Zirkonzahn®

*Human Zirconium Technology*

# SINTERING FURNACES

*The new generation*

ENGLISH

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# ON FIRE FOR THE FUTURE!

*Fire is a force of nature with practically infinite energy. It is fascinating and yet dangerous. The evolution of mankind would never have happened without the energy of fire. Fire has always been and remains the symbol for heat, energy and passion. Only people driven by an inner flame can conceive innovation and create works of art.*

*A person who is being consumed by this inner fire will never be satisfied with the status quo but wants to be ready for whatever the future may bring, even before it happens – they are always one step ahead, on fire for the future.*

*People bursting with enthusiasm are capable of convincing others, laying the basis for their success.*

*Light your fire!*

# THE NEW GENERATION

*All the furnaces of our new series are real space savers and build in a very compact way. Thanks to the very high temperatures – up to 1800 °C – these furnaces are ideal for the material technologies of the future.*

*Some models allow firing without oxygen under vacuum, thus making Prettau® Zirconia even more translucent and they can also be used for sintering sinter metal. All furnace parts are easily replaceable without the need for special technical assistance.*

- Up to 4 $MoSi_2$ heating elements
- New sintering technique
- 14 Up to 14 preset programmes
- Larger combustion chamber
- High quality all-glas casing
- Individual sintering programmes on request
- <2000 Memory for up to 2000 programmes
- USB Updatable via USB port
- 4,3” colour touchscreen control panel
- Upgradeable with special adapter for sintering sinter metal
- Controlled cooling
- Oxygen-free sintering / High Vacuum
- Prettau® Zirconia resulting more translucent
- Ideal for new material technologies
- Improved air circulation

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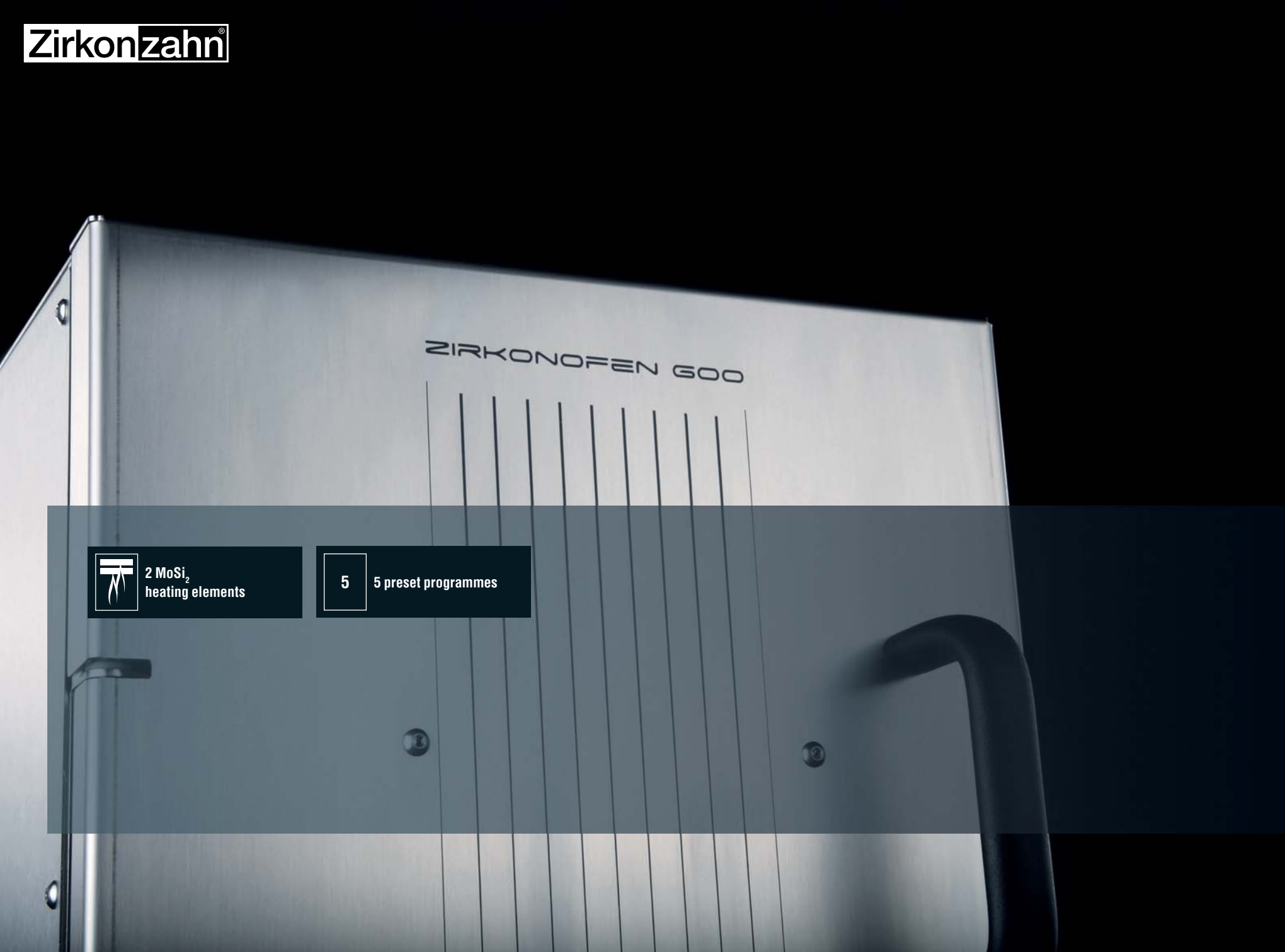


