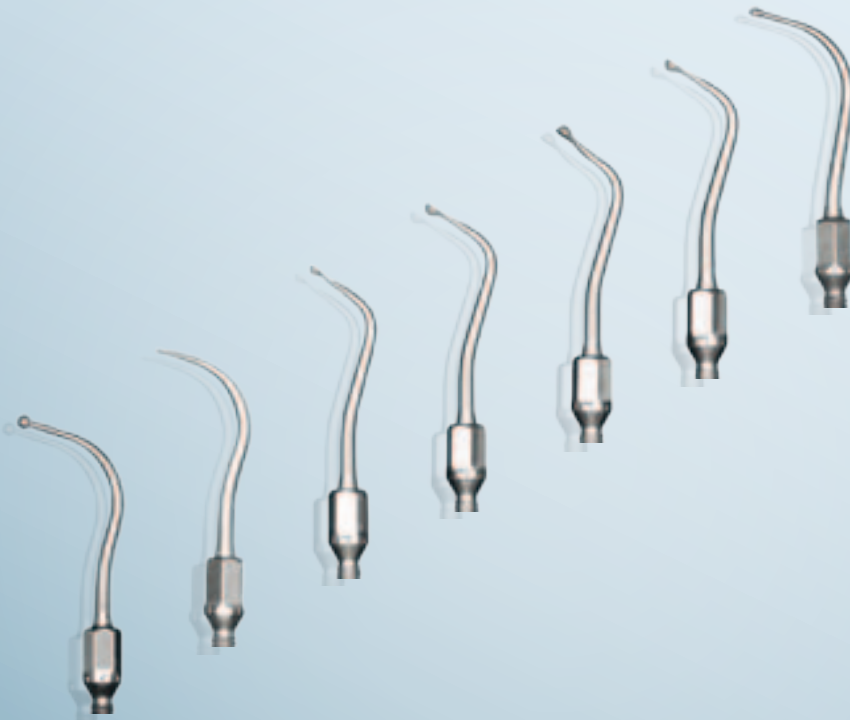


# Micro-cavities and edge bevelling.



## Minimally-invasive therapy for incipient caries

- Safe and ultra-conservative caries excavation
- Maximum preservation of the healthy tooth tissue
- Preparation from all angles possible
- Minimally-invasive preparation in fissure patterns
- Increased patient loyalty due to reduced "fear of the drill"
- Pain-free – perfect for treating children



## Preparation tips for mini cavities and edge bevels.

Rotary preparation instruments have been in use for many decades now. The smooth, concentric running of the instruments has been improved by diamond coating of the tips and the use of micromotors. The main problem remains: formation of the proximal margins.

Progress in the area of adhesive dentistry, especially in the development of effective dentine bonding agents, has solved many problems. Bonding to the enamel depends on the preparation angle and these angles cannot be crispy and reproducibly created with rotary instruments. Iatrogenic damage to adjacent teeth frequently occurs.

SONICflex® microinvasive embodies the idea of shaping cavity edges in a well-defined, reproducible way, without damage to adjacent teeth. SONICflex® microinvasive is not based on rotary tips, but instead relies on oscillating tips, that may be easily screwed into the KaVo SONICflex 2003 L or SONICflex 2008 L airscalers. Only the actual working end of SONICflex tips are diamond-coated.

The parts of the tips that may come into contact with adjacent teeth, are smooth. This means that the adjacent tooth can be used in the proximal space, as a guide-surface for the SONICflex® microinvasive tips.

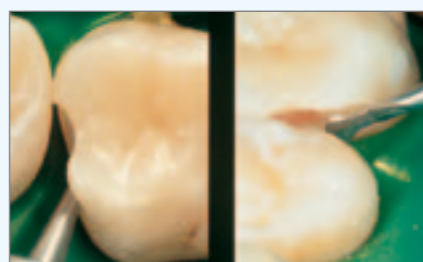
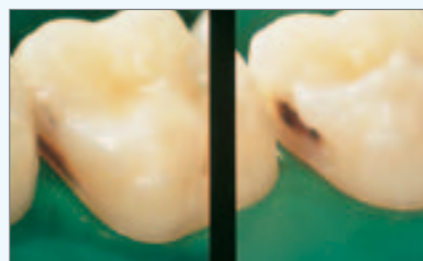
SONICflex does not replace rotary instruments. These continue to represent the optimum in efficiency in the removal of old, failed dental restorations, caries excavation and the large scale removal of tooth tissue. SONICflex is a complement to these instruments in those areas, which up to now could only be unsatisfactorily treated with rotary instruments.

