

61-30 W&H/A-dec Synea TA-98L™ Fiberoptic High-Speed Handpiece (Project 99-34) (1/01)

For **UPDATE**, [click here](#).

The W&H Synea TA-98L™ fiberoptic high-speed handpiece is imported from Austria and distributed by A-dec. The handpiece has a standard-size turbine head with triple-spray cooling. It is designed for use by clinicians who routinely perform procedures that make significant demands on their handpiece (e.g., prosthodontists, general dentists with high-volume restorative practices, etc.). The handpiece utilizes the W&H 924 Roto Quick Coupler, which provides 360-degree swivel and easy interchangeability of handpieces. The fiberoptic bulb is inside the handpiece to reduce the distance from the source light from the handpiece head. In addition, the fiberoptics have been changed to a solid glass rod that is claimed to provide considerably brighter light and longer durability than W&H's previous fiberoptic technology. The handpiece has a push-button autochuck and can be heat sterilized in either an autoclave or chemiclave. The free running speed is reported to be 350,000 RPM at 45 psi. A pressure regulating screw is standard that allows the handpiece to be used with air line pressures of either 32 psi or 45 psi. Use of the handpiece at 32 psi reduces power by 20%. The turbine is field replaceable to reduce handpiece down time, but A-dec recommends returning the handpiece to them for servicing. The W&H Synea TA-98L™ (including coupler) measures 14 cm in length and weighs 2.6 ounces. The handpiece head diameter and length are 11.5 mm and 14.4 mm, respectively. The distance from the back of the handpiece to the tip of a standard 19-mm bur is 22.8 mm (i.e., interocclusal clearance). The handpiece is warranted against defects in materials and workmanship for twelve months.



Manufacturer:

W&H Dentalwerk/A-dec
2601 Crestview Drive
Newberg, OR 97132
(800) 547-1883
(503) 537-2764
(503) 538-8021 FAX
www.dentalwerk.com/wh.html

Suggested Retail Prices:

Synea TA-98L™ \$890.00
924 Roto Quick Coupler \$210.00
Replacement Turbine \$295.00
Replacement Fiberoptic Bulb \$33.50

Government Prices:

Synea TA-98L™ \$459.93
924 Roto Quick Coupler \$108.52
Replacement Turbine \$175.23
Replacement Fiberoptic Bulb \$19.90

ADVANTAGES:

- + Excellent longevity following repeated uses/sterilization.
- + Superior power (16.5 watts).
- + Superior concentricity ensures precise tooth preparations.
- + Accepts air line pressures of 32 psi or 45 psi.
- + 360-degree swivel coupler enhances ease of positioning and use.
- + Push-button bur release facilitates bur placement and removal.
- + Turbine is field replaceable which reduces down time.
- + Only requires lubrication before sterilization which enhances infection control.
- + 12-month warranty.

DISADVANTAGES:

- Fiberoptics lost 76% of transmission over 1000 use/sterilizations.
- Chucking mechanism failed in 17% of test handpieces during 1000-use evaluation.
- Internal fiberoptic bulb required frequent replacement.
- Larger turbine results in decreased operator visibility and intraoral access.

SUMMARY AND CONCLUSIONS:

The W&H Synea TA-98L™ fiberoptic high-speed handpiece performed better than average for most parameters evaluated. It is the most powerful (16.5 watts) air-turbine handpiece ever tested by DIS. The purportedly improved fiberoptic system did not perform well in this evaluation. It maintained only 24% of its fiberoptic intensity after 1000 simulated clinical uses/sterilization cycles and the internal fiberoptic bulb failed frequently. W&H has now released the Synea TA-98LW™ which is identical to the Synea TA-98L™ except that the fiberoptic bulb is no longer inside the handpiece. This may improve the performance and longevity of the bulb since it will no longer be subjected to the rigors of sterilization. The noise level of the Synea TA-98L™ was 64 decibels, which falls well below the maximum 8-hour, 85-dB(A) exposure limit established by the Occupational Safety and Health Administration (OSHA). The Synea TA-98L™'s concentricity ranked in the upper half of handpieces previously evaluated by DIS. This is a property important for producing smooth finish lines and preparations consistent with bur size and shape. Five of the six test handpieces completed the 1000 simulated clinical uses/sterilization cycles without any degradation of power or speed. The one failure was due to chuck failure, not turbine performance, but since the chuck is an integral part of the turbine, when the chuck fails the entire turbine fails. The W&H **Synea TA-98L™** is rated **Acceptable** for use by the federal dental services.

UPDATE In 2002, DIS reviewed a new version of this handpiece (the TA-98LW™) in which the fiber optic system had been improved. The result of our testing was that the W&H Synea **TA-98LW™** was awarded a **Recommended** rating. For complete information, please see DIS 66-08.

66-08 W&H/A-dec Synea TA-96LW™ & TA-98LW™ Fiber optic High-Speed Handpieces Update (Project 01-49) (8/02)

The W&H Synea TA-96LW™ and Synea TA-98LW™ fiber optic high-speed handpieces are imported from Austria and distributed by the A-dec Corp. Complete evaluations of the previous models (Synea TA-96L™ and Synea TA-98L™) were published by DIS in 2001 (see DIS 61-29 and DIS 61-30). The fiberoptics in the original models were found to degrade as much as 79% after 1000 simulated clinical use/sterilization cycles. The fiberoptics have been redesigned since the evaluations and are claimed to be greatly improved. The purpose of this project was solely to evaluate the adequacy of this new fiber optic system.

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Prices:

| Item | Suggested Retail Price | Government Price |
|-----------------------------|------------------------|------------------|
| Synea TA-96LW™ | \$890.00 | \$459.93 |
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| 924 Roto Quick Coupler | \$210.00 | \$108.52 |
| Replacement Turbine | \$295.00 | \$175.23 |
| Replacement Fiberoptic Bulb | \$33.50 | \$19.90 |

SUMMARY AND CONCLUSIONS:

The new models, Synea TA-96LW™ and Synea TA-98LW™, demonstrated significantly greater resistance to fiberoptic degradation than the previously evaluated versions of the handpieces. The new versions retained 80% of their original fiberoptic transmission at the end of the test period (1000 simulated clinical use/sterilization cycles). The poor fiberoptic performance of the earlier models was largely responsible for their receiving ratings of "Acceptable." With their improved fiberoptic performance, the **W&H Synea TA-96LW™** and **W&H Synea TA-98LW™** handpieces are now rated **Recommended** for use by the federal dental services.