



Budget-Level Air Handpieces: Are They a Bargain?

Gordon's Clinical Observations: Each day, the average clinician uses dental handpieces (*air or electric*) for about eight composites and at least one crown. In the U.S., air handpieces are most popular, but CR has advised you about the advantages of using both air and electric. Are low-cost air handpieces as adequate as those that cost many times more? If not, what do you sacrifice by using budget models? CR has evaluated example budget-level handpieces and compared them with premium models. *See if budget-level handpieces have a place in your practice.*

Most dental handpiece manufacturers offer basic, economy-level models in addition to high performance models. Low-cost, budget handpieces often lack features found in more expensive models (*see photo*).

This report compares the performance of eight budget-level handpieces (~\$400 or less) available from various sources.



Budget handpieces (left) often lack features (illumination, multiple spray ports, etc.) found in premium models (right).

Why Consider Budget Handpieces?

- **Use as a backup:** Although some dentists use low-cost handpieces exclusively, budget-level handpieces are an excellent backup option (*delays in sterilization, handpiece "in for repair," etc.*).
- **Minor occlusal adjustments:** Use of budget handpieces for quick, simple procedures, leaving premium handpieces for critical applications.
 - **Hygiene operatory:** A low-cost handpiece can be conveniently placed in "less-used" operatories or hygiene operatories. When needed, the lack of a coupler is often not an impediment.
- **Prolong the life of higher cost handpieces:** Reduce wear and tear on your favorite handpieces by using low-cost handpieces for removing zirconia crowns, or similar procedures.

General Feature Comparison: Budget vs. Premium Handpieces

► Budget

- Lightweight, slender design
- No illumination, limited water spray ports
- No swivel nor quick disconnect (*lack of swivel creates cord drag which can lead to wrist fatigue*)

Basic models often lack features affecting ease of use, ergonomics, and overall performance.



► Premium

- High power; smooth, quiet operation (*higher quality components*)
- Ample water spray
- Quality illumination
- Convenient couplers/swivels
- Superior overall performance
- Higher cost (\$1200-\$1600+)



Comparison of Example Budget Handpieces

The following chart compares eight budget-level handpieces obtained from various sources. All handpieces evaluated were basic, push button, non-optic, non-swiveling, Midwest 4-hole connection, non-surgical high-speed air handpieces; numerous additional brands and models are available.

Manufacturer: Brand	Price	Head size in mm diameter • height	Weight (grams)	Spray Ports	Power (torque)	Durability	Clinical Rating
Beyes Dental Canada: Maxso M200E	\$110	11.1 • 13.9	56.7	1	18-20 Watts	Excellent-Good	Excellent-Good
Benco: XLR8 Plus	\$325	10.5 • 14.0	43.4	3	16-19 Watts	Excellent-Good	Excellent-Good
Henry Schein: Precision Torque 2 (mini)	\$335	10.2 • 11.0	28.0	1	17-20 Watts	Excellent-Good	Good
NSK: Pana Max PAX-SU M4	\$419	10.9 • 14.1	45.0	1	12-16 Watts	Excellent-Good	Good
MK-dent: Eco Line HE17	\$250	12.5 • 13.8	54.0	4	11-13 Watts	Excellent-Good	Good
Patterson: PD-95	\$228	12.3 • 15.2	53.2	1	10-12 Watts	Excellent-Good	Fair
Essentials Healthcare Products: C-Type	\$210	11.2 • 15.0	61.8	1	6-7 Watts	Excellent-Good	Fair
Sandent (ultra low-cost example*)	\$13	10.8 • 14.4	47.3	1	8-11 Watts	Good-Fair	Fair

***BUYER BEWARE:** Numerous ultra low-cost (\$10-\$30) handpieces are available from various online sources (eBay, Amazon, etc.). CR has noted inconsistent quality and performance, and little or no product instructions or support. Ultra low-cost handpieces generally lack FDA clearance and pose safety and liability risks. It is recommended that handpieces be purchased from a reliable source.

Budget-Level Air Handpieces: Are They a Bargain? *(Continued from page 1)*

Comparison of Example Budget Handpieces *(Continued)*

Summary of chart:

- **Price:** price ranged from \$13–\$419. Price did not directly correlate with quality or performance.
- **Dimensions:** clinicians with smaller hands generally preferred the slender, lightweight design of low-cost handpieces. Budget models tended to have a larger (*taller*) head size than premium models.
- **Power:** Power (*measured at manufacturer recommended pressure*) varied significantly by brand, and was lower than most premium handpieces (*which often recommend higher operating pressures*). All budget handpieces tested were clinically adequate.
- **Durability:** All handpieces underwent an accelerated wear test: 150 cycles of aggressive cutting on bovine teeth for 60 seconds, followed by cleaning, lubrication, and steam sterilization at 134°. *Most budget models had excellent durability, holding up well during testing.*
- **Clinical evaluation:** Five CR Evaluators tested handpieces clinically and found all budget models tested to be clinically acceptable. While most preferred the convenience and performance of premium models, they were generally impressed by the overall quality and performance of budget models.

CR CONCLUSIONS: Evaluators were generally impressed by the overall quality and performance of the budget handpieces tested; however, they generally preferred the ergonomics, convenience, and superior performance of premium handpieces. Bargain models with the best performance in CR testing include: Maxso M200E by Beyes Dental Canada, XLR8 Plus by Benco, and Precision Torque 2 (*mini head*) by Henry Schein. Ultra low-cost models from various online retailers pose safety and liability concerns. All low-cost, budget-level handpieces tested were clinically useful.

What is CR?

WHY CR?

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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:

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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.

Clinical Success is the Final Test



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3707 N Canyon Road, Building 7, Provo UT 84604

Phone: 801-226-2121 • Fax: 801-226-4726

CR@CliniciansReport.org • www.CliniciansReport.org

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