With 3, partially diamond-coated tip-forms, you achieve optimum results in preparatory work. All forms are available for both the mesial and distal surfaces.

- **Small hemispherical tip** – Preparation
- **Large hemispherical tip** – Preparation
- **Bevel form** – Beveling enamel margins

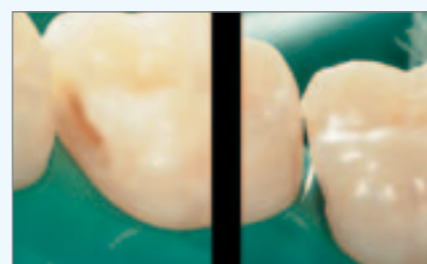
With SONICflex® microinvasive, a solution has been found for these challenges. Among other things, the partially diamond-coated SONICflex® microinvasive tips, enable small-scale, defect-related preparatory jobs, as well as the finishing of preparation edges of variously formed proximal mini cavities.

An enamel fracture on the edge ridge, as well as a demineralised strip below the proximal contact may be seen. Access to the cavity is created by a small hemispherical tip. The fracture site is included. The extent of the dentine caries becomes apparent.



Excavate the dentine caries by means of a rose-head bur, then finish the margin with a hemispherical SONICflex microinvasive tip with water cooling and reduced drive pressure.

The finished proximal cavity is completely specific to the defect. The stable parts of the edge ridge have been retained, it has even been possible to partially maintain the proximal contact.



The complete micro-repair has no elements that are loaded during occlusion.

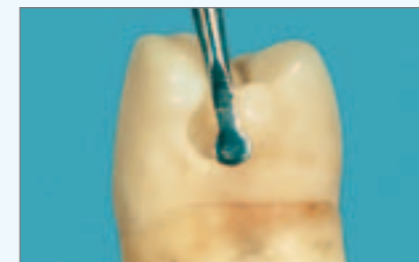
### Application pressure of SONICflex® microinvasive tips

The application pressure of the SONICflex® microinvasive tips should be controlled with care. Excess pressure reduces the oscillation and hence also the abrasive power. With a little experience, the user develops a feel for the most efficient working method. When the ideal application pressure is found, a specific sound-level is generated that can serve as acoustic feedback. The following rule of thumb applies for the power / application pressure: full power for preparation, reduced power for finishing the margins. In the SONICflex 2003 L or 2008 L, adjustment is performed via the power controller or via the foot pedal, depending on which options are supported by the respective device control system.

Use all SONICflex® microinvasive tips with adequate water cooling.

### Use of the hemispherical tip-form

With the hemispherical instrument, the defect in the enamel can be opened-up without preparatory work by rotary instruments. This procedure is especially recommended for superficial demineralisation.

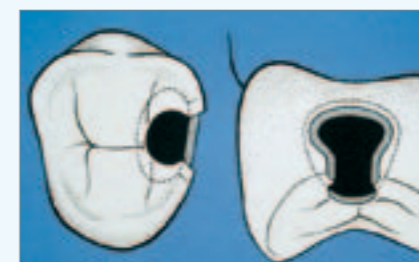


Hemispherical instruments are ideal for minimally-invasive, primary treatment, whereby depending on the situation, access to the caries can be from occlusal, buccal or lingual/palatal. If proximal caries is present and if several teeth are being treated simultaneously, the prepared cavity in the adjacent tooth affords ideal access to the defect.

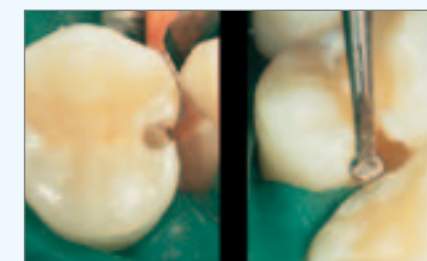
For any non-occlusal access, the functionally important edge ridge can be completely or at least largely retained. The preparation tips with their narrow-waisted shafts, also enable undermining of the enamel.

