

Yttrium stabilized, presintered, zirconium oxide blanks
 Valid for all Zfx zirconia materials, geometries and colors.

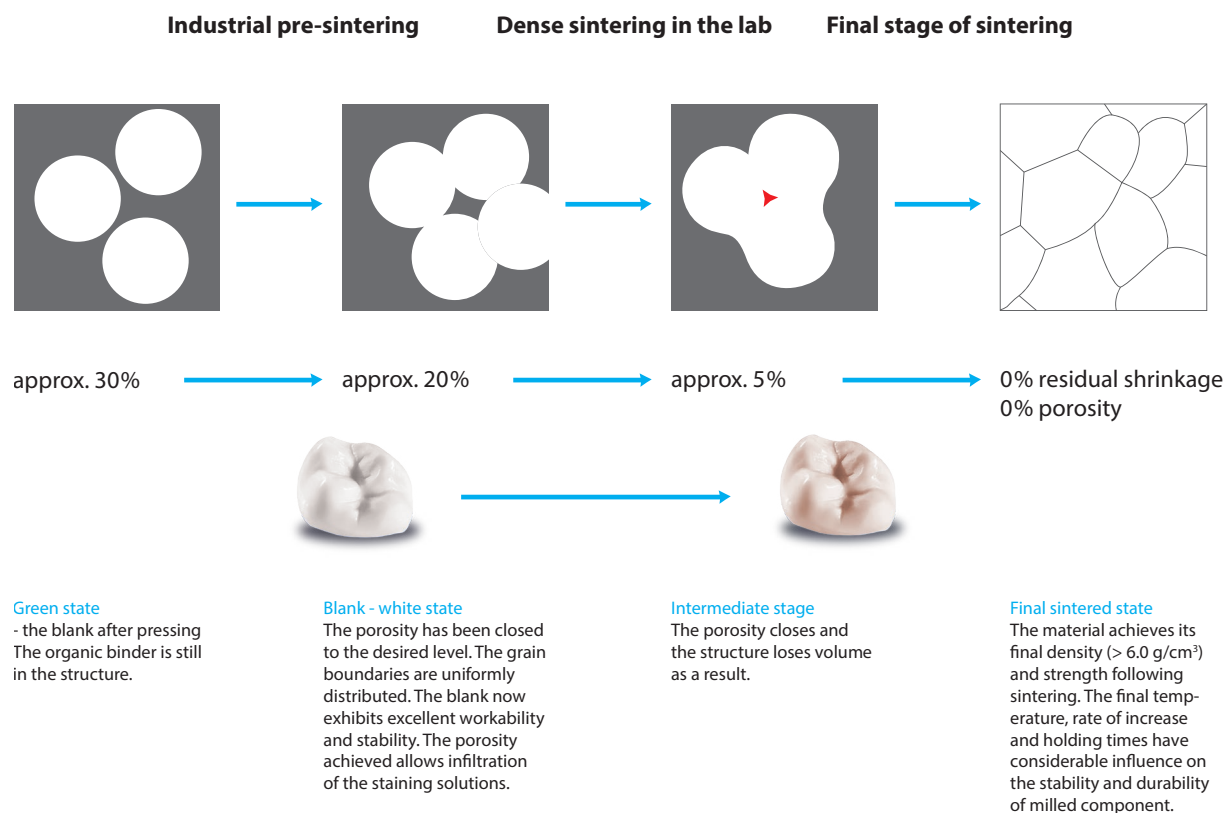
The firing curves listed are recommendations only. As the actual temperature of individual furnaces can vary, adjustment of the parameters through trial firing may be necessary. Our service support team is available to advise you in this respect.

Dental frameworks and crowns made of zirconium oxide should be fired in a furnace that is only used for these products. Firing restorations made of another ceramic materials or staining ceramics in the same furnace can lead to impairment of sintering behaviour or discoloration.



