



CRANE

Innovation Infosheet

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Auto-Feeding, Permanent Magnet Drill

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- Materials and Manufacturing
- NSWC Crane

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- Mechanical Engineering

The US Navy seeks a partner to license an auto-feeding permanent magnet drill with an integrated lubrication system.

Permanent magnetic drills, or mag drills, are portable drills designed to cut metal. One type is an alternating current electrically powered mag drill with the AC power driving both the drill and the electromagnetic base. When the drill is activated, the electromagnetic base causes the drill to be magnetically fixed to a metal work surface. The electromagnet is strong enough to support the weight of the drill as well as any opposing forces from the drilling action. Another version of the mag drill has an auto-feed feature and a direct current powered drill with a permanent magnetic base. Auto-fed drills provide benefits to the user such as increased drill speed and improved technique which leads to less user error. DC powered drills are wireless, but have less power available from their batteries compared to AC drills that are plugged into an electrical source.

NSWC Crane has patented and developed an improved tactical magnetic drill with a reliable power source, an enhanced non-stationary lubrication system, an auto-feed functionality, and a magnetic base. The drill uses a permanent magnet in the base to fix it to a metal work surface as well as an electromagnet to augment the permanent magnet. The drill is powered with an AC supply and includes an auto-feed feature. The system has a lubrication reservoir separate from the magnetic drill frame that attaches to the metal work surface along with the drill itself which allows for a better flow of lubrication to the drill.

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