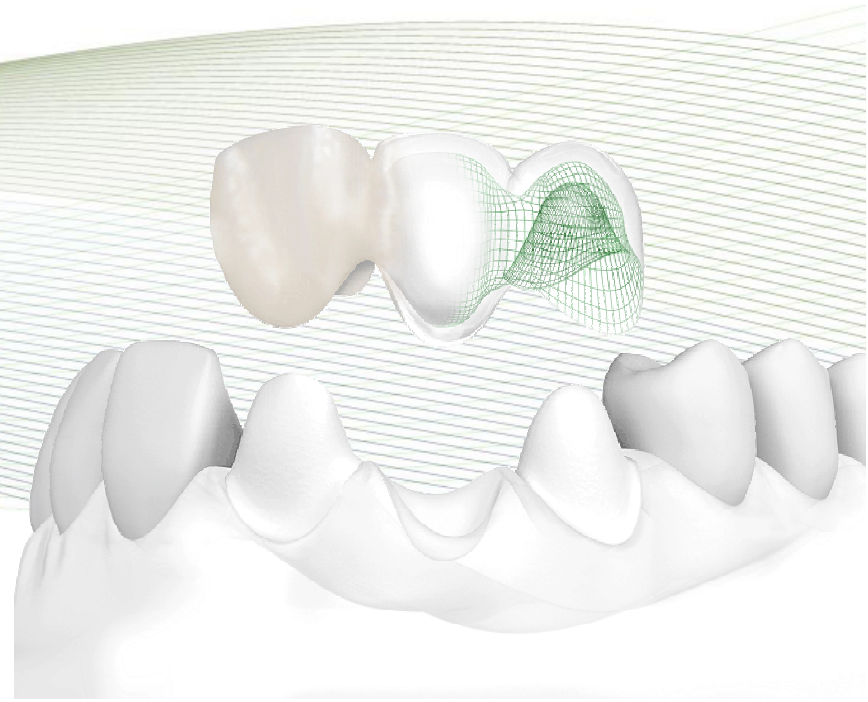


# NobelProcera™ Cementation Guide

Recommendations for NobelProcera Alumina and Zirconia Ceramics

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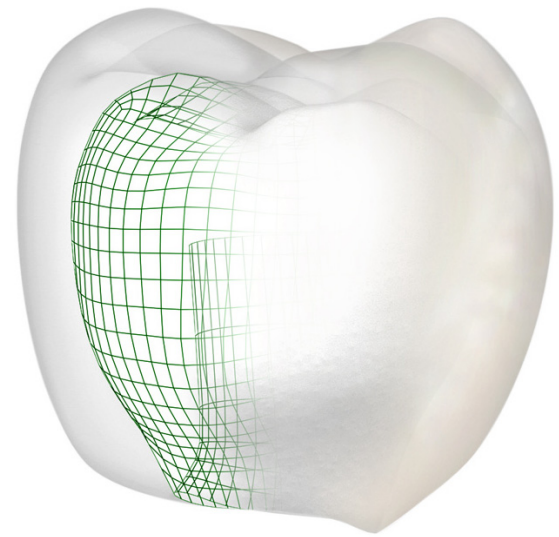
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# Basic principles for cementation of oxide ceramics

- No temporary cementation
- Conventional or adhesive cementation possible
- Special surface treatment protocols necessary for adhesive luting



# Conventional cementation NobelProcera™ C&B on prepared teeth



## **Step-by-step conventional cementation with glass-ionomer-cement (GIC), resin reinforced glass-ionomer-cement or zinc-phosphate cement:**

1. Try-in the veneered NobelProcera™ crown or bridge ensuring that no major adjustments are necessary
2. Clean and dry the internal surface of the crown or bridge
3. Clean, condition, dry and isolate the preparations according to manufacturer's instructions
4. Mix cement according to manufacturer's recommendations
5. Apply cement to the internal surface of the crown or bridge
6. Seat the crown/bridge with finger pressure paying attention to moisture control
7. Remove excess material
8. Perform a final check of occlusion, adjust as necessary and polish as described below