CE 0123

Schematic diagram of sintering processes



Please note additional processing instructions for use:

- × Zfx™ Zirconium
- × Zfx™ Zirconium effect
- × Zfx™ BionX²
- × Zfx™ Color Liquid allround



Recommendation prior to sintering

1. „Sinter-Pegs“

It is highly recommended to design "Pegs" on the occlusal surface of you have that option.

At least four pegs must be placed to ensure proper support of the framework. Single copings do not need any sintering pegs.

- × Three-unit anterior bridges do not require pegs. Posterior bridges should always be designed with pegs.
- × Free-end units should always have pegs.
- × Pontics and molar copings should always have a peg
- × Premolar and anterior copings may not require pegs. However, at least every other unit should have a peg.
- × Pegs alternate on the facial and lingual/palatal sides. The pegs should not be placed directly on the edge of the occlusal surface.

Bridges up to eight units

To achieve optimum sintering results, large spanned bridges of 8 or more units must be supported by a sintering frame. Large span bridges should remain attached to the blank with connectors. The number of connectors depends upon the curve of the bridge (arch).



● Pontics

● Coping

2. Removing the milled component (when using Zfx™ Zirconium, Zfx™ Zirconium effect and Zfx™ BionX² - round blanks)

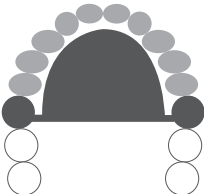
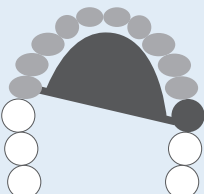
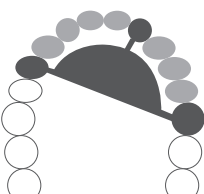
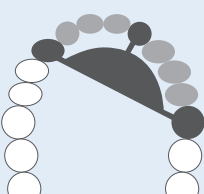
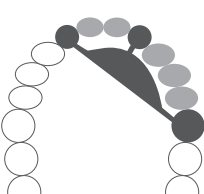
Bridges up to 7 units

Smaller milled restorations (1 to 7 units) can be removed from the blank prior to sintering. A handpiece, without irrigation, can be utilized. To prevent stress and damage to the zirconium construction cut half way through every connector. Then cut through all the connectors to separate the restoration from the blank.



- × Two connectors should remain attached to the blank if the bridge is roughly symmetrical (the same number of units in each quadrant). The connectors should be attached to the free-ends. Three connectors should remain attached if the bridge is asymmetrical. Two of the connectors should remain attached to the free-ends. The third connector should remain attached to an additional unit.
- × The connectors should be attached to matching units. Connectors should be attached to copings or pontics.
- × If possible, the connectors should be attached to the free-end units. If the free-end units are not bilaterally symmetrical, the connector should be attached to the next matching unit.

If you have a solid piece from the zirconium blank, you should thin this out ideally.

Situation	Scheme drawing	Regulation
12 units, symmetrical		2 connectors to the free-ends
11 units, roughly symmetrical		2 connectors to the free-ends
10 units, asymmetrical		2 connectors to the free-ends 1 connector within the arch 2 mm space between the bridge and the blank
9 units, asymmetrical		1 connector to a free-end 1 connector attached to the coping next to the cantilevered section 1 connector within the arch 2 mm space between the bridge and the blank
8 units, asymmetrical		2 connectors to the free-ends 1 connector within the arch

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3. Firing when wet milling or grinding has been utilized

In the case of wet processing, special firing should be conducted in a ceramic furnace to remove coolant or lubricant from the porous structure. Consult the manufacturer of lubricating fluid for information regarding the firing parameters.

Please note

Instructions for use- Zfx™ Color Liquid allround processing

4. Staining with solutions

Important:

Do not sinter frames when wet. Only completely dry frames should be sintered.



Please adhere to the specified drying times. Please observe the respective recommendations when other liquids are used.