### Class II – Treatment with occlusal access

Class II Micro-preparation with occlusal access. The dashed line shows the extent of the caries.



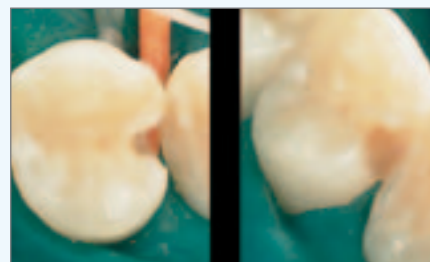
Although the surface appears intact, the bitewing image shows the presence of proximal caries.



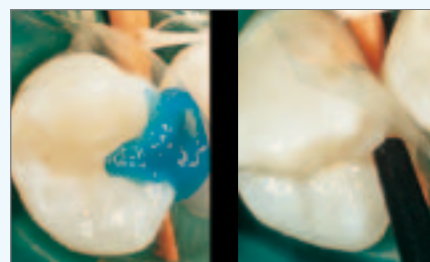
Open the proximal defect zone with the small hemispherical tip, through the edge ridge. The same instrument is used to create a teardrop-form extension in the proximal defect area, without distension of the access cavity, by sideward movement of the instrument. For extensive dentine caries, preparation of the access cavity in the vicinity of the fossa with a rotary instrument is required. Work on the proximal enamel wall is however exclusively performed with the hemispherical tip.



Remove the dentine caries by undermining it with a rotary instrument. When the access cavity is small, this procedure can require a high degree of skill. It is however facilitated by the use of aids such as loupes, caries detection solution, or transillumination.

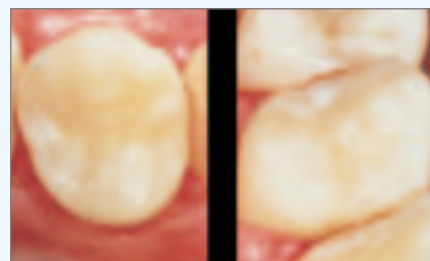


Occlusal and proximal views of completed micro-preparation.



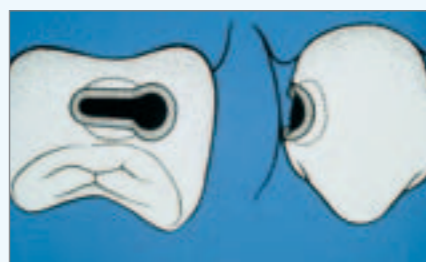
The cavity, along with the outermost enamel bevels is then conditioned.

Then apply the Excite dentine hardening agent and cure with polymerisation light. If a wide cavity access has been opened-up, the defect can be filled with a conventional, composite layering technique.



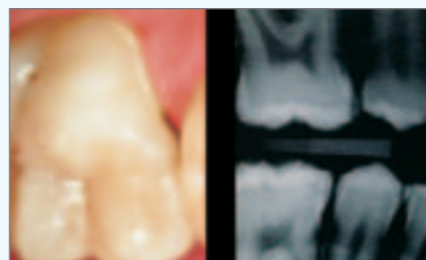
Occlusal and proximal views of the complete micro-restoration of tooth 14 mesial.

**Class II – Treatment with lateral access**



Adhesive class II Restoration with buccal access. As an alternative, lingual/palatal access would be possible. The extent of caries is indicated by a dashed line.

The occlusal areas remain unaffected by buccal or lingual/palatal access cavities.



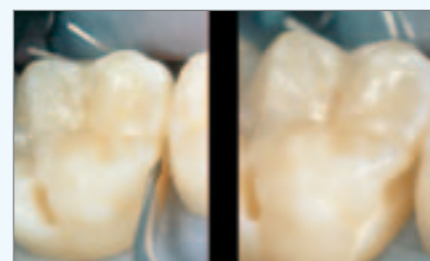
Preparation with a lateral approach is extremely difficult with conventional rotary instruments. This procedure is considerably simplified by oscillatory techniques and is especially indicated in the case of enamel lesions located below the proximal contact and of extended demineralisation. A discoloured demineralised strip can be seen, that extends continuously to the palatal area. The radiograph shows caries at the level of the proximal contact.

