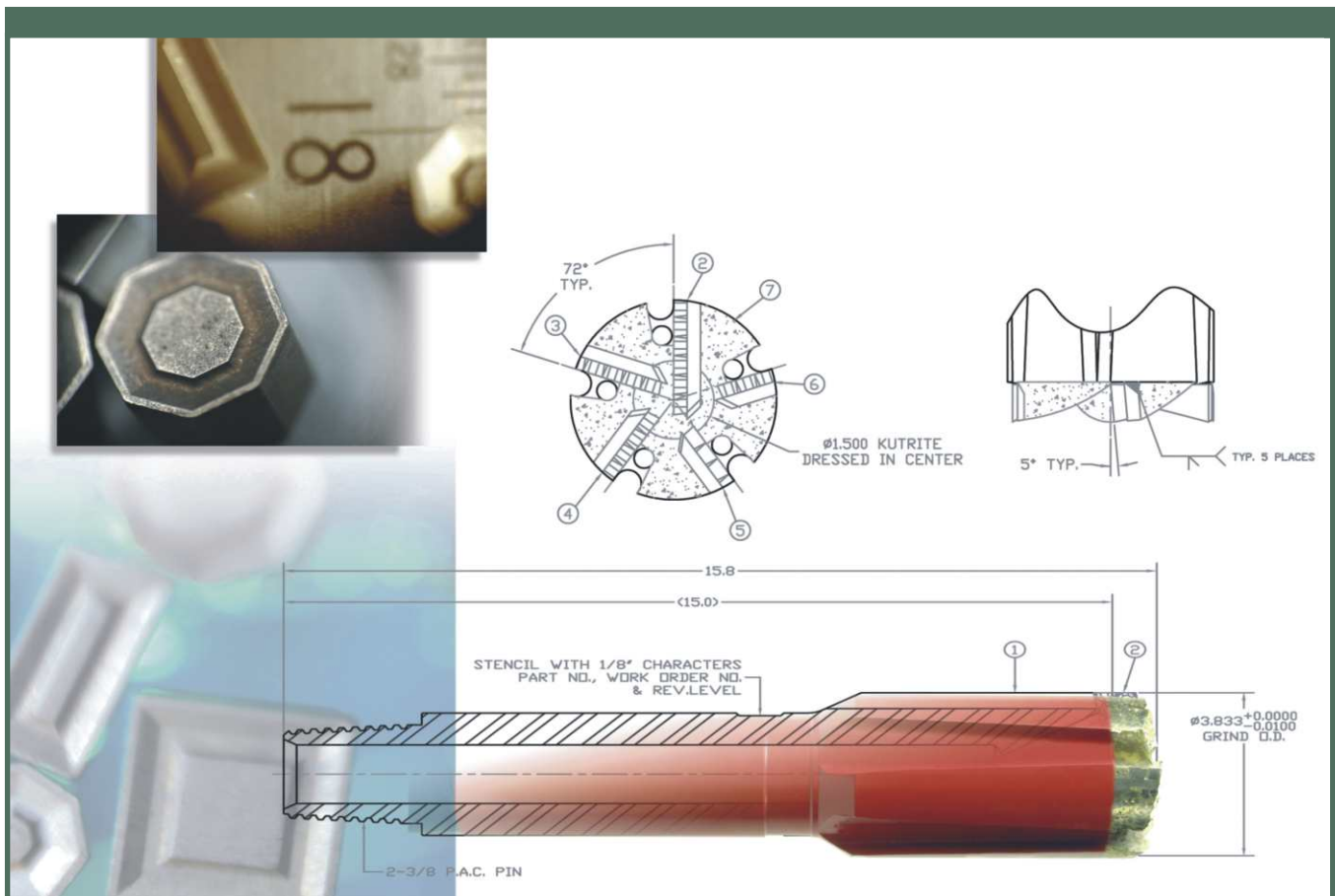




Weatherford®

MillSmartSM Technology

Featuring CustomCut[™] inserts—because each job is different



Simply ProductiveSM

Weatherford's MillSmartSM Milling Technology— An Engineered Approach to Milling

Mill 1) to grind up or pulverize; 2) a fishing tool or shoe (junk mill) with diamond or tungsten-carbide cutting edges used to grind away a fish such as stuck tools or pipe in a well. A mill can also be used a) to dress the top of a fish to be caught by another fishing tool, b) to ream out collapsed casing, c) to ream tubulars with scale, d) to remove a section of casing for sidetracking or deviating a well, or e) to remove cement plugs.

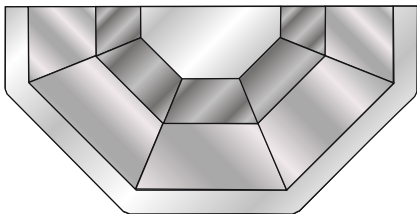
-- Excerpt from the *Dictionary of Petroleum Exploration, Drilling & Production*
Norman J. Hyne, PH.D.

Developed by the world's most experienced fishing services provider.

While the definition of the word is quite straightforward, there's much more to successful milling than people might realize. To plan an effective milling operation, a number of things must be considered.

Weatherford's *MillSmart* milling technology is an engineered approach to milling that encompasses a wide range of proven products, services and technical resources, developed and refined by the world's largest and most experienced provider of milling and fishing services. *MillSmart* technology is based on a tremendous amount of milling data—gathered by Weatherford's worldwide Performance Tracking System and used to create best practices for almost every imaginable application.