Note: Constructions can be weighed prior to dipping and after drying. This will facilitate the determination of whether residual moisture is still present.

Please note

Instruction for use Zfx™ Color Liquid allround

5. Inspection of milling component

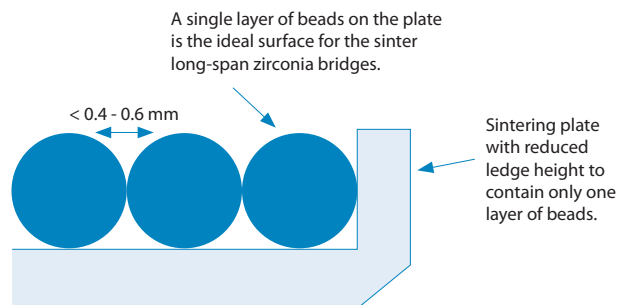
- × no pitting
- × no identifiable cracks
- × no surface discoloration
- × no glossy patches on the surface

The milled component should not be used for the production of the dental prosthesis if any of the deficiencies listed is detected.

Sintering

1. Sintering process

During the sintering process, the zirconia structures are placed on a sintering plate. The sintering plate contains a single layer of sintering beads. The single layer and the small diameter of the spheres (0.4 - 0.6 mm) provides a "sliding plane" on which the milled structures can freely contract and move, without incurring stress or tension, during the sintering process. The sintering posts ("Sinter-Pegs") will flow freely due to their larger diameter (greater than 1.5 mm).



2. General information

In addition to use of the correct sintering program, the final temperature and holding times, the quality of sintered frames can depend on:

- × The firing capacity and chamber volume of the furnace used
- × The size and volume of individual constructions
- × The mass in the firing chamber (auxiliary sintering media and the quantity of constructions)

In order to achieve ideal results, a sintering program should be selected that heats all the components in the furnace uniformly. Bridges require a somewhat longer time to heat up uniformly and for temperature equalization due to the varying material thickness of various elements (pontics, connectors, etc.). Local differences in sintering caused by heating too rapidly can lead to warping and the formation of cracks. This untoward effect is particularly a risk in the case of long-span and solid bridges.

When the furnace is loaded with numerous components and additional items such as hoods, the thermal energy may prove inadequate to ensure flawless sintering.

As a general rule

Selecting a slower sintering program is always an advantage for the optimal quality and translucency of the finished product.

Important:

Sinter Zfx™ Zirconia without a cover. Solid covers can absorb large quantities of energy which is then no longer available for milled components.



3. Sinter programs

Standard program 1450°C / 2h

- × for full-contour crowns, bridges and all structures without sintering support
- × normal furnace filling (without cover)

Alternative:

Uncontrolled cooling by turning the heat off.

Do not open the furnace before it drops below 200°C.

	Temp. 1°C	Temp. 2°C	Heating rate °C/h	Heating rate °C/min	Hold time min	Time min
Heating	20	900	480	8		110
Hold	900	900			30	30
Heating	900	1450	200	3		165
Hold	1450	1450			120	120
Cooling	1450	200	600	10		125
					Total time	550 min 9.2 h

Long-Program 1450°C / 2h

- × For full-contour crowns, solid bridges and for all structures with sintering support
- × High furnace filling

Alternative:

Uncontrolled cooling by turning the heat off.

Do not open the furnace before it drops below 200°C.

	Temp. 1°C	Temp. 2°C	Heating rate °C/h	Heating rate °C/min	Hold time min	Time min
Heating	20	900	150	2.5		352
Hold	900	900			30	30
Heating	900	1450	100	1.7		330
Hold	1450	1450			120	120
Cooling	1450	200	600	10		125
					Total time	957 min 16 h

4. Additional information

Important: Do not place milled work in the furnace when the residual temperature is greater than 70°C (temperature shock).
 Never open the furnace door at a temperature exceeding 200°C (possible damage to heating elements and the objects being fired).



