

# Acutrak<sup>®</sup>

## celebrates 20 years

This year, Acumed's Acutrak<sup>®</sup> screw celebrates 20 years of healing. The first Acutrak<sup>®</sup> family of screws was introduced in 1993 and revolutionized the way surgeons treat fractures, fusions and osteotomies. A second generation — Acutrak 2<sup>®</sup> — was released in 2005.

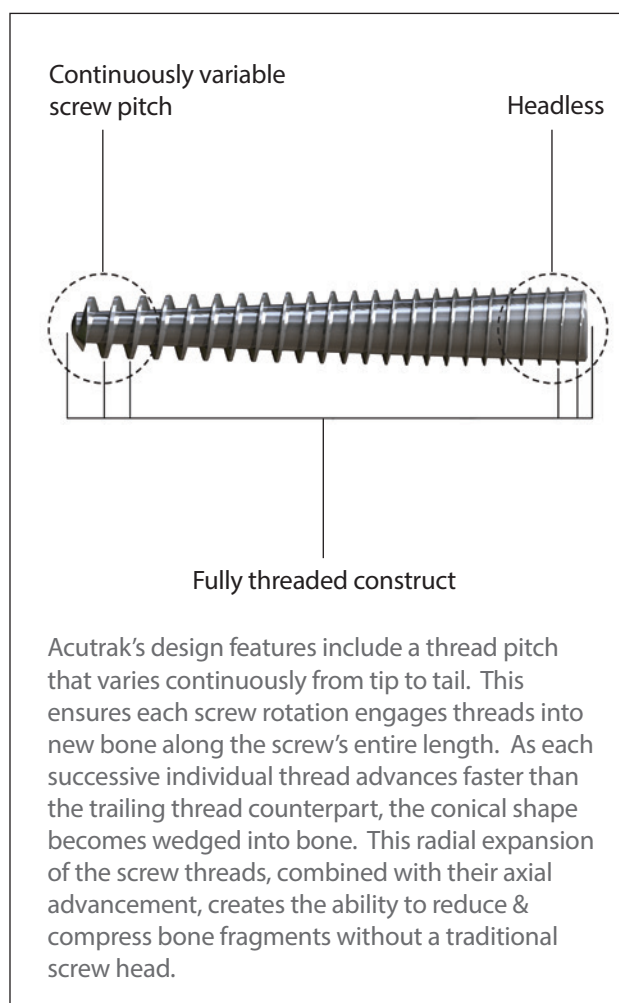
Building on the first generation, Acutrak 2<sup>®</sup> simplifies the surgical technique via intuitive instrumentation, increases the strength of the screw and hex driver interface, enables use of a larger and stiffer guide wire, and may reduce the radial stress transmitted to the bone without reduction, compression or fixation.

The Acutrak 2<sup>®</sup> family is composed of 63 unique screw size options. While the screw's headless, self-cutting and self-drilling features are no doubt important, the variable thread pitch and taper give the screw its unique ability to compress the two bone fragments with no need for prior compression. These features, however, present unique manufacturing challenges.

The machining process starts with industrial titanium rod stock. The bar's diameter is slightly larger than the screw to be manufactured. Because Acutrak 2<sup>®</sup> screws come in a wide variety of diameters; production is by "family". Depending on which family of screws is being produced, one bar can yield anywhere from 30 to 300 individual screws.

At the Acumed<sup>®</sup> facilities in Hillsboro, Oregon, many machines are devoted to manufacturing Acutrak 2<sup>®</sup> screws. The machines — each approximately 5 feet by 8 feet in size, 2000 pounds in weight, and more than \$600,000 in cost — are a type of lathe used in the watch industry and that has the properties necessary to create the variable pitch and the taper unique to the Acutrak 2<sup>®</sup> family.

First the profile shape is created and then the threads are cut according to precise engineering specifications. The advantage of the machine is that it can feed at different rates and angles; its computer uses trigonometric calculations to determine feed rates, cut depths and rotation speeds, calculating a change in multiple variables for every rotation.



The innovative, proprietary engineering and computer programming of Acutrak 2<sup>®</sup> allows for the control of four or more variables — some include longitude and latitude as well as rotation and feed speed — all adjusted as the rod progresses through a continuous cut over the entire length of the screw.

Also unique about the Acutrak 2<sup>®</sup> family of screws are the tolerances to which they are held: among the most stringent in the industry. For inspection of these small, precision products, several processes have been established for the machinists and others — using various technologies — to check all of the critical dimensions, thus assuring surgeons around the world that when they remove the screw from its sterile packaging, the screw and all of its features are exactly what's expected, every time.

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**To find out more about Acutrak<sup>®</sup> visit:**  
[www.acumed.net](http://www.acumed.net)