

Set **4384A**

Diamond instruments with guide pin for controlled tissue-preserving crown preparation

Non-traumatic placement of crown margins is one of the most important parameters for the periodontal health of a restored tooth.

Previous studies have shown that subgingival restoration margins may lead to a more or less severe inflammation of the marginal periodontium. However, it is often impossible to place a restoration at supragingival level, due to the defect morphology and, especially in the anterior area, for esthetic reasons. In such cases it is necessary to place the restoration margin in a non-traumatic way without damaging the periodontal tissue.

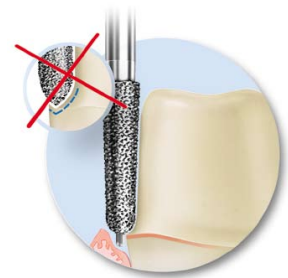
In cooperation with Prof. Günay of the Medical Academy in Hanover, Komet has developed an instrument set for crown preparation which includes instruments with guide pin designed to meet these requirements:

Set **4384A** includes several diamond instruments with uncoated guide pin (P=Pin) in the shapes tapered round (856P) and torpedo tapered (878KP), in medium grit for shaping and fine grit (8856P and 8878KP) for finishing. These instruments with guide pin can create a margin depth of 0.6 mm (size 018) or 0.8 mm (size 021).

The congruent instruments without guide pin are designed to increase the cutting depth in case of all-ceramic or veneer crowns.

The egg shape (6379) is intended for palatal or lingual reduction in case of capping anteriors. We recommend the use of an Arkansas stone (661) for finishing and rounding edges, corners and angles (if necessary also to create smooth marginal surfaces).

A prerequisite for a successful tissue-friendly crown preparation is a sound periodontium which, if necessary, may be achieved through a systematic periodontal therapy to be completed beforehand.



Advantages

- Guide pin as “horizontal distance keeper”
For circular material reduction the guide pin guarantees controlled preparation with an even cutting depth. This way a uniform preparation is created, avoiding the “gutter” effect.
→ **Controlled preparation of a defined crown margin**
- Guide pin as “vertical distance keeper”
During the preparation of a subgingival margin the 0.5 mm long guide pin assures that a pre-defined distance to the periodontium is kept.
→ **Damage to the biological width* (the area at the coronal side of the alveolar bone) is largely avoided.**

* Average dimension of the biological width of a healthy periodontium is approx. 3 mm [Gargiulo et al. J Periodontol 32, 261 (1961); Günay et al. Dtsch Zahnärztl Z 56, 583 (2001)]

Clinical sequence

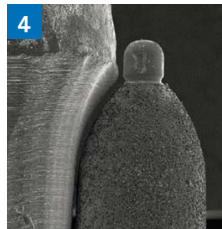
1. Occlusal orientation grooves with a tapered S diamond (S6878K.314.016).

2. Buccal and palatal orientation grooves with the same instrument. Following the orientation grooves the tooth is prepared on the vestibular and palatal side on supragingival level up to the proximal surface. This is followed by the initial proximal separation and preparation to the level of the marginal gingiva with the same instrument in size 012 (S6878K.314.012).

3. Vestibular and intrasulcular preparation with a guide pin instrument (856P.314.021 for a more pronounced chamfer). If the cutting depth created is sufficient for the requested restoration, the vestibular surface is then finished (8856P.314.021).

4. SEM micrograph

5. In case of all-ceramic and veneer crowns the cutting depth is increased, if necessary, with a congruent diamond instrument without guide pin (8856.314.018).



6. Palatal and intrasulcular preparation with guide pin instrument (878KP.314.021 and 8878KP.314.021 for a slight chamfer).

7. Hint: The new sonic tips SF8878KM/D are perfectly suited for completing the proximal preparation. Shown on the picture: SF8878KD in palatal position.

8. One week after preparation: vestibularly, mesio and disto-vestibularly there is a pronounced chamfer, proximo-palatinally a slight chamfer.

9. Metal ceramic crown: vestibularly, mesio and disto-vestibularly: ceramic shoulder; proximo-palatinally: metal margin.

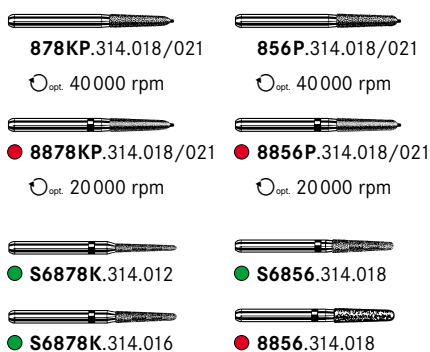
10. Definite metal ceramic crown after cementation

Recommendations for use:

The instruments with guide pin are preferably used in the red contra-angle.

In order to avoid excessive heat generation at the uncoated guide pin, the optimal speed should be observed.

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Separately available:



Further possible applications of the sonic tips:

- Proximo-cervical hollow grinding during the preparation of partial crowns and inlays
- Smoothing of the transition between the natural tooth and the veneer
- Proximo-cervical bevelling of the enamel during the preparation of composite fillings