The dental community is continually searching to find safe and effective ways to minimize patient trauma resulting from the dental drill. Convergent Dental, a dental equipment and technology company, has developed Solea™ — the world’s first computer-aided, CO2 laser system cleared by the FDA to cut hard and soft tissue — to usher in a new era of dread-free dentistry.

Looking toward the future

Every day, more and more dental lasers are being used in dental practices to provide a nearly drill-free patient experience. Solea offers innovative solutions to challenges the dental laser industry has been unable to address thus far.

Science behind Solea

The effectiveness of Solea’s unique 9.3 micron wavelength is rooted in studies conducted by the University of California, San Francisco (UCSF), led by Dr. Daniel Fried and Dr. John Featherstone, proving that 9.3 micrometers is the wavelength that matches the peak absorption of laser energy by hydroxyapatite (the major component of enamel and dentin).

Solea’s laser uses an oxygen-18 isotope and other modifications to achieve this unique wavelength, cutting enamel with smoother margins vs. erbium lasers, which vaporize water and chip the enamel away. Even at 9.3 microns, Solea’s modified CO2 laser cuts soft tissue as reliably and precisely as native CO2 soft-tissue lasers.

Solea’s wavelength is optimized by galvos–computer-controlled motors that move mirrors inside the handpiece. The galvos manipulate the beam up to 10,000 times per second, creating patterns that are optimized for different types of tissue and spot sizes.

With Solea, dentists can use four different spot sizes, ranging from 0.25 mm to 1 mm, while maintaining a consistent distance from the handpiece to the target tissue from any angle.

Until now, dental lasers required users to focus and defocus the beam by moving the position of the handpiece relative to the target tissue in order to achieve the desired spot size.

Easy transition from drill to laser

Solea was designed with features similar to a traditional high-speed drill, enabling an easy transition to the laser. Solea also incorporates a variable speed foot pedal and a comfortable handpiece that is similar to a traditional drill.

The all-tissue CO2 laser features an easy-to-use touchscreen that is preset with different hard- and soft-tissue settings and spot sizes. Solea dentists spend less than a day on training to become fully adept users of this technology.

Visit booth No. 239 for insight into Solea’s technology and a hands-on demonstration. For more information, visit www.convergentdental.com.