

# Preparation

**Not suitable: tangential preparation and shoulder preparation with bevelled edge**

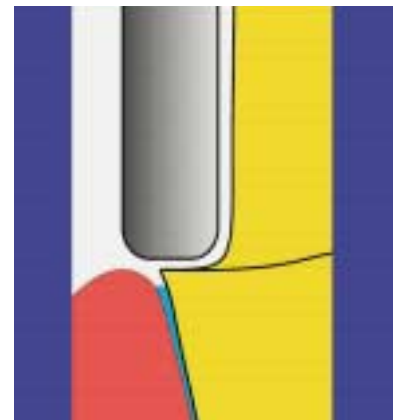
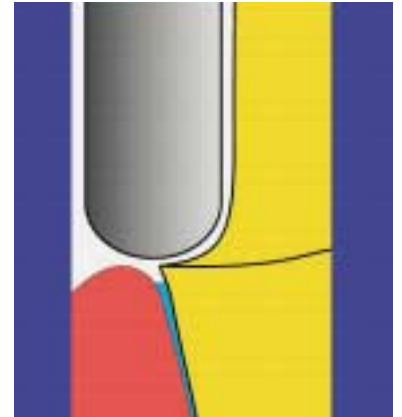
**Recommended: chamfer, shoulder with rounded axio-cervical line angle**

The preparation guidelines for Cercon restorations are geared towards the known recommendations for all-ceramic systems. Accordingly, the tangential preparation and preparation of a shoulder with a bevel are not suitable for zirconia restorations, because both preparation forms result in margins that drain off too thinly and hold the risk of fracture.

The following preparation shapes are suitable:

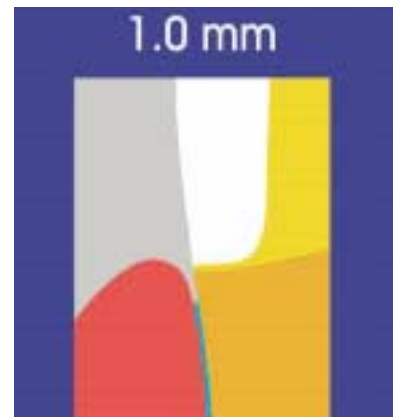
- Pronounced chamfer (90°)
- Shoulder preparation with rounded axio-cervical line angle

Cylindrical diamond instruments with rounded tips are suitable for chamfer preparations. Conical diamond instruments with rounded edge are especially suitable for shoulder preparations with rounded axio-cervical line angles.



**Circular Cutting Depth 1.0 mm**

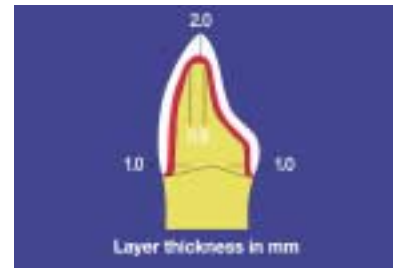
The use of rotary instruments with an average grit size of 30  $\mu\text{m}$  is recommended for finishing the preparation. The minimum wall thickness of the zirconia frameworks is 0.4 mm, while the minimum amount of space in the cervical region required for veneering is 0.6 mm. A circular marginal cutting depth of 1.0 mm should therefore be the objective.



# Anterior restorations

## Basic instructions

Preparation for anterior restorations is based on the general preparation instructions outlined earlier. Along with a circular cutting depth of 1.0 mm at the preparation margin, a cone angle of  $6^{\circ}$ – $8^{\circ}$  must be ensured for the axial walls. The junctions between the axial and palatal surfaces must be rounded, as should the incisal surfaces (minimum radius: 0.4 mm).



## Width of incisal edge

From an aesthetic standpoint especially, incisal removal should be 2.0 mm. The minimum width of the incisal edge must be 0.9 mm in a vestibular-oral direction to guarantee an exact reproduction of the internal framework surfaces by the milling unit.



## Shaping the palatal contour

The use of the aforementioned palatal contouring instrument is recommended for shaping the palatal contour of upper anterior teeth and canines.



Tip

The same instrument is also available for rounding the transfers between the axial walls and incisal edge.

## Ceramic shoulder

Cercon restorations can also be fabricated with vestibular or circular ceramic shoulders. There are corresponding shoulder ceramics for the veneer material (Cercon ceram kiss). Ceramic shoulders can also be produced to advantage using the overpressing technique with Cercon ceram express. Subsequent shade reproduction can be effected using paint-on colours or in “cutback” technique by completing the cutback areas with Cercon ceram kiss veneering ceramics. For the laboratory design of a ceramic shoulder, the shoulder preparations offer advantages over chamfer preparations.