2 $MoSi_2$ heating elements

5 5 preset programmes

# SINTERING FURNACE ZIRKONOFEN 600/V2


## *Technical Data*

| | |
|---|---|
| **Size (W x H x D)** | 28,5 x 60,5 x 43 cm |
| **Weight** | approx. 45 kg |
| **Output Power** | 700 W |
| **Combustion Chamber Capacity** | 0,6 l |
| **Dimension Combustion Chamber (W x H x D)** | 6 x 10 x 10 cm |
| **Max. Temperature** | 1700 °C |
| **Vacuum** | No |
| **Capacity** | approx. 60 elements |

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- 2 $MoSi_2$ heating elements
- New sintering technique
- 10 preset programmes
- Improved air circulation
- High quality all-glas casing
- Individual sintering programmes on request
- <2000 Memory for up to 2000 programmes
- USB Updatable via USB port
- 4,3” colour touchscreen control panel

# SINTERING FURNACE ZIRKONOFEN 600/V3


## *Technical Data*

| | |
|---|---|
| **Size (W x H x D)** | 39,4 x 69,3 x 46 cm |
| **Weight** | 57 kg |
| **Output Power** | 700 W |
| **Combustion Chamber Capacity** | 0,6 l |
| **Dimension Combustion Chamber (W x H x D)** | 6 x 10 x 10 cm |
| **Max. Temperature** | 1700 °C |
| **Vacuum** | No |
| **Capacity** | approx. 60 elements |

