Dear colleagues,

Please allow me to look back on the development history of our milling system.

Five years ago, I had the idea of elaborating zirconium by the means of a manual milling unit. A lot of patience and inventiveness was needed from the first idea to the actual realization of the milling unit ready for sale. I started with a wooden model and tried out several possibilities, before I developed a working prototype. After two years and 15,000 milled units, the first unit was ready for sale. Thanks to international teamwork we were able to sell our system in 60 different countries.

This brochure will tell you more about how the machine works. It would be a pleasure for me, if after having read it, you feel like trying out my system.

I am looking forward to your reaction!

Sincerely,

[Signature]

**The Inventor.**

**MANPOWER**

*Move the world with your hands*

This is the motto of our milling system. It provides the technician with the possibility to make high-quality units with his own hands.
Zirconium is one of the oldest and most abundant elements in the terrestrial crust and it is the basis for Zirconium oxide (yttrium stabilized Zirconium dioxide). This first-class-performance material was successfully used for artificial limbs and joints in the medical field in the last decades and now it is also available to the dental industry.

Due to its excellent biological characteristics, Zirconium is nowadays the preferred material for dental restorations. Its use in the dental field is on the increase since the 1990s. It is assumed that 15,000 to 20,000 units are made in zirconium every day. Laboratory tests revealed that zirconium bridges and metal ceramic bridges on the basis of precious metal alloy show the same fracture resistance.

«ZIRCONIA-the ceramic material of the future»

**MATERIAL AND WORK EXPENDITURE**

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milling bur consumption:</td>
<td>approx. 80-100 units per bur</td>
</tr>
<tr>
<td>Milling time per unit:</td>
<td>approx. 10-15 min. per unit</td>
</tr>
<tr>
<td>Time for modelling:</td>
<td>approx. 10-15 min. per unit</td>
</tr>
<tr>
<td>Sinterization cycle:</td>
<td>approx. 8 hours</td>
</tr>
<tr>
<td>Maintenance:</td>
<td>Cleaning and lubrication</td>
</tr>
<tr>
<td>Wear and tear:</td>
<td>Wearing parts can be easily exchanged</td>
</tr>
<tr>
<td>Consumption furnace:</td>
<td>900 Watt</td>
</tr>
<tr>
<td>Total costs per unit, incl. all costs also ceramic:</td>
<td>15 €</td>
</tr>
<tr>
<td>Preparation:</td>
<td>All kinds of preparation possible</td>
</tr>
</tbody>
</table>

**IMPROVE YOUR MILLING TECHNIQUE**

Our product range includes special instruments for milling all kinds of abutments and other demanding works.
Zirkonium milling technology.

Zirkonzahn Ltd offers individual solutions of manual milling technology.

Technical solutions – for simple as well as highly complex and demanding constructions.

A wide range of accessory material rounds off the system.

ICE ZIRCONIA TRANSLUCENT

Both ICE Zirconia materials can be used for crowns and bridges. Due to the high level of translucency the Zirconia Prettau is especially suitable for full zirconia bridges.

ICE ZIRCONIA TRANSLUCENT

<table>
<thead>
<tr>
<th>COMPOSITION</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \text{ZrO}_2 + \text{HfO}_2 )</td>
<td>Main component</td>
</tr>
<tr>
<td>( \text{Y}_2 \text{O}_3 )</td>
<td>( 4.95 ) – ( 5.26 )</td>
</tr>
<tr>
<td>( \text{Al}_2 \text{O}_3 )</td>
<td>( 0.15 ) – ( 0.35 )</td>
</tr>
<tr>
<td>( \text{SiO}_2 )</td>
<td>Max. ( 0.04 )</td>
</tr>
<tr>
<td>( \text{Fe}_2 \text{O}_3 )</td>
<td>Max. ( 0.03 )</td>
</tr>
<tr>
<td>( \text{Na}_2 \text{O} )</td>
<td>Max. ( 0.04 )</td>
</tr>
<tr>
<td>Density (g/cm³) sintered</td>
<td>6.05</td>
</tr>
<tr>
<td>Hardness (HV10)</td>
<td>( &gt;1250 )</td>
</tr>
<tr>
<td>Weibull modulus</td>
<td>( &gt;10 )</td>
</tr>
<tr>
<td>Flexural strength R.T.(MPa)</td>
<td>( &gt;1200 ) (MPa)</td>
</tr>
</tbody>
</table>

