Synea TA-97LED High-Speed Handpiece (Project 2008-006) (4/10)

The W&H International Synea TA-97LED and TA-98LED air-turbine high-speed handpieces are the first high-speed handpieces to be marketed with purported “daylight quality” LED illumination (color temperature = 5,500K) with a reported light intensity of 25,000 Lux. The handpieces are distributed by A-dec. The TA-97LED has a smaller handpiece head diameter (10 mm) compared to the TA-98LED (11.5 mm). Versions of these handpieces are also available with traditional halogen light/glass rod technology or without lighting. The manufacturer states that the LED technology is shock-resistant and will provide a lighting lifespan ten times longer than the standard halogen bulb while significantly reducing thermal output. The TA-97LED and TA-98 LED handpieces are reportedly lightweight, weighing 40 and 42 grams respectively. The manufacturer reports the TA-97LED to have 17 watts of power compared to 20 watts for the TA-98LED. The handpieces have a sealed head with a push button bur chuck and a 5-port Penta Spray for cooling and cleaning of the treatment site. A newly designed sterilizable 6-pin Roto-Quick coupling system provides 360° handpiece rotation. The LED technology and coupler require specific handpiece-to-unit 6-pin fiber-optic tubing. A-dec 500 series dental units have a power supply compatible with the LED handpieces, but most likely will need to add the specific 6-pin tubing. Clinics with dental units from other manufacturers will need to consult A-dec for both LED power and tubing requirements. There is a one-year warranty on all handpieces and tubing, and a two-year warranty for the coupler. Note: The Synea TA-98LED was not evaluated by DECS; information is provided only for comparison of features.

Manufacturer:
W&H Dentalwerk Bürmoos GmbH
Ignaz-Glaser-Straße 53
5111 Bürmoos, Austria

Distributor:
A-dec Headquarters
2601 Crestview Drive
Newberg, Oregon 97132
(800) 547-1883
(503) 538-7478
(503) 538-0276 FAX
www.a-dec.com

Suggested Retail Price:
$1,465.00 Synea TA-97LED Handpiece
$300.00 RQ-24 RotoQuick Coupler
$160.00 61” (1549mm) Silicon 6-pin Tubing

Government Price:
$717.30 Synea TA-97LED Handpiece
$159.60 RQ-24 RotoQuick Coupler
$80.60 61” (1549mm) Silicon 6-pin Tubing
ADVANTAGES:
+ Good power for small head size and lightweight handpiece
+ Excellent LED transmission capacity; rated highly by clinical users
+ Maintained 89% of LED intensity after 1000 laboratory simulated clinical uses/sterilizations
+ Produces less than 65 decibels of noise
+ Excellent concentricity
+ One-year warranty

DISADVANTAGES:
- 50% of laboratory test handpieces failed by 1000 simulated clinical uses/sterilizations
- Turbine cartridge is not field replaceable
- LED requires 6-pin tubing, specific coupler and compatible power supply
- Not all dental units may be compatible with the handpiece without modifications

SUMMARY AND CONCLUSIONS: The Synea TA-97LED high-speed air-turbine handpiece performed above average for most of the parameters evaluated. Three of six handpieces tested in the DECS laboratory failed prior to completing 1000 simulated clinical uses/sterilizations (632, 688 and 954 cycles respectively). All failures appeared to be due to deterioration of the race device which holds the ball bearings inside the turbines. However, no handpiece failures or maintenance issues were reported during eight months of actual clinical use. The mean baseline power (12.88 ± 0.45 watts) ranks this handpiece ninth of seventeen handpieces previously evaluated by DECS. LED transmission was excellent, as the Synea TA-97LED retained 89% of LED capacity during laboratory testing. The noise level of the handpiece was below 65 decibels, which is quieter than most handpieces evaluated by DECS and falls well below the Occupational Safety and Health Administration (OSHA) maximum 8-hour, 85-dB (A) exposure limit. Clinical users appreciated the grip, balance, weight and visibility of the handpiece. They were very impressed with the lighting provided by the LED. Both clinicians thought the handpiece had adequate power and torque for most clinical applications. The Synea TA-97LED high-speed air-turbine handpiece was rated “Excellent” by one clinician and “Outstanding” by the other clinical evaluator. Both dentists recommended purchasing the handpiece for use in their clinic. The Synea TA-97LED is rated Acceptable for use in US Air Force dental facilities.