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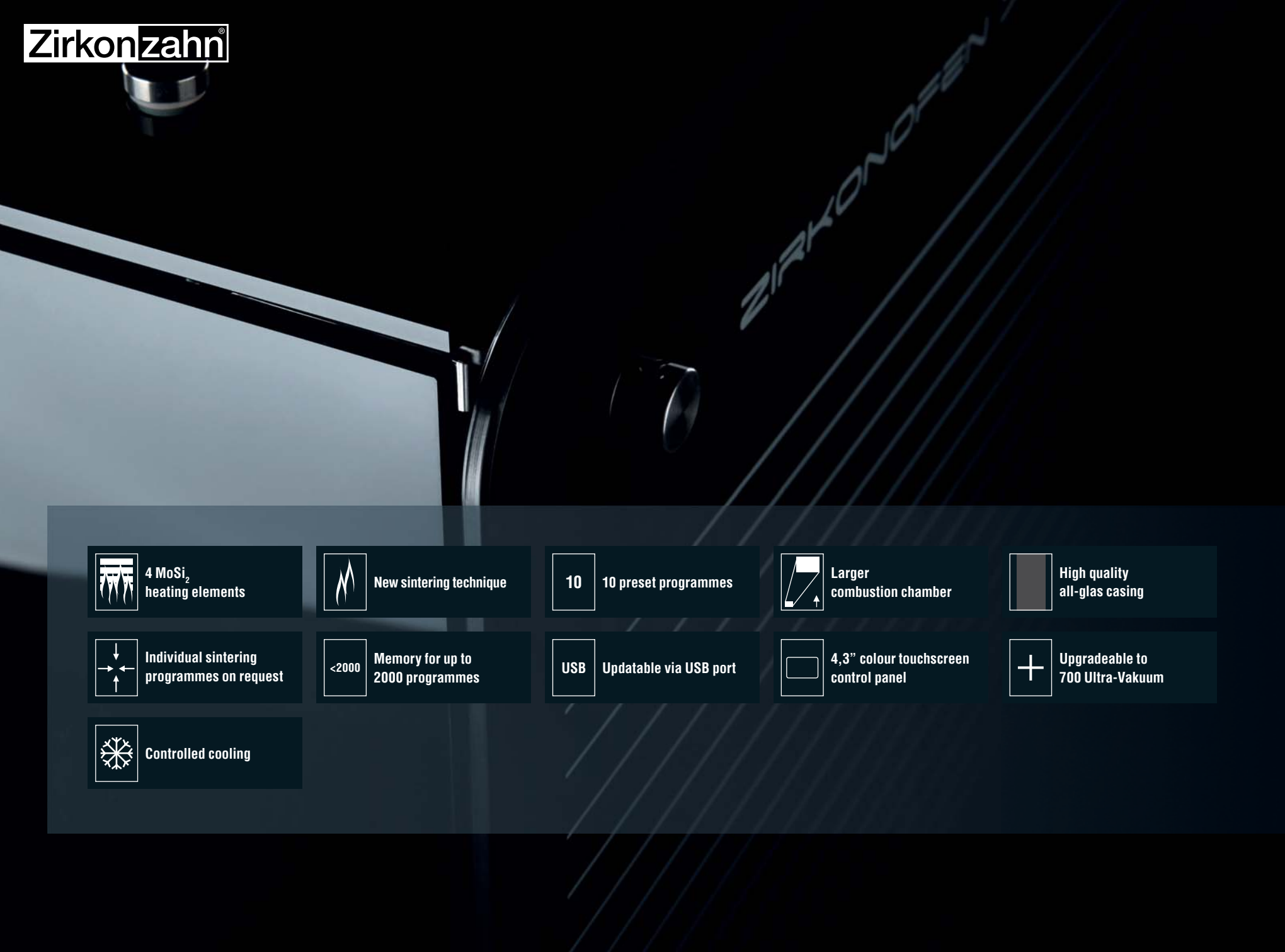


- 4 $MoSi_2$ heating elements
- New sintering technique
- 10 preset programmes
- Larger combustion chamber
- High quality all-glas casing
- Individual sintering programmes on request
- Memory for up to 2000 programmes
- Updatable via USB port
- 4,3” colour touchscreen control panel
- Upgradeable to 700 Ultra-Vakuum
- Controlled cooling

# SINTERING FURNACE ZIRKONOFEN 700


## *Technical Data*

| | |
|---|---|
| **Size (W x H x D)** | 48,4 x 69,3 x 54,5 cm |
| **Weight** | 97 kg |
| **Output Power** | 2300 W |
| **Combustion Chamber Capacity** | 0,8 l |
| **Dimension Combustion Chamber (W x H x D)** | 8 x 10 x 10 cm |
| **Max. Temperature** | 1700 °C |
| **Vacuum** | No |
| **Capacity** | approx. 80 elements |

