

ABRASIVE CUTTING SYSTEMS

An abrasive cutting system is an advanced downhole intervention tool designed to cleanly sever casing, tubing, or drill pipe. While relying on the same fundamental principles as abrasive perforating, this system integrates a downhole motor to continuously rotate the cutting nozzle, delivering a highly focused, 360-degree radial cut through multiple strings and cement.

How It Works

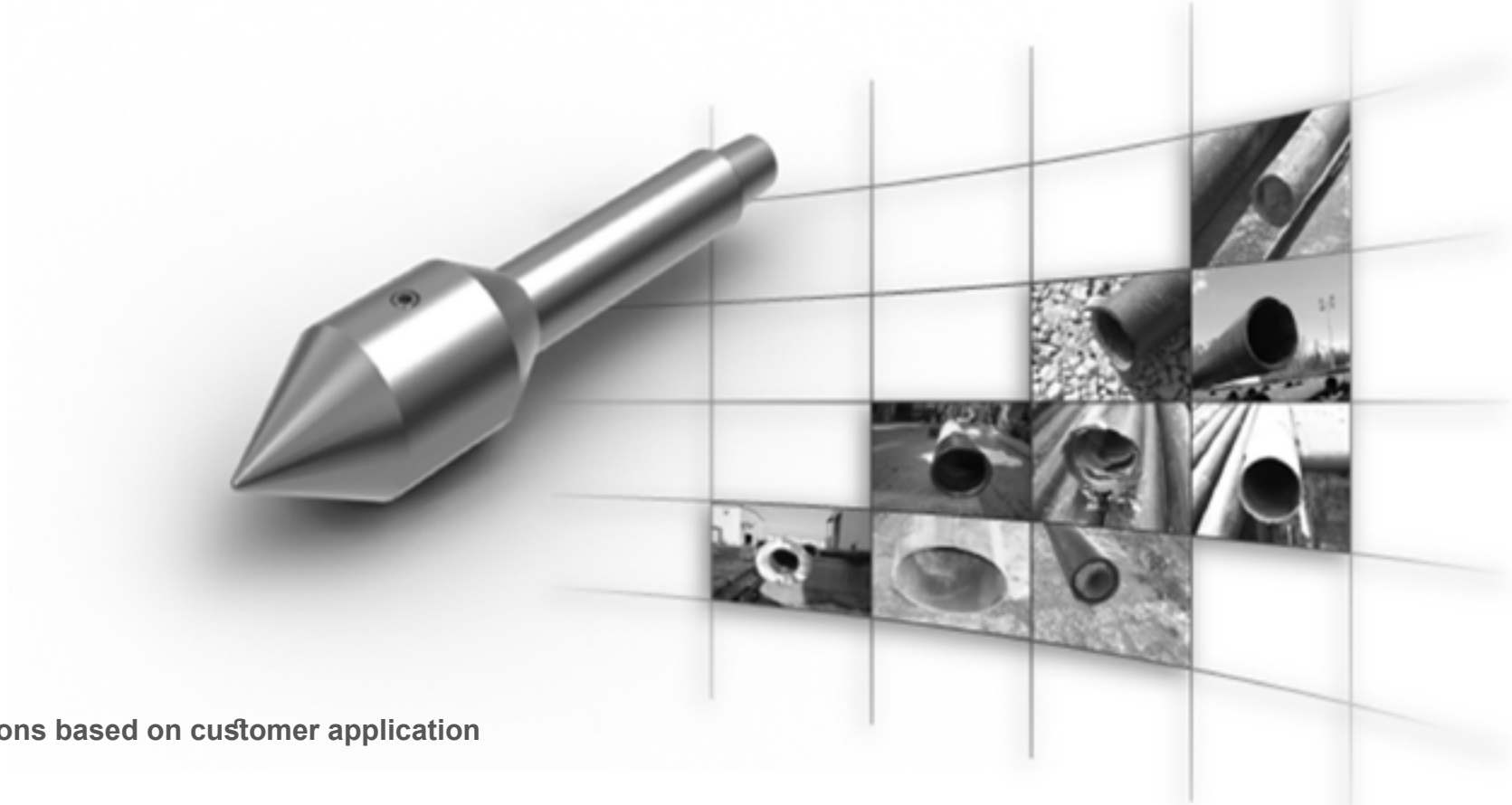
The tool string typically consists of a Positive Displacement Motor (PDM) and a specialized rotating cutting head equipped with single or dual nozzles. As the proppant-laden slurry is pumped down the coiled tubing or jointed pipe, the fluid flow activates the motor. The motor rotates the cutting head while the high-pressure abrasive jet simultaneously erodes the target tubular from the inside out, creating a smooth, continuous radial slice.

Key Advantages

- **Explosive-Free Operation:** Eliminates the safety hazards, logistical challenges, and strict regulatory requirements associated with traditional explosive chemical or jet cutters.
- **Flare-Free, Clean Cuts:** Unlike explosive severing, which often warps or flares the ends of the severed pipe, abrasive cutting leaves a clean, machine-like edge. This significantly simplifies subsequent fishing, retrieval, or milling operations.
- **Extreme Cutting Power:** Highly effective at cutting through heavy-wall drill collars, complex multi-string completions, and thick cement sheaths where standard pipe cutters are ineffective.
- **Tension and Compression Neutral:** Operates reliably regardless of whether the stuck pipe is in tension, compression, or a neutral state.

Applications

- **Pipe Recovery and Fishing:** Severing stuck drill pipe, coiled tubing, or completion tubulars to facilitate retrieval.
- **Plug and Abandonment (P&A):** Efficiently cutting multiple casing strings to allow for the placement of environmental cement plugs.
- **Slotting and Window Preparation:** Creating precise entry points or circumferential slots for side-tracking or recompletion operations.



Tool Sizes

Tailor-made solutions based on customer application