The gingiva is restrained with the rubber dam and the defect is clearly visible. The defect is prepared palatally with the small

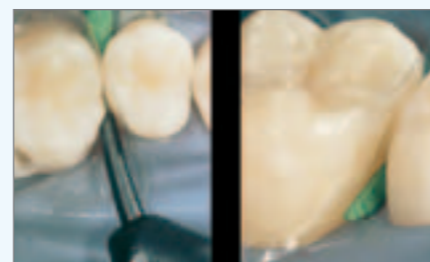


hemispherical tip. The figure on the right shows the prepared cavity, with a longitudinally oval cavity form.

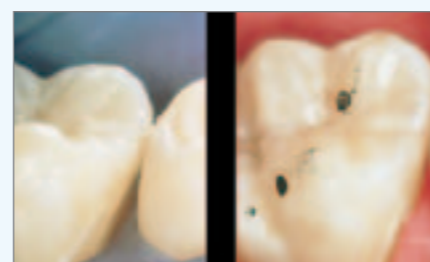
The proximal contact has been partially maintained, the occlusal edge ridge is sufficiently stable.



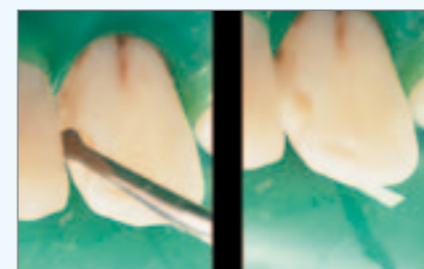
After application of the adhesive, place composite directly into the cavity. Adapt the embossed die. Light-cure the composite.



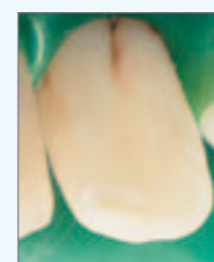
The completed micro-filling is not load-bearing when in occlusion. Articulation and occlusion do not require any corrections



**Class III – Micro-treatment**



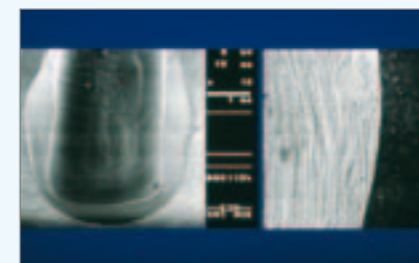
Preparation and finishing of the margins are performed with a small hemispherical tip. The finished cavity has a short, well-defined edge bevel.



Completed, finished filling.

**Applications of the bevel form**

After primary preparation and caries excavation with rotary instruments, the proximal cavity margins of a class II defect are crisply bevelled at the desired angle with the SONICflex® bevel tips. In addition to



beveling, the bevel tips can also be used for removing proximal decalcification.

**Class II Primary lesion**



Clinical photograph of tooth 25. Distal caries has been diagnosed on basis of X-ray examination.



The cavity is initially opened and the caries excavated with rotary instruments.

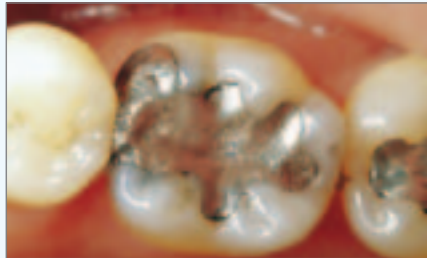


The cavity preparation is completed in the proximal zone with the bevel tips. Residual decalcification is removed and the entire proximal cavity edge is finished.



After application of all components in the context of an adhesive restoration, the composite is applied in several layers and sealed with polymer.

**Class II-Filling replacement**



Tooth 36 with failed amalgam restoration and ...

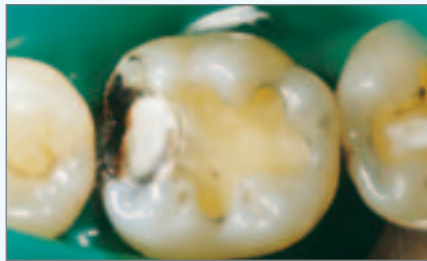


The proximal cavity sections are finished with the SONICflex® bevel. During preparation work, the instrument's non-diamond-coated safe-side, is in contact with the adjacent premolar.

In the frame the completed preparation.



The completed repair.



... after removal of the old filling.



KaVo SONICflex® microinvasive



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