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- 4 $MoSi_2$ heating elements
- New sintering technique
- 14 preset programmes
- Larger combustion chamber
- High quality all-glas casing
- Individual sintering programmes on request
- Memory for up to 2000 programmes
- Updatable via USB port
- 4,3” colour touchscreen control panel
- Upgradeable with special adapter for sintering sinter metal
- Controlled cooling
- Oxygen-free sintering / High Vacuum
- Prettau® Zirconia resulting more translucent
- Ideal for new material technologies

# SINTERING FURNACE ZIRKONOFEN 700 ULTRA-VAKUUM

## CAN BE UPGRADED WITH A SPECIAL ADAPTER FOR SINTERING OF SINTER METAL!

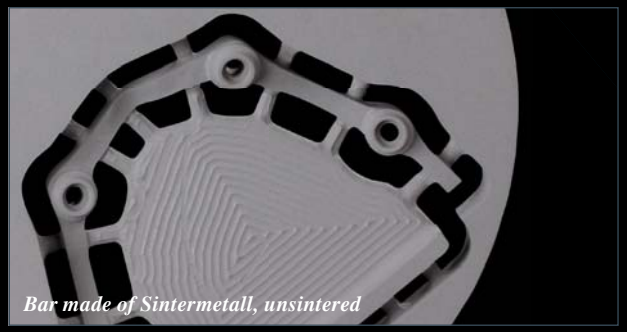
### *Technical Data*

| | |
|---|---|
| **Size (W x H x D)** | 48,4 x 69,3 x 54,5 cm |
| **Weight** | 117 kg |
| **Output Power** | 2300 W |
| **Combustion Chamber Capacity** | 0,8 l |
| **Dimension Combustion Chamber (W x H x D)** | 8 x 10 x 10 cm |
| **Max. Temperature** | 1700 °C |
| **Vacuum** | Yes |
| **Capacity** | approx. 80 elements |

- *For sintering sinter metal*
- *The sintering furnace Zirkonofen 700 Ultra-Vakuum can be easily upgraded*
- *Ready for application in a few single steps*
- *Low maintenance, very robust*
- *No demand of the heating elements of the Zirkonofen 700 Ultra-Vakuum*
- *High flexural strength through seamless material bond and smooth surfaces (final density > 98 %)*
- *Due to perfect temperature distribution in the combustion chamber up to 14-unit restorations are possible*

# KIT SINTER METAL FURNACE ADAPTER

## FOR SINTERING SINTER METAL WITH THE SINTERING FURNACE ZIRKONOFEN 700 ULTRA-VAKUUM!



*Bar made of Sintermetall, unsintered*

*Bar made of Sintermetall, sintered*

*Copings made of Sintermetall*

*Zirkonofen 700 Ultra-Vakuum with Sinter Metal Furnace Adapter*

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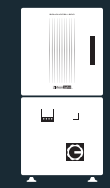
# SPECIAL FEATURES

| | *Zirkonofen 600/V2* |
|---|---|
| |  |
| |  |
| ***Size (W x H x D)*** | 28,5 x 60,5 x 43 cm |
| ***Weight*** | approx. 45 kg |
| ***Output Power*** | 700 W |
| ***Capacity Combustion Chamber*** | 0,6 l |
| ***Dimension Combustion Chamber (W x H x D)*** | 6 x 10 x 10 cm |
| ***Temperature (max.)*** | 1700 °C |
| ***Vacuum*** | No |
| ***Capacity*** | approx. 60 elements |

| *Zirkonofen 600/V3* | *Zirkonofen 700* | *Zirkonofen 700 Ultra-Vakuum* |
|---|---|---|
|  |  |  |
|  |  |  |
| 39,4 x 69,3 x 46 cm | 48,4 x 69,3 x 54,5 cm | 48,4 x 69,3 x 54,5 cm |
| 57 kg | 97 kg | 117 kg |
| 700 W | 2300 W | 2300 W |
| 0,6 l | 0,8 l | 0,8 l |
| 6 x 10 x 10 cm | 8 x 10 x 10 cm | 8 x 10 x 10 cm |
| 1700 °C | 1700 °C | 1700 °C |
| No | No | Yes |
| approx. 60 elements | approx. 80 elements | approx. 80 elements |

