61-27 AirDent II (Project 99-37) (9/00)

The AirDent II is a self-contained air abrasion system marketed by Air Techniques. Purported advantages of this unit compared to traditional air-turbine handpiece preparations include: less invasive, more conservative treatment; a reduced need for local anesthetic; earlier and more accurate diagnosis which reduces under- and/or over-treatment; and the reduction or elimination of vibration, chipping, and micro-fracturing of tooth structure during preparation. The AirDent II has dual chambers for use with either 27- or 50-micron aluminum oxide powder. Delivery is via a vibratory feed mechanism that is said to provide precise, consistent flow of powder. A console indicator light alerts the user when the chamber needs to be refilled. Air pressure is provided by an on-board, oil-less compressor while powder dryness is maintained with a rechargeable desiccant mechanism that has a powder dryness indicator. The console digital display has membrane-touch controls that allow the user to regulate the air pressure from 40 to 160 psi in 10-psi increments. The handpiece nozzle provided with the unit has a 70° angle; nozzles of 12° and 105° are available separately. The AirDent II is 27.5"H x 11"W x 25"D and weighs 98 pounds. Powder overspray is purported to be adequately removed from the working field using a standard high-volume suction tip, however the manufacturer also markets the Dento-Vac, a vacuum device that is used at chairside to remove overspray.

Manufacturer:
Air Techniques, Inc.
70 Cantiague Rock Road
P.O. Box 870
Hicksville, NY 11802
(800) 247-8324
(516) 433-7676
(516) 433-7684 FAX
www.airtechniques.com

Suggested Retail Price:
$11,695 AirDent II Air Abrasion System; includes
-1 AirDent II unit
-2 pairs of safety glasses
-1 pair of goggles
-1 hose assembly with swivel
-2 handpieces
-2 70° tips
-2 250-gm containers of 27-micron alpha alumina particles
-2 250-gm containers of 50-micron alpha alumina particles

$1495 Dento-Vac

Government Price:
$8430 Air Dent II Air Abrasion System (contents as listed above)

$930 Dento-Vac
ADVANTAGES:
+ Is a portable and self-contained unit with esthetically pleasing, smooth contours.
+ Manufacturer's operatory manual is easy-to-read and adequate for clinical operation.
+ In-house training given by manufacturer provides excellent familiarization and reduces learning curve for first-time users.
+ Handpiece design and cord length allow good intraoral access for most clinical applications.
+ Controls are easy to see and use.
+ Passed requirements of all pertinent electrical safety standards.
+ Air pressure can be varied between 40 and 160 psi.
+ Oil-less compressor and in-board desiccant system provide adequate power and function.
+ Handpiece is sterilizable.
+ Unit's size fits well into existing facilities.
+ Dual chambers allow clinicians the choice of 27- or 50-micron alumina particles.
+ Features a proprietary vibratory powder-feed mechanism that prevents clogging.
+ Sensor in handpiece holder prevents inadvertent operation.
+ Safety feature automatically depressurizes powder chamber when access door is opened.
+ Is solidly constructed with quick-connect couplings and excellent labeling of internal components.
+ Excellent manufacturer technical support service.

DISADVANTAGES:
- Expensive.
- Has limited applications.
- Does not eliminate the need for anesthesia in all cases.
- Requires the purchase of additional vacuum device for adequate control of powder overspray.
- Requires longer tooth preparation time compared to a dental air-turbine handpiece.
- Does not totally replace the dental air-turbine handpiece.
- No available comprehensive troubleshooting guides, maintenance recommendations, or schematic diagrams for federal service medical equipment technicians.
- No instructions are provided with the Dento-Vac that describe its use.

SUMMARY AND CONCLUSIONS:
The AirDent II is solidly built, well designed, and effective for limited clinical applications. Delivery pressure can be varied between 40 and 160 psi, and the unit has an in-board air desiccant system and a vibratory powder-feed mechanism that generally produce consistent and dependable powder delivery. Clinical users can choose between 27- and 50-micron alumina powder. Safety features include automatic powder chamber depressurization with access door opening and a sensor that prevents inadvertent handpiece function when the handpiece is secured in the holder. Clinical users reported that the unit functioned reliably and was easy to use via its touch-membrane control panel. Local anesthesia was still required in some cases to provide adequate patient comfort. Powder overspray was a problem, and it is necessary to purchase an additional vacuum source to properly control it. Disadvantages included high cost, limited applicability, and poor maintenance documentation. The AirDent II is rated Acceptable for federal service use.