

NSK Ti-Max NL9000S Handpiece (Project 06-007) (8/07)

Brasseler USA's NSK Ti-Max NL9000 series of high-speed air-turbine handpieces includes Standard, Miniature, and High-torque models. Brasseler USA states the solid titanium handpiece has a twin-nozzle drive system and a uniquely designed turbine with ceramic bearings to maximize power, reduce vibration, and minimize noise. The ceramic ball bearings are reported to be 25% harder and 50% lighter than stainless steel, decreasing bearing friction. The NSK patented "Clean Head System" purportedly prevents fluid and debris retraction into the head of the handpiece prolonging bearing life and enhancing infection control. The Standard handpiece reportedly provides high cutting power, weighs 41 grams, and is said to provide an ergonomic grip with superior comfort. All models have cellular rod fiberoptics, 4-port water-spray, and internal pressure regulating valves to maintain consistent pressure to the turbine. The Ti-Max NL9000 series designs are compatible with most brand of couplings (NSK FlexiQuik, KaVo MULTIflex LUX, Sirona Quick Coupling, W&H Roto Quick and Bien-Air Unifix). The handpiece has a two-year warranty covering materials and workmanship for all components of the Ti-Max NL 9000 series when the manufacturer recommendations are followed.



Manufacturer:

NSK America Corporation
700 Cooper Court
Schaumburg, Illinois 60173
(800) 585-4675
(847) 843-7664
(847) 843-7622 FAX
www.nsk-inc.com

Distributor:

Brasseler USA
1 Brasseler Boulevard
Savannah, Georgia 31419
(800) 841-4522
(912) 927-8671 FAX
www.brasselerusa.com

Suggested Retail Price:

\$1,005.00 Ti-Max NL9000 High-Speed Handpiece
All models: Standard, Miniature and Torque
heads
\$190.55 Titanium 5 or 6 hole couplers
\$169.95 Titanium 4 hole couplers

Government Price:

\$633.75 Ti-Max NL9000 High-Speed Handpiece
All models: Standard, Miniature and Torque heads:
\$120.25 Titanium 5 or 6 hole couplers
\$107.25 Titanium 4 hole couplers

ADVANTAGES:

- + Excellent longevity following repeated use/sterilization
- + Acceptable power
- + Excellent fiberoptic transmission capacity
- + Produces less than 65 decibels of noise
- + Excellent concentricity

- + Clean Head System prevents fluid and debris accumulation in handpiece head
- + Two-year warranty

DISADVANTAGES:

- Some evaluators experienced variability in ease of placing/removing burs

SUMMARY AND CONCLUSIONS:

The Ti-Max NL9000S (Standard) high-speed handpiece displayed excellent performance during DECS laboratory testing procedures. The six handpieces evaluated in the laboratory survived 1000 test cycles simulating two years of clinical use. The mean baseline power (14.52 + 0.67 watts) ranks this handpiece fifth among handpieces previously evaluated by DECS. Power initially increased after 250 and 500 cycles, but then diminished below the baseline value after 1000 cycles. Even though the power diminished, the **final mean power** of the Ti-Max NL9000S remained higher than the **baseline mean power** of 50% of the previously brands of handpieces tested by DECS. Fiberoptic transmission was excellent, as the Ti-Max NL9000S retained 84% of fiberoptic capacity during laboratory testing. The noise level of the Ti-Max NL9000S 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.. The Ti-Max NL 9000S concentricity measurements ranked in the top third of all handpieces evaluated by DECS. Clinical users most appreciated the grip, balance and weight of the handpiece, the low noise level and the lighting provided by the fiberoptics. Two clinical evaluators noted some difficulty in placing and removing burs from two of the ten handpieces. Subsequent laboratory evaluation of the ten handpieces from the clinical test site revealed that more force was required for insertion and removal of burs for three of the ten handpieces. This increased friction was located in the bur housing prior to the level of the chucking mechanism. Problems were not noted with the chucking mechanism. None of the handpieces evaluated in the DECS laboratory (1000 test cycles) exhibited any problem with bur insertion, removal or the chucking mechanism. If this situation is encountered, a possible solution may be to simultaneously activate the push button and place the bur in the housing instead of placing the bur before activating the push button. Three clinicians thought the handpiece had adequate power and torque for most clinical applications, while two clinicians disagreed with this statement. Four of the five clinicians rated the handpiece "Excellent" and one rated it "Acceptable" and a majority (3/5) of the evaluators recommended purchasing the handpiece for clinical use. The **Ti-Max NL9000S** is rated **Excellent** for use in US Air Force dental facilities.