SOME COMPONENTS OF THE SYSTEM

1. Milling unit „Designer Zirkograph“
2. Sinter furnace „Zirkonofen 600“
3. Infrared Predying lamp
4. 5th axis
5. Assortment of ceramics
6. Assortment of stains
7. Zirconia blanks
8. Colour liquid (for the colorization of zirconia)
Mock-up frame construction.

1. Round off sharp corners – block out undercuts (Vaseline)
2. Apply Rigid T
3. Apply Rigid T stopping 1 mm above the margin and cure
4. Finalize margins with Rigid

5. Finalize crowns – do not elaborate
6. Insert bridge pontic (light cure tray material)

7. Cut bridge pontic
8. Reconnect bridge pontic (without plaster basis)

No limits on the type of preparations.
12. Draw connectors

13. Cut with tungsten bur

14. Cut template

15. Fix bridge into template

16. Double check fixed bridge on model
Milling procedure.

Start the milling process with the 4L bur. Use smaller instruments for fine and final milling.

1. Glue Zirconia block into position at both ends
2. Mill the outer form by using the bur 4L
3. Do not push too much during milling
4. Remove surplus material of the outer margin
5. Mill down to margin level
6. Internal milling of crowns
Put the objects under the infrared predrying lamp. Overnight sinterization – firing cycle approx. 8 hours.

7. Further detailed internal milling with 2L bur

8. Precise internal milling and smoothing with 1L bur

9. Milled unit – ready for disconnection

10.Disconnected bridge with remaining support base – ready for immersion into Colour Liquid

11. Dip into Colour Liquid for 5 seconds
Stratification.

1. Elaborate zirconium frame structure with zirconium dioxide stones
2. Blast structure with aluminium oxyd at bar
3. Apply washbrand with dentin opaquer (high fluorescence)
4. Increase temperature 100°, holding time 2 min.
5. Surface should be as smooth as glass
6. Apply dentin with 50% of dentin orange
7. Apply dentin
8. Indentation of dentin in incisal areas
9. Apply thick coat of transpa 3 at the sides

“Much dentin – little enamel”
Zilio Aldo, Venice
10. Zilio Aldo, Venice

11. Apply transpa blue into the approximal space

12. Apply the corresponding enamel mass in forms of stripes

13. Apply transpa masses

14. First intermediate firing

15. Apply only dentin on the cervical area

16. Add enamel

17. Apply T3 on incisal and approximal area

18. Bridge – after final firing

Zilio Aldo, Venice
Cases.

Yves Probst, Zirconlab
Work made out Zirconia
ICE Zirconia Ceramics
Strasbourg
France
Georg Walcher, Zirkonzahn
100% Zirconia
ICE Zirconia Ceramics
Bruneck
Italy
Cases.

Xavier Balmes
Work made out Zirconia
ICE Zirconia Ceramics
Barcelona
Spain
Zilio Aldo
Work made out Zirconia
ICE Zirconia Ceramics
Venice
Italy
Enjoy with us South Tyrol’s nature and calmness
This old and charming house is situated in a mountainous valley of South Tyrol. It is the place where our dental laboratory and education center are located.

Our presenters – Willy and Hansi – will train you there and take care of you.

Every week we offer several introductory courses on the zirconia milling systems in our education centre in Bruneck (South Tyrol).

PROGRAM:
- Introduction to the milling concept
- Manufacture of resin frame work
- Tension-free frame assembly
- Milling zirconia
- Frame refinement at presintered stage
- Colouring
- Sinter fire over night
- Fitting and frame preparation for bonding
- Other hints and tricks

COURSE DURATION:
Day 1: 9 am to 6 pm (approx.)
Day 2: 9 am to 12 pm (approx.)
Cost per person: 190,00 € (excl. tax)
Maximum participants: 12

REGISTRATION AND FURTHER INFORMATION:
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ZIRCONIUM MILLING TECHNOLOGY

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