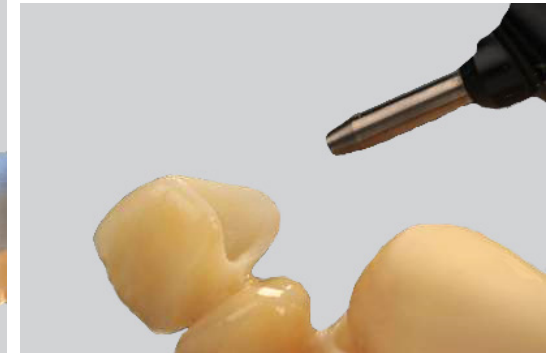
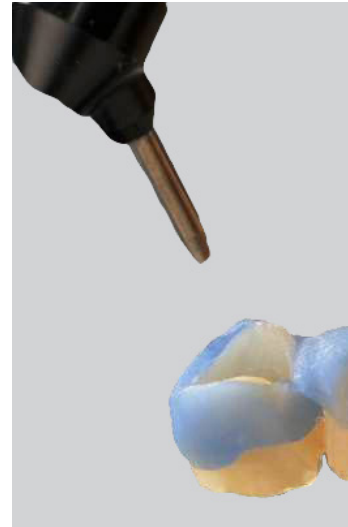
For occlusal adjustments use low speed diamond and rubber polishing points with copious water irrigation and light pressure, followed by polishing with a diamond polishing paste.

# Adhesive cementation NobelProcera™ C&B on prepared teeth



## Step-by-step resin cement:

1. Try-in the veneered NobelProcera™ crown or bridge ensuring that no major adjustments are necessary
2. Intaglio surface cleaning after try-in!  
Sandblast internal surface with 50 $\mu$ m Al<sub>2</sub>O<sub>3</sub> (1 bar pressure, 10 mm distance)
3. Clean in an ultrasonic solution of Iso-Propanol for 2–3 min and air-dry



Care must be taken to guard the margins of the restoration

# Adhesive cementation NobelProcera™ C&B on prepared teeth



4. Apply ceramic primer containing phosphate monomer (MDP) on the internal surface of the crown or bridge according to manufacturer's recommendations
5. Condition the preparations according to manufacturer's recommendations, paying attention to moisture control



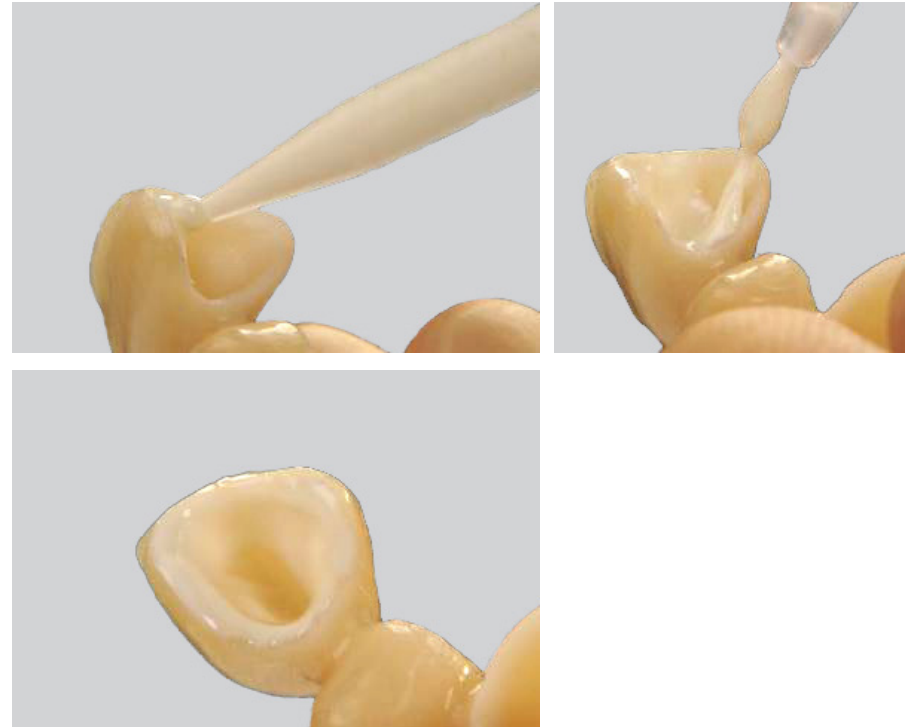
If resin cement does not contain MDP, a ceramic primer must be used which contains the Phosphate Monomer (MDP).

# Adhesive cementation NobelProcera™ C&B on prepared teeth



6. Mix resin cement and apply to the internal surface of the crown or bridge
7. Seat the crown/bridge with finger pressure paying attention to complete seating
8. Remove excess material and light cure resin
9. Perform a final check of occlusion, adjust if necessary and polish as described below

For occlusal adjustments use low speed diamond and rubber polishing points with copious water irrigation and light pressure, followed by polishing with a diamond polishing paste.



