

Instruction for use StecoGrind

The **StecoGrind** Starterset contains all 15 possible diamond grinders (five types of roughness and three shapes). The diamond grinders can be ordered separately.

Forms and roughness:

Form		Size of the diamond coating				
		80 µm	40 µm	15 µm	8 µm	4 µm
A	∅ 2.5 mm, 2°	 O.44.01.A80	 O.44.01.A40	 O.44.01.A15	 O.44.01.A08	 O.44.01.A04
B	∅ 1.7 mm	 O.44.01.B80	 O.44.01.B40	 O.44.01.B15	 O.44.01.B08	 O.44.01.B04
C	∅ 1.2 mm	 O.44.01.C80	 O.44.01.C40	 O.44.01.C15	 O.44.01.C08	 O.44.01.C04

Appliance:

StecoGrind diamond grinders are made for usage with dental ceramics (AlO₂, ZrO₂, and others) have to be used with a water turbine only.

The mandrel diameter is 1.6 mm (FG) and fits to normal water cooled turbines.

The three shapes allow a machining of ceramic primary crowns with 2° and 0° as like interlock attachments. Due to the precise selection of diamond corn a high level of pureness is given. With this surface roughness (R_z ≈ 0.4 µm) comparable to a glazed cup or a drinking glass can be reached. For this, the grinders have to be used from the highest to smoothes roughness consequently. Be cautious to only use very low pressure (ca. 30 g) and maximum water cooling while working with the diamond grinders on all ceramic to reduce the risk of cracks in the ceramic structure.

The roughest grinders (80 µm, blue) are very abrasive and allow a form correction and shaping of crowns. Follow the instructions of the ceramic manufacturer regarding wall dimensions of crowns or copings.

The other grinders are only for the surface burnishing and should not be used for form correction. They have to be used from roughest to smoothes while applying only very reduced pressure. It is advisable to mark the crude parts of the ceramic with a water-resistant felt tip pen. With this, a better control over the machined areas of the surface can be reached. The colour marking of the surface should be repeated during every working step.

Avoid producing sharp edges on primary crowns as they might lead to problems in the following electroforming (galvanization) process. That's why the occlusal parts of the primary crown have to be handled in the same way as the lateral areas.

The surface of the all ceramic primary crown has to be smooth while allowing very low roughness to give the best fitting and adhesion with the saliva and the gold coping.

Speed control:

With the turbine control device (here the example of the Spraycontrol or Eco) the speed can be adjusted for each working step.

A water cooling of ca. 100ml/min is recommended. The pressure which is applied with the grinder to the ceramic surface should be about 30 g. You may check this pressure with a finger on a balance to get a better feeling for it.

In the following chart the suitable speed for each diamond grinder is shown exactly as they appear on the control device Spraycontrol or Eco.

The 80µm diamond grinders shall run in the upper yellow field. For the finest grinders (8 und 4 µm) reduce the speed to ca. 150.000 rpm. This corresponds to the lower yellow field of the scale.
In case of using another turbine control device adjust the speed according to the following chart.

Grinder					
Graining	80 µm	40 µm	15 µm	8 µm	4 µm
Scale on the Spraycontrol or Eco					
Speed [rpm]	300.000	250.000	200.000	150.000	120.000
Water [ml/min]	100	100	100	100	100