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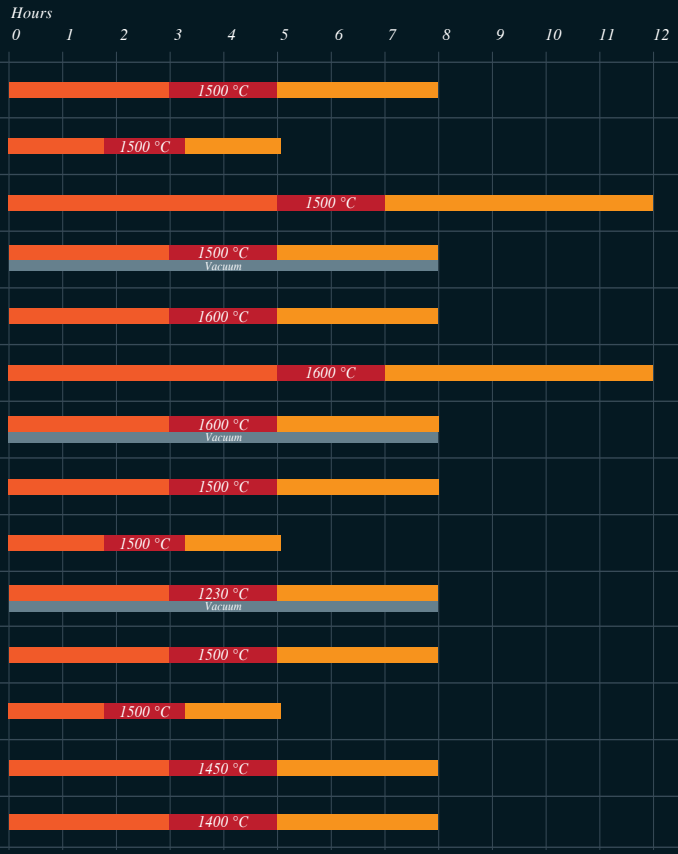
# TECHNICAL DATA

| *Preset programmes* | *Sintering furnaces* | | |
|---|---|---|---|
| | *Zirkonofen 600/V3* | *Zirkonofen 700* | *Zirkonofen 700 Ultra-Vakuum* |
| *ICE Standard* | ✓ | ✓ | ✓ |
| *ICE Speed* | ✓ | ✓ | ✓ |
| *ICE Slow* | ✓ | ✓ | ✓ |
| *ICE Vakuum* | | | ✓ |
| *Prettau® Standard* | ✓ | ✓ | ✓ |
| *Prettau® Slow* | ✓ | ✓ | ✓ |
| *Prettau® Vakuum* | | | ✓ |
| *Prettau® Anterior Standard* | ✓ | ✓ | ✓ |
| *Prettau® Anterior Speed* | ✓ | ✓ | ✓ |
| *Metal sintering* | | | ✓ * |
| *Anatomic Coloured Standard* | ✓ | ✓ | ✓ |
| *Anatomic Coloured Speed* | ✓ | ✓ | ✓ |
| *Zirkon Creative Standard* | ✓ | ✓ | ✓ |
| *Opaque sintering* | ✓ | ✓ | ✓ |

** when using the Kit Sinter Metal Furnace Adapter*

## *Sintering time*




## *Description*

| |
|---|
| *Standard-programme for ICE Zirkon; suitable for bridges with up to 8 elements* |
| *Speed-programme for ICE Zirkon; suitable for single crowns and thin-walled bridges with up to 3 elements* |
| *Slow-programme for ICE Zirkon; suitable for all kinds of restorations, especially for larger bridges with more than 8 elements* |
| *Vacuum-programme for ICE Zirkon; for even more transluceny and aesthetics* |
| *Standard-programme for Prettau® Zirconia; suitable for thin-walled bridges with up to 8 elements* |
| *Slow-programme for Prettau® Zirconia; suitable for all kinds of restorations, especially for larger bridges with more than 8 elements* |
| *Vacuum-programme for Prettau® Zirconia; for even more translucency and aesthetics* |
| *Standard-programme for Prettau® Anterior* |
| *Speed-programme for Prettau® Anterior; only suitable for single crowns* |
| *Standard-programme for sinter metal; suitable for all kinds of restorations* |
| *Standard-programme for Anatomic Coloured; suitable for all kinds of restorations* |
| *Speed-programme for Anatomic Coloured; suitable for restorations with 1-3 elements* |
| *Standard-programme for coloured zirconia; suitable for restorations* |
| *Opaque-programme for an opaque result with ICE Zirkon* |