# Conventional cementation NobelProcera™ C&B on NobelProcera™ Implant Abutment



## Step-by-step glass ionomer cement / resin modified GIC:

1. Try-in the veneered NobelProcera™ crown or bridge ensuring that no major adjustments are necessary
2. Clean and dry the internal surface of the crown or bridge



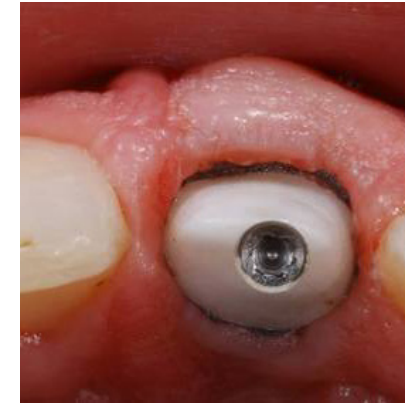
No pre-treatment of abutment necessary



# Conventional cementation NobelProcera™ C&B on NobelProcera™ Implant Abutment



3. Carefully place a retraction cord in the sulcus around each abutment
4. Clean, dry and isolate the abutment and close the screw head with an appropriate removable material (e.g. cotton pellet)
5. Mix cement according to manufacturer's recommendations
6. Apply cement to the internal surface of the crown
7. Seat the crown/bridge with finger pressure paying attention to moisture control



Retraction cord placement  
(small size recommended)

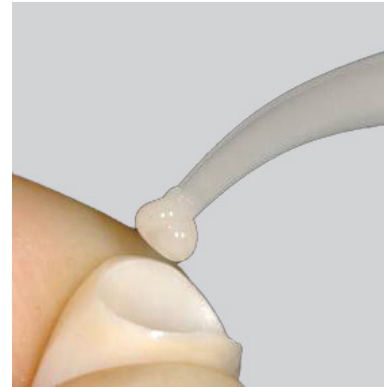


# Conventional cementation NobelProcera™ C&B on NobelProcera™ Implant Abutment



8. Remove the retraction cord and excess material
9. Perform a final check of occlusion, adjust if necessary and polish as described below

For occlusal adjustments use low speed diamond and rubber polishing points with copious water irrigation and light pressure, followed by polishing with a diamond polishing paste.



Removal of retraction cord and excess material



# Selected Scientific Literature – Oxide Ceramics

**Conventional composite-resin luting agents and conventional silane coupling agents do not provide long-term bond strengths to high-strength ceramics.**

**A primer or resin cement that contains special adhesive monomers that have the ability to chemically bond to metal oxides are needed.**

Blatz MB, Oppes S, Chiche GJ, Holst S, Sadan A. Influence of Cementation Technique on Fracture Strength and Leakage of Alumina All-Ceramic Crowns after Cyclic Loading.

Quintessence Int 2008;39:23-32.

**The use of the MDP-containing composite resin on air abraded zirconia ceramic can be recommended as promising bonding method.**

Blatz MB, Sadan A, Martin J, Lang B. In-vitro evaluation of shear bond strengths of resin to densely-sintered high-purity zirconium-oxide ceramic after long-term storage and thermocycling. J Prosthet Dent 2004;91:365-362.

Wolfart M, et al. Durability of the resin bond strength to zirconia ceramic after using different surface conditioning methods. Dent Mater. 2007;23:45-50.

Kern M, Wegner SM. Bonding to zirconia ceramic: adhesion methods and their durability. Dent Mater. 1998;14:64-71.

Atsu SS, Kilicarslan MA, Kucukesmen HC, Aka PS. Effect of zirconium-oxide ceramic surface treatments on the bond strength to adhesive resin. J Prosthet Dent. 2006;95:430-436.

Valandro LF, Ozcan M, Bottino MC, Bottino MA, Scotti R, Bona AD. Bond strength of a resin cement to high-alumina and zirconia-reinforced ceramics: the effect of surface conditioning. J Adhes Dent. 2006;8:175-181.

# Selected Scientific Literature – Ceramic oxides and Surface cleaning after try-in



## **Silanising sand blasted $\text{Al}_2\text{O}_3$ increased bond strength of conventional resin cements significantly.**

Sadan A, et al. Influence of silanization on early bond strength to sandblasted densely sintered alumina. Quintessence Int. 2003;34:172-176.

Blatz MB, Sadan A, Arch G, Lang B. In vitro evaluation of long-term bonding of Procera® AllCeram alumina restorations with a modified resin luting agent. J Prosthet Dent 2003;89(4):381-387.

## **Ceramic cleaning methods after try-in procedures have a significant influence on the resin-ceramic bond strength. Air abrasion of contaminated zirconia ceramic is the most effective.**

**sandblasting >> 37% phosphoric acid >>>>  
96% isopropanol**

Quaas AC, Yang B, Kern M. Panavia F 2.0 bonding to contaminated zirconia ceramic after different cleaning procedures. Dent Mater. 2007;23:506-512.