Mars Explorer Drill Bit

Dewey was contracted by UTD Incorporated to supply a drill bit for the Mars Explorer project. The machined drill bit was part of UTD's Low Reaction Force Drill (LRFD), a new drilling system concept that offers a low-energy, low mass, self-advancing solution for drilling on Mars or other planetary bodies.

Full public information on this project is available in the Report on the Mars Drilling Feasibility Workshop of February 27-28, 2001, Appendix G. at http://www.slideshare.net/artintelligence/marsdrillingworksho-doc .

The drill bit was developed by UTD, now a part of Raytheon, and parts were supplied by Dewey. This prototype drill bit differs from the drill bits used on Earth for exploratory soil drilling. Since the gravity on Mars is less than that of Earth's, and any vehicle that would be exploring on Mars would not have the weight (mass) necessary to employ the same drilling techniques as common on Earth, an unconventional drill bit was required. Dewey was able to source and supply the required machining for this multi-component drill bit. The unique configuration of this drill allows it to penetrate different soil compositions without the need for significant force supplied by the surface machinery, thus using less power. This concept is shown below in Figure 1 from page 108 of the Report on the Mars Drilling Feasibility Workshop of February 27-28, 2001.

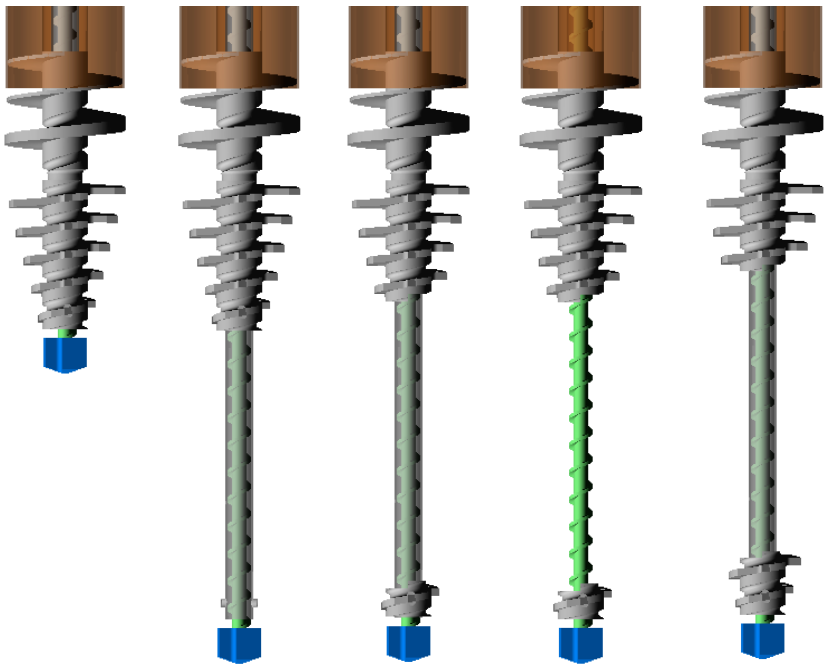

Figure 1. The ability of the LRFD to advance individual components or several components in unison allows for drilling through everything from hard rock, to sand, or even rubble.