*Heat up* *Hold* *Cool down* *Vacuum-programme*

*Subject to change*

# FAQs

### *How many different sintering programmes can be installed in the new furnaces?*

*Up to 2000 programmes can be saved, out of which up to 14 are already programmed ex works (see table p. 16 & 17). Upon customer's request, our service technicians compile personalised programmes. Those can be uploaded on the respective furnace by the customer with a PC or USB cable.*

### *How fast can you sinter with the new furnaces?*

*The sintering time depends on the chosen sintering programme (see table p. 16 & 17). The sintering of a thin single coping made of zirconia takes about 4,5 h. With larger frameworks a longer sintering time is necessary.*

### *Why sintering with vacuum?*

*The vaccum function on the sintering furnaces is used to empty the combustion chamber, meaning to eliminate all oxygen from the combustion chamber.*
*Consequently all air and oxygen from the zirconia's and the metal's pores are being removed. As a consequence the zirconia's density increases and it becomes even more translucent and aesthetic. For metal it is absolutely indispensable to sinter under vacuum to avoid undesirable reactions with oxygen at high temperatures.*

### *Do you need two different furnaces for the sintering of metal and zirconia?*

*No, with the aid of the Sinter Metal Furnace Adapter the metal can be sintered with hermetic isolation. Thus impurities, which could discolour the zirconia, do not arise.*

### *Is it possible to sinter metal and zirconia at the same time?*

*No, because the two materials require different firing temperatures and atmospheres. Thus, different firing programmes must be used.*


***4,3" colour touchscreen control panel***

## *Are 4 heating elements (Zirkonofen 700) better than 2 (Zirkonofen 600)?*

*The number of heating elements in a combustion chamber depends on the size of the elements and the speed at which the combustion chamber or the firing material must be brought to a specific temperature. With 4 heating elements a bigger combustion chamber can be used and also be heated at higher rates, rather than with only 2 elements. However though, as a consequence, the electricity consumption will be slightly higher with 4 heating elements (approx. 500 W per heating element).*

***Combustion chamber of Zirkonofen 700 with $MoSi_2$ heating elements***

## *Is a ceramic protection cover necessary with the new furnaces?*

*When sintering with the different furnaces, a ceramic protection cover is generally recommended, in order to avoid stains on the zirconia. If the ceramic protection cover is not being used, stackable sintering shelves can be used in combination with sintering granulate, in order to sinter several works at the same time.*

## *What are the consumable parts in the different types of furnaces?*

*In the various sintering furnaces with conventional heating procedures the heating elements must be replaced after a certain time. The average lifespan of the heating elements varies depending on the number and duration of the performed sintering processes, or rather on the fnal temperature which has been reached during sintering and also on the heating rate. On average it lies between 300 and 500* sintering cycles (when equally using the standard programmes for ICE Zirkon and Prettau® Zirconia). The embrittlement of the heating element's material rises through increased use. This can lead to the breaking of the heating element, caused by the temperature stresses of the heat-up and cool-down. On the bright electrical contact areas of the heating elements, it can come to an oxidation of the contact layers and conseqeuently to a decrease of the electrical contact. Therefore it is recommended to exchange also the contact straps on old heating elements (> 2 years), because they can wear out on the inner contact surfaces. On all different types of furnaces also the temperature sensor wears out and must be replaced if broken. When used regulary, the service life amounts to approx. 2-3 years*.*


***Built-in LEDs show the status of different procedures***

***The above stated values are approximate values and are no guarantee for lifespan of the material.**

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# SINTERING FURNACES

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