

CLINICAL PROCEDURAL RECOMMENDATION

EFFICIENT ROTARY CUTTING INSTRUMENTS FOR HIGH-STRENGTH CERAMICS

Contemporary high strength ceramics have become increasingly popular because they offer both esthetics and durability. Lithium disilicate is gaining special interest in the marketplace due to its superior esthetics, strength and diversity of treatment options. While primarily considered an advantage, high strength becomes a challenge when cutting through lithium disilicate. An efficient rotary cutting instrument is often needed for gross occlusal adjustment, crown removal or endodontic access preparation through the ceramic restoration.

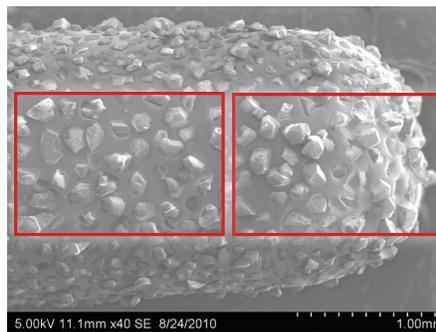
Contrary to common beliefs, coarser-grit diamond burs do not easily cut through these materials due to clogging and loss of diamond crystals. Several specialized diamond burs were recently introduced to the market for high strength ceramics. These utilize variable patented technologies like anti-clogging coatings, minimal heat generation designs, and durable brazing techniques. Multiple burs from different manufacturers were evaluated for their cutting efficiency through bonded lithium disilicate restorations using a high-speed handpiece. The following were deemed the most efficient among the burs evaluated. ■

MANUFACTURER	BUR	GRIT SIZE	FOOTBALL FOR OCCLUSAL REDUCTION	ROUND FOR ENDODONTIC ACCESS	CYLINDER OF CROWN REMOVAL
Komet	ZR Diamond	Coarse 126µm	Excellent ZR6379.314.023	Excellent ZR6801.314.014	Excellent ZR6856.314.025
Brasseler USA	DuraCut	Coarse 151µm	Excellent 6368DC.31.023	Very good 6801DC.31.023	Very good 6856DC.31.018
Dentalree	Crosstech	Coarse 150µm	Excellent 368.031.023	Very good 801.31.018	Good 856.31.018
SS White	Great White Z		Excellent GWZ 379-023	Very good GWZ 801-018	Good GWZ 856-018

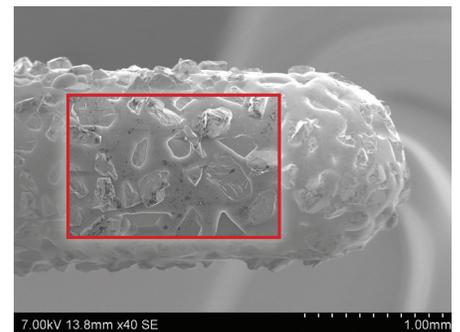
Tested at applied testing facility, Ivoclar Vivadent Amherst

CLINICAL CONSIDERATIONS:

- When removing a high-strength ceramic restoration, proper bur selection improves the efficiency of the procedure, reducing the time needed for completion.
- The use of an electric handpiece is preferable due to its superior cutting efficiency and reduced heat generation.
- Regardless of the cutting instrument or the handpiece used, copious water irrigation is paramount when cutting through ceramic materials. Water acts as a lubricant, improves cutting efficiency and prevents heat build up in the restoration and the tooth underneath.



Course ZR Diamond / Komet



DuraCut / Basseler USA