections described in this paragraph may also remain connected when Zenotec select hybrid is used in the dry-milling mode. Attach the components with the help of the table below. The letters of the connections refer to the connection overview.

<table>
<thead>
<tr>
<th>Component</th>
<th>Connection Zenotec select hybrid</th>
<th>Connection Zenotec hydro</th>
<th>Picture</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control cable</td>
<td>Switching output external pump (A)</td>
<td>Switching input for membrane pump (H)</td>
<td><img src="image" alt="Control cable" /></td>
</tr>
<tr>
<td>Liquid hose</td>
<td>Liquid connection (B)</td>
<td>Liquid connection (G)</td>
<td><img src="image" alt="Liquid hose" /></td>
</tr>
<tr>
<td>Metal sealing plug</td>
<td>Liquid discharge (D)</td>
<td>–</td>
<td><img src="image" alt="Metal sealing plug" /></td>
</tr>
</tbody>
</table>

When removing or replacing the liquid hose, always disconnect the hose from the Zenotec hydro first. Hold the end of the hose over a liquid collection container to drain the hose and prevent a backflow of liquid into the milling machine.
13.6 Installing the connecting hose

The connecting hose must not be allowed to sag, as this will result in liquid accumulating in the hose and thus reduce the suction performance.

13.6.1 Length of the connecting hose

Connect the connecting hose with the suction opening of the Zenotec select hybrid and hold the hose to the hookup for the connecting hose at the Zenotec hydro for verification.
Check if the hose sags. If it does, shorten the connecting hose.

13.6.2 Shortening the connecting hose

Only if the connecting hose sags!
- Mark the area where the connecting hose reaches the hookup at the Zenotec hydro. Add approximately 3 cm excess length.
- Cut the connecting hose at the marked area using a sharp knife.
- Connect the connecting hose with the Zenotec hydro.

13.6.3 Securing the connecting hose at the Zenotec hydro

- Loosen the screw-type hose connection of the Zenotec hydro.
- Push the connecting hose through the screw-type hose connection with a distance of approximately 3 cm. Make sure that the black sealing ring does not fall off.
- Hold the connecting hose in place with one hand and tighten the screw-type hose connection with the other hand.
13.6.4 Filling in Synergy 905

Make sure that the Zenotec hydro is disconnected from the power supply when filling the liquid container.

1. Remove the module insert.
2. Fill the liquid container (max. capacity 22 litres) with 1.5 litres of Synergy 905 and 20.5 litres of tap water.
3. You now have 22 litres of an emulsion consisting of lubricating coolant and water (7% solution).
4. Replace the module insert.
5. Connect the power pack with Zenotec select hybrid and the power supply.
6. Zenotec hydro is now ready for operation.

13.6.5 Refilling

Loss of water must be expected during milling.

<table>
<thead>
<tr>
<th>Notice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regularly check the liquid level of the Zenotec hydro. Make sure to observe the indications on the display in this context.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Warning</th>
</tr>
</thead>
<tbody>
<tr>
<td>Generally, the liquid container is topped up with pure water. When topping up while the extraction system is running, the water can also be filled directly into the milling chamber.</td>
</tr>
</tbody>
</table>

You may top up the liquid container with water until you are reminded by the Zenotec CNC software that the filter needs to be replaced.
14 Operating Zenotec hydro

14.1 Switching from dry operation to wet operation

Before every wet-grinding procedure, make sure that Zenotec hydro is ready for operation.

Operate the Zenotec hydro always with the Zenotec cyclon switched on to prevent damage to the machines.

When switching the operation mode, follow the workflow of the Zenotec CNC software.

14.1.1 Zenotec select hybrid without material changer

- Remove the disc holder from the milling chamber.
- Clean the entire milling chamber of the Zenotec select hybrid with a vacuum cleaner and a brush, if necessary.

Ensure that there is no dust left in the milling chamber after cleaning.

- Remove the suction hose from the Zenotec select hybrid.
- Attach the suction hose to the connection of the Zenotec hydro intended for this purpose.
- Connect the Zenotec hydro connecting hose with the Zenotec select hybrid.
- Empty the dust drawer of the Zenotec cyclon.

![Figure 18: Zenotec cyclon dust drawer](image)

- Check the liquid volume at the Zenotec hydro screen and top up to 100% if necessary.

You must check the coolant circuit before you start milling.

- Insert IPS e.matrix®.
14.1.2 Zenotec select hybrid with material changer

- Remove all the disc holders from the material changer.
- Clean the entire milling chamber of the Zenotec select hybrid with a vacuum cleaner and a brush, if necessary.
- Remove the suction hose from the Zenotec select hybrid.
- Attach the suction hose to the connection of the Zenotec hydro intended for this purpose.
- Connect the Zenotec hydro connecting hose with the Zenotec select hybrid.

![Wet processing diagram]

- Empty the dust drawer of the Zenotec cyclon.

