



Gordon J. Christensen

Clinicians Report®

Reprint



Reprinted February 2015, with permission, from Volume 7 Issue 12, December 2014, Page 1

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CR BUYING GUIDE

The BEST Products of 2014

CR is the original and only independent dental product testing organization with funding only from dentists!

Gordon's Clinical Bottom Line: Many years ago CRA, now renamed Clinicians Report, initiated publication of an annual guide of the *best evaluated products* from the previous twelve months. In 2014, many publications list products that appear to be the best of the year when in fact they are only another list of new products. The products presented in this report, as always, have been through rigorous non-manufacturer paid testing with competitive products and are among the best of the last twelve months. Classic products that have withstood the test of time and predictability are also listed in most of the categories.

— Please Read —

Please read the following product category descriptions carefully. Products listed in this Buying Guide have been evaluated by the CR in-house science team and CR Evaluators. Each product in this report is color-coded to identify why it has been included in this 2014 listing.

- **Proven classic products** are listed alphabetically and in red. These products have been determined by research and long-term clinical use. They are often used for new product comparisons. *Some categories do not have classics listed.*
- **Highly rated new products** were identified by in-house science evaluations and CR Evaluator use *during 2014*. Only products with an overall grade of 3.0 or higher (*4.0 highest*) and an Evaluator recommendation of 70% or greater were included.

Products that are not listed may not have been tested this year, may still be in testing, or were not among the highest rated. For many other excellent products not mentioned, please review previous CR Buying Guides at www.CliniciansReport.org.

RESTORATIVE / OPERATIVE / PEDIATRIC

Burs / Diamonds

See also *Clinicians Report January 2014*

Low-Cost (*single-use*) Diamonds:

- **Spring Health Diamond, Spring Health Products**

❖ This is only a portion of the original report. ❖



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Reprinted February 2015, with permission, from Volume 7 Issue 1, January 2014, Pages 1–2

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Diamond Burs: Does Price Matter?

Gordon's Clinical Bottom Line: Most dentists use rotary diamond cutting burs every day, which can amount to a significant portion of overall practice supply expense. CR has conducted evaluations of diamond rotary instruments several times over the past years. However, numerous new low-cost, single-use diamonds have emerged on the international market. Are these new low-cost diamonds acceptable? How do they compare with premium multiple-use diamonds? Which brands are best? Should they become the standard type of diamond rotary instrument for your practice? *CR scientists, Evaluators, clinicians, and a comprehensive survey of the profession have answered these questions in the following Clinicians Report.*

A case for low-cost diamonds: Few, if any, clinicians feel that low-cost diamonds are more aggressive, more durable, etc. But 48% of clinicians say they prefer a low-cost, single-use diamond based on their good performance at an excellent price.

Clinicians made the following comments in a recent CR survey:

"I like the convenience of single-use diamonds. Always clean and ready to use."

"I don't like worrying about losing expensive multiple-use diamonds."

"I'm reluctant to try a new size of expensive, multiple-use burs in case I don't like them."

CR researchers selected 13 low-cost diamond burs based on a CR survey and compared them to five premium (*multi-use*) diamond burs with proven clinical performance.

Performance Comparison

This table compares 13 low cost and five premium multiple-use diamond burs. All burs tested were of comparable shape and size (1116.8C, 856-016C, etc.). Cutting speed and endurance were tested under standardized conditions by cutting the equivalent of six crown preps on Carrara marble substrate. Degradation (*loss of diamond particles*) was measured when cutting both human molar and zirconia substrates and analyzed using scanning electron microscopy (SEM). The following table summarizes the results.

Summary of table

- All diamonds were classified as "coarse," although SEM analysis revealed some variation in particle size and distribution.
- All diamonds tested had clinically acceptable performance with good to excellent cutting efficiency.
- Most low-cost diamond burs could cut two or more crown preps before dulling significantly, while all premium diamonds could cut three or more crown preps. This agreed with CR survey findings regarding clinician's estimation of number of crown preps possible on virgin enamel.
- All burs experienced a reduction in cutting efficiency with use. However, that reduction was exacerbated when using excessive force or when cutting wear resistant materials (*zirconia*).

Clinical Tips

- Use as much water as possible** without impairing visibility to increase cutting performance.
- Tips of diamond burs** lose their diamond coating if excessive load is placed on the tip during cutting. Use the sides of the burs as much as possible.
- When cutting wear resistant materials** (*metal, lithium disilicate, zirconia, etc.*) use light touch, copious water, and a brushing motion to avoid stripping off diamond particles. Consider using low-cost diamonds as a cost efficient option.
- Coarse diamond burs become less abrasive** as they release diamond particles while cutting. 20% of dentists surveyed indicated that they use the coarse diamond (*now dull*) to refine the margins instead of a new finer diamond.
- If switching to a carbide bur to refine the margin**, use a bur of the same shape to keep the margin smooth and well defined.