MillSmart customized hydraulic modeling software for job planning gives you the most realistic preview possible of a proposed milling operation. Our suite of HydraPro[™], HydraForce[™], Hydra-Cut[™] and HydraBoost[™] software focuses on extended-reach, deepwater, horizontal, high-angle, high-temperature/high-pressure and other high-profile well designs for which pre-job planning is crucial.



New CustomCut[™] carbide inserts are cut out for the job.

Weatherford *CustomCut* milling- or cutting-grade inserts are available in various configurations and geometries. Our advanced mill engineering and Weatherford certified welders ensure a consistent and durable cutting structure on every mill and rotary shoe we produce.

CustomCut inserts feature a proprietary negative rake and chip breaker design that effectively breaks up the cuttings. This provides smaller, thinner and lighter cuttings that are quickly and easily circulated and flowed to the surface for better hole cleaning

efficiency and faster penetration rates.

MillSmart technology and *CustomCut* carbide inserts are a major leap forward in performance, using materials and designs that contribute to a complete system process approach. Focused research and engineering efforts and extensive field experience and case studies have generated a family of special-application carbide milling products—the *CustomCut* 100, 200 and 300 series.

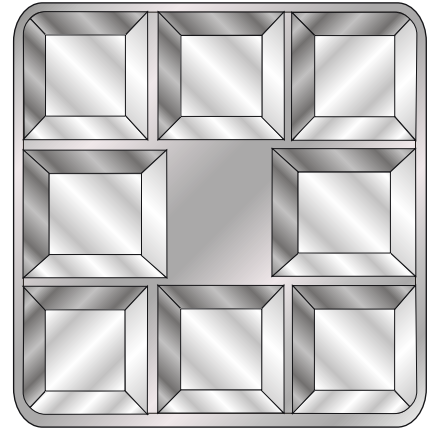
CustomCut inserts can be teamed with our revolutionary new *PowerStroke*[™] milling system, which features a unique reciprocating, highly flexible broach milling design that reduces tool stress and maintains communication between shifted sections to prevent sidetracking. In its first field trial, the *PowerStroke* system remediated two severe doglegs in one well in a single trip.

QuickCut[™] casing exit systems are a cut above.

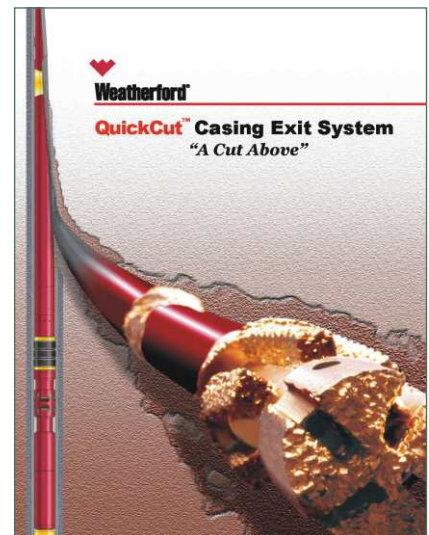
For many years Weatherford has been a world leader in the design, development and installation of casing exit systems. Our *MillSmart* milling technology, with the *QuickCut* one-trip casing exit system, is an essential element in any re-entry program. The *QuickCut* system mills better windows faster while reducing your installation costs and risk exposure.

- **Cuts average milling time in half.** On more than 500 jobs thus far, the *QuickCut* system has reduced average milling times in all casing sizes from 4-1/2 through 13-3/8 in.
- **Cuts total well possession time.** In addition to faster, single-trip milling and drilling, the *QuickCut* system saves time with faster makeup on the rig floor, faster orientation, faster anchoring and faster breakdown when the job is done. On 125 jobs to date in the Middle East and North Africa, our average well possession time from arrival to departure was 27 hours.
- **Increases reliability.** *QuickCut* milling assemblies deliver fast penetration rates while retaining full gauge. With a choice of 2° or 3° concaves and mechanical, hydraulic or integral packer anchors, we can design the optimal exit for short-radius or extended-reach drilling.

Planning plays a major role in successful re-entry projects. We will work with you to develop an optimal well design and drilling/completion program. Our wide-ranging capabilities are invaluable in the planning stages. Casing exit, directional drilling, drilling motor, tubular, pressure control, underbalanced, completion and artificial lift technologies and experience all come into play to provide a well-rounded, multi-discipline approach to your projects.



CustomCut 303m Insert



MillSmartSM Technology

ClearCutTM thru-tubing mills are clearly better.

Weatherford's *ClearCut* series of thru-tubing mills is specially designed to work with Weatherford's line of high-performance drilling motors to deliver optimal penetration rates and longevity.

ClearCut mills are tailored to the particular speed and torque characteristics of the various Weatherford motor lines and are thoroughly tested to ensure optimal performance in every application. For example, the *ClearCut* MP mill is designed to reduce the milling time of composite bridge plugs while minimizing cutting sizes to ensure efficient removal. The unique design of the MP line is so effective that it enables milling of multiple plugs in a single run.

Weatherford offers you everything it takes to enjoy the advantages of thru-tubing services: not only thru-tubing motors, but thru-tubing packers, screen installations, damaged tubing isolation and selective acid stimulation—plus thru-tubing casing exit systems, whipstocks and thru-tubing fishing systems.

No matter what part of the world you're in, Weatherford's thru-tubing products and services offer economical well intervention by saving the time and expense of having to kill the well and pull the completion.

Work smarter with *MillSmart* technology.

Find out how you can reduce costs and cut big jobs down to size with *MillSmart* technology.



ClearCut Diamond
Crayola Mill



ClearCut Diamond
Window Mill



ClearCut MP
Insert Mill



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