![Zenotec cyclon dust drawer]

- Check the liquid volume at the Zenotec hydro screen and top up to 100\% if necessary.
- Insert IPS e.matrix® in the material changer.
14.1.3 CNC workflow – From dry to wet

1. **Remove disc-holder from the material changer**
2. **Clean milling chamber** – follow the steps described in instructions for use
3. **Connect the hose of the Zentec hydro with the Zentec select hybrid**
4. **Empty dust drawer of the Zentec cyclon**
5. **Check liquid volume at the Zentec hydro screen and refill if necessary**
6. **Insert IPS e.matrix in the material changer**
7. **Close the cover and wait until the button is active again. The coolant circuit is checked for correct functioning.**

---

ZENOTEC - From dry to wet

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ZENOTEC - From dry to wet

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ZENOTEC - From dry to wet
14.2 Switching from wet operation to dry operation

Before switching the operating mode, activate the suction system in order to ensure that as much liquid as possible is removed from the milling chamber of the Zenotec select hybrid.

- Open the front flap of the Zenotec select hybrid.
- Remove the IPS e.matrix® from the Zenotec select hybrid.
- Rinse the milling chamber and remove any possible milling residue with the help of a spatula. Remove the remaining liquid from the milling chamber of the Zenotec select hybrid using a cloth.

Only plastic spatulas should be used for cleaning. The use of e.g. metal spatulas may lead to damage in the interior of the machine.

- Remove the connecting hose from the Zenotec select hybrid.
- Remove the Zenotec cyclon suction hose from the Zenotec hydro.
- Attach the Zenotec cyclon suction hose to the Zenotec select hybrid.

Moist air or residual water in the milling chamber of the Zenotec select hybrid may reach the electrical components of the machine and condensate there! Therefore, it is imperative to activate the Zenotec cyclon during and after wet grinding.

Leave the front flap open for at least 15 minutes for drying purposes.
14.2.1 CNC workflow – From wet to dry

Remove all IPS e.max® from the material changer

Clean milling chamber – follow the steps described in instruction for use

Switch on the Zentec cyclon and complete the 15 minutes drying process ...

14:50
The display of the Zenotec hydro provides information on the liquid volume, operating hours, version of electronic controls and the status of the membrane pump. Only use the Zenotec hydro if the display is fully operational.

**Figure 20: Display of Zenotec hydro**

<table>
<thead>
<tr>
<th>No.</th>
<th>Component description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Liquid volume in %</td>
</tr>
<tr>
<td>B</td>
<td>Serial number of the Zenotec hydro electronic controls</td>
</tr>
<tr>
<td>C</td>
<td>Operating hours</td>
</tr>
<tr>
<td>D</td>
<td>Version of electronic controls</td>
</tr>
<tr>
<td>E</td>
<td>Status of the membrane pump</td>
</tr>
</tbody>
</table>
The display of Zenotec hydro changes its colour depending on the fill level.

<table>
<thead>
<tr>
<th>Fill level [mm]</th>
<th>Quantity [litres]</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>4.8</td>
<td><img src="image1.jpg" alt="Image" /></td>
</tr>
<tr>
<td>70</td>
<td>5.6</td>
<td><img src="image2.jpg" alt="Image" /></td>
</tr>
<tr>
<td>80</td>
<td>6.4</td>
<td><img src="image3.jpg" alt="Image" /></td>
</tr>
<tr>
<td>90</td>
<td>7.2</td>
<td><img src="image4.jpg" alt="Image" /></td>
</tr>
<tr>
<td>100</td>
<td>8.1</td>
<td><img src="image5.jpg" alt="Image" /></td>
</tr>
<tr>
<td>110</td>
<td>8.9</td>
<td><img src="image6.jpg" alt="Image" /></td>
</tr>
<tr>
<td>120</td>
<td>9.7</td>
<td><img src="image7.jpg" alt="Image" /></td>
</tr>
<tr>
<td>130</td>
<td>10.6</td>
<td><img src="image8.jpg" alt="Image" /></td>
</tr>
<tr>
<td>140</td>
<td>11.4</td>
<td><img src="image9.jpg" alt="Image" /></td>
</tr>
<tr>
<td>150</td>
<td>12.2</td>
<td><img src="image10.jpg" alt="Image" /></td>
</tr>
<tr>
<td>160</td>
<td>13.1</td>
<td><img src="image11.jpg" alt="Image" /></td>
</tr>
<tr>
<td>170</td>
<td>13.9</td>
<td><img src="image12.jpg" alt="Image" /></td>
</tr>
<tr>
<td>180</td>
<td>14.8</td>
<td><img src="image13.jpg" alt="Image" /></td>
</tr>
<tr>
<td>190</td>
<td>15.7</td>
<td><img src="image14.jpg" alt="Image" /></td>
</tr>
<tr>
<td>200</td>
<td>16.5</td>
<td><img src="image15.jpg" alt="Image" /></td>
</tr>
<tr>
<td>210</td>
<td>17.4</td>
<td><img src="image16.jpg" alt="Image" /></td>
</tr>
<tr>
<td>220</td>
<td>18.3</td>
<td><img src="image17.jpg" alt="Image" /></td>
</tr>
<tr>
<td>230</td>
<td>19.1</td>
<td><img src="image18.jpg" alt="Image" /></td>
</tr>
<tr>
<td>240</td>
<td>20.0</td>
<td><img src="image19.jpg" alt="Image" /></td>
</tr>
<tr>
<td>250</td>
<td>20.9</td>
<td><img src="image20.jpg" alt="Image" /></td>
</tr>
<tr>
<td>260</td>
<td>21.8</td>
<td><img src="image21.jpg" alt="Image" /></td>
</tr>
</tbody>
</table>
16 Operating the CNC software