# Posterior restorations

Occlusal reduction: 1.5 mm

For restorations in the posterior region, a minimum occlusal layer thickness of 1.0 mm must be guaranteed for the veneer ceramic. Based on the minimum framework wall thickness of 0.4 mm, a substance removal of 1.5 mm should be aimed for in the occlusal surface region. The cone angle of the corresponding axial surfaces should be  $6^{\circ}$ – $8^{\circ}$ . The junctions between the axial walls and occlusal surfaces should be rounded.



Simplified occlusal relief

The occlusal relief should reproduce a simplified form of the occlusal surface. A  $120^{\circ}$ – $140^{\circ}$  opening angle of the occlusal surfaces guarantees an exact reproduction of the inner surfaces during the milling process and thus a good internal fit.

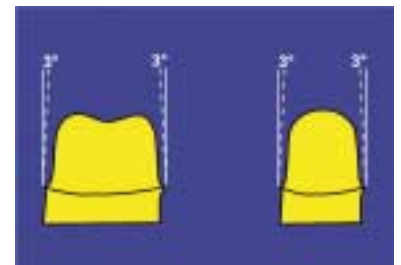


A rhomboid diamond instrument, guided vertically to the tooth axis, has been shown to be especially suitable for preparing occlusal portions.



Determining the path of insertion

When determining the path of insertion it is important – particularly for FPDs – that all corresponding axial surfaces of the bridge abutments have a cone angle of at least  $6^{\circ}$ . In the scanning process, very steep slopes appear as vertical objects that cannot be precisely displayed by the software.



Tip

To check whether the preparation is suitable for the system, it is recommended – especially for wide-span or multi-span designs – to take an alginate impression with a single-use tray once the preparation is completed. If the impression is poured with a fast-setting stone (e.g. articulation stone), scannability can be checked after a matter of minutes.

# Impression

**Recommended:  
The double-cord technique**

A good reproduction of the preparation margin is achieved by using braided retraction cords (e.g. Ultrapak, Ultradent Products, USA). Good and reproducible impressions can be achieved with the double-cord technique.



With this technique, an initial thin cord is placed in the sulcus, where it remains throughout the impression-taking process. A second, thicker cord is then placed over the first, but removed shortly before the impression is taken. The first cord is to block bleeding from the sulcus. At the same time, it keeps the gingiva from folding back over the preparation limit.



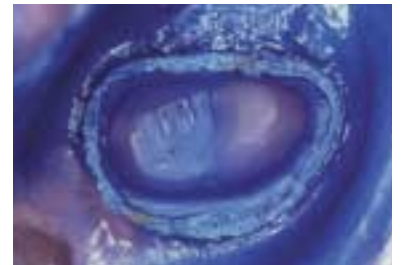
**Custom impression tray**

With the one-step putty-wash technique, the use of laboratory-manufactured custom trays – or at least the customization of an impression tray (Rimlock tray) – is recommended, along with a distal dam made of light-curing plastic or thermoplastic material.



**Impression materials**

The impression can be taken with any impression materials used in fixed prosthetics (hydrocolloid, polysiloxanes, polyethers). Both the one-step and two-step putty-wash techniques can be used with polysiloxanes. Only the one-step putty-wash technique can be used with polyether materials.



**Tip**

With both the one-step and two-step putty-wash techniques, we recommend to spread the impression material in the air stream after application of the low-viscosity component. This ensures good wetting of the die surface.



# Luting

## Preparation

The luting surfaces of Cercon restorations should be air-abraded before insertion (alumina, 110  $\mu\text{m}$ , 3–4 bar). Improved bonding strength is produced by roughing the surface in conventional and adhesive luting.



## Conventional or Adhesive?

Both zinc phosphate and glass ionomer cements as well as compomer cements (such as Dyract cem plus, Dentsply, Konstanz, Germany) are suitable for conventional luting. Special conditioning of the die surface is not necessary in conventional cementing.



Tip

Based on current knowledge, Panavia 21 and Panavia F can be recommended for adhesive luting of Cercon restorations. Provisional luting of Cercon restorations can be done with any temporary cement (e.g. Temp Bond, Kerr GmbH, Karlsruhe, Germany). If adhesive luting is planned for a later stage, the use of a non-eugenol temporary cement is recommended.



## Adjustment

Fine-grained diamond instruments (mean grain size: 15  $\mu\text{m}$ ) are recommended for adjusting the occlusal contact points. Subsequent intraoral polishing can be performed using diamondized rubber cups and sometimes ceramic polisher.