Brand Manufacturer	Photo of New (Unused) Bur	Cost Each	Cutting Efficiency Rating	Durability Rating	Overall Rating
Premium Priced (Multi-Use) Diamonds					
Two Stripper Premier Dental		\$11.15	Excellent	Excellent-Good	Excellent
Meisinger Diamond Meisinger		\$8.60	Excellent-Good	Excellent	Excellent
Midwest Diamond Dentsply Professional		\$9.20	Excellent-Good	Excellent-Good	Excellent-Good
Peter Brasseler Series Brasseler USA		\$9.55	Excellent-Good	Excellent-Good	Excellent-Good
Komet Diamond Komet USA		\$9.85	Excellent-Good	Excellent-Good	Excellent-Good
Low-Cost (Single-Use) Diamonds					
Solo Diamond Premier Dental		\$1.76	Excellent	Excellent-Good	Excellent
Spring Health Diamond Spring Health Products		\$1.64	Excellent-Good	Excellent-Good	Excellent-Good
NeoDiamond Microcopy		\$1.73	Excellent-Good	Excellent-Good	Excellent-Good
CrossTech Diamond Dentalree		\$1.90	Excellent-Good	Excellent-Good	Excellent-Good
Microdont Diamond Microdont		\$1.00	Excellent-Good	Good	Excellent-Good
Phoenix Pollard Dental		\$1.50	Excellent-Good	Good	Excellent-Good
Piranha Diamond SS White		\$1.76	Good	Excellent-Good	Excellent-Good
Optimum Single-Patient Use Benco Dental		\$1.36	Excellent-Good	Good-Fair	Good
Henry Schein Single-Use Henry Schein		\$1.53	Good	Good	Good
Midwest Once Dentsply Professional		\$1.76	Good	Good	Good
Vivid Cut Pearson Dental		\$1.03	Good	Good-Fair	Good
Patterson Single-Use Patterson Dental		\$1.36	Good	Good-Fair	Good
Alpen x1 Coltene/Whaledent		\$1.72	Good-Fair	Fair-Poor	Fair

Diamond Burs: Does Price Matter? (Continued from page 1)

CR Survey Results (n=1091)

Regarding burs used for bulk removal when preparing teeth for crowns or fixed prostheses, dentists responded:

- 91% use only / mostly diamonds
- 20% use one bur for entire procedure
- 80% typically use a second bur for smoothing / refining (86% diamond, 7% carbide, 7% other)

• Of diamond users, 52% use only / mostly multiple-use diamonds, 48% use only / mostly single-use diamonds.

• **Most popular multiple-use:** 28% Brasseler, 24% Premier (*Two Striper*), 10% Komet, 10% Axis (*NTI*), 28% other
Times re-used before discarding: 8% re-use 1–2 times, 35% 3–4, 15% 5–6, 34% discard when dull, 8% other

• **Most popular single-use:** 62% Microcopy (*NeoDiamond*), 7% SS White (*Piranha*), 4% Premier (*Solo*), 27% other
Times re-used before discarding: 28% do not re-use, 41% re-use 1–2 times, 19% 3–4, 10% discard when dull, 2% other

How many crown preps could you reasonably cut on virgin teeth with one diamond?		
Preps	Premium Multi-Use	Low-Cost Single-Use
Less than 1	1%	4%
1–2	14%	58%
3–4	42%	30%
5–6	21%	3%
7–8	7%	0%
9 or more	7%	0%
Don't know	9%	5%

CR Conclusions:

Low-cost diamonds have significantly improved. Cutting efficiency and durability of many brands are comparable to more expensive multi-use diamonds. *Currently, nearly half of clinicians surveyed routinely use single-use diamonds for crown preps, and 72% frequently re-use low-cost diamonds at least once.* These data suggest that clinicians are not only attracted to the inexpensive nature of low-cost diamonds, but that they are being used and re-used successfully clinically. CR testing confirmed that all diamond burs tested had clinically acceptable performance. All premium diamonds received high ratings in CR testing. Overall, the low-cost diamonds with the best combination of features were Solo Diamond (*Premier Dental*), Spring Health Diamond (*Spring Health Products*), NeoDiamond (*Microcopy*), and Crosstech Diamond (*Dentalree*). The high level of performance coupled with the affordable cost, convenience, and infection control make low-cost diamonds a viable alternative worth exploring.

What is CR?

WHY CR?

CR was founded in 1976 by clinicians who believed practitioners could confirm efficacy and clinical usefulness of new products and avoid both the experimentation on patients and failures in the closet. With this purpose in mind, CR was organized as a unique volunteer purpose of testing all types of dental products and disseminating results to colleagues throughout the world.

WHO FUNDS CR?

Research funds come from subscriptions to the *Gordon J. Christensen Clinicians Report*. Revenue from CR's "Dentistry Update" courses support payroll for non-clinical staff. All Clinical Evaluators volunteer their time and expertise. CR is a non-profit, educational research institute. It is not owned in whole or in part by any individual, family, or group of investors. This system, free of outside funding, was designed to keep CR's research objective and candid.

HOW DOES CR FUNCTION?

Each year, CR tests in excess of 750 different product brands, performing about 20,000 field evaluations. CR tests all types of dental products, including materials, devices, and equipment, plus techniques. Worldwide, products are purchased from distributors, secured from companies, and sent to CR by clinicians, inventors, and patients. There is no charge to companies for product evaluations. Testing combines the efforts of 450 clinicians in 19 countries who volunteer their time and expertise, and 40 on-site scientists, engineers, and support staff. Products are subjected to at least two levels of CR's unique three-tiered evaluation process that consists of:

1. Clinical field trials where new products are incorporated into routine use in a variety of dental practices and compared by clinicians to products and methods they use routinely.
2. Controlled clinical tests where new products are used and compared under rigorously controlled conditions, and patients are paid for their time as study participants.
3. Laboratory tests where physical and chemical properties of new products are compared to standard products.

THE PROBLEM WITH NEW DENTAL PRODUCTS.

New dental products have always presented a challenge to clinicians because, with little more than promotional information to guide them, they must judge between those that are new and better, and those that are just new. Due to the industry's keen competition and rush to be first on the market, clinicians and their patients often become test data for new products.

Every clinician has, at one time or another, become a victim of this system. All own new products that did not meet expectations, but are stored in hope of some unknown future use, or thrown away at a considerable loss. To help clinicians make educated product purchases, CR tests new dental products and reports the results to the profession.



Clinical Success is the Final Test

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CRA Foundation® changed its name to CR Foundation® in 2008.