If you switch from dry operation to wet operation or vice versa, a separate window opens in the Zenotec CNC software. It shows the defined workflow for switching between the operation modes illustrated with pictures.

To switch from dry operation to wet operation or vice versa, follow the illustrated work-flow of the working mode in the CNC software.

The workflow for switching from one operation mode to another can be found in chapter 14.
17 Maintenance and cleaning of Zenotec hydro

Maintenance and cleaning are necessary to ensure smooth operation of the machine. Furthermore, cleaning positively affects the service life of your tools.

Wieland Dental + Technik reserves the right not to accept liability for warranty claims in case of failure to observe the cleaning procedures. Please observe the prepared cleaning plan in the Appendix and also use it as a monitoring instrument.

Always disconnect the wet-grinding module from the power source before you remove the module insert!

17.1 Cleaning and maintenance cycles

<table>
<thead>
<tr>
<th>Component</th>
<th>Interval</th>
<th>Prerequisite/remark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power lines / liquid lines</td>
<td>Once per week</td>
<td>Visual control</td>
</tr>
<tr>
<td>Liquid container</td>
<td>If the display lights up in yellow (more frequently, if required)</td>
<td>Top up with tap water</td>
</tr>
<tr>
<td>Clean the coarse filter</td>
<td>If required</td>
<td></td>
</tr>
<tr>
<td>Replace the filter cartridge</td>
<td>After 70 h or if the flow rate is too low (notice CNC)</td>
<td>Zenotec select hybrid flow rate drops</td>
</tr>
<tr>
<td>Replace liquid</td>
<td>incl. filter</td>
<td>Cleaning with a vacuum cleaner and brush</td>
</tr>
<tr>
<td>Zenotec select hybrid working chamber</td>
<td>If required (at least when switching from wet grinding to dry milling and vice versa)</td>
<td>Cleaning with a cloth and, if necessary with cleaning agent</td>
</tr>
<tr>
<td>Zenotec hydro maintenance by Wieland Dental + Technik Service</td>
<td>Every 2 years</td>
<td>Contact your Service Centre. The corresponding addresses can be found in the jacket.</td>
</tr>
</tbody>
</table>
17.2 Cleaning the coarse filter and liquid container

1. Remove the coarse filter drawer and dispose of the residue.
2. Rinse the coarse filter pad. As long as the pores of the coarse filter pad are not clogged and liquid may pass through, the pad may be reused.
3. Replace the clean coarse filter pad or place a new coarse filter pad in the coarse filter drawer.
4. Clean the liquid container using a cloth.

17.3 Changing the fine filter cartridge

1. Use the assembly tool for the filter change and unscrew the fine filter container by turning it clockwise.
2. Dispose of the liquid in the fine filter container.
3. Remove the fine filter cartridge and dispose of it in a proper manner.
4. Clean the fine filter container if it is dirty.
5. Insert a new fine filter cartridge.

Check the filter cartridge and replace it, if necessary.
Make sure to centre the fine filter cartridge and resecure the fine filter container.

18 Disposal

Disposal
The machine must not be disposed in the normal domestic waste. Please correctly dispose of old devices according to the corresponding EU Council Directive. Information regarding disposal may also be found on the respective national Wieland Dental + Technik website. The packaging may be discarded with the regular household refuse.
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Version: 2
Date information prepared: 01/2015

The apparatus has been developed solely for use in dentistry. Start-up and operation should be carried out strictly according to the Operating Instructions. Liability cannot be accepted for damages resulting from misuse or failure to observe the Instructions. The user is solely responsible for testing the apparatus for its suitability for any purpose not explicitly stated in the Instructions. Descriptions and data constitute no warranty of attributes and are not binding.

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LEADING DIGITAL ESTHETICS

Wieland Dental, a company of the Ivoclar Vivadent Group, was established in Pforzheim in 1871 and is one of the world’s leading suppliers in the field of dental technology. Future-ready integrated technologies and materials are the hallmarks of our expertise and prowess. Wieland Dental opens up the way to progress in dental technology.

wieland-dental.de