



TAPER MILLING

Taper Mills - Description and Usage

Taper mills are generally used to eliminate restrictions or to mill through "pinched", collapsed casing. They are equipped with a tapered or a short blunt nose, which serves as a guide. The type of restriction dictates the type of mill to be used.

PARVEEN Round Nose Taper Mill: Designed for the Toughest Taper Milling Jobs

PARVEEN Round Nose Taper Mill features a blunt-nose design that makes it useful in those taper milling applications where the going is so rough that mills with a longer taper might break. It generates considerably less torque than a conventional taper mill because of its shorter taper section. Because of the low-torque feature, the Mill can be run with more weight, when required, for operations such as milling plate or solid junk in deepening operations.

PARVEEN Taper Mill: Perfect for milling Through Restrictions

PARVEEN Taper Mill was designed for milling through restrictions. The spiral blades and the pointed nose, dressed with Tungsten Carbide make it ideal for reaming out collapsed casing and liners, cleaning up permanent whipstock windows, milling through jagged or split guide shoes and enlarging restrictions through retainers and adapters.

General Guidelines for Using Taper Mills

- Taper milling table speeds are governed by torque encountered. To overcome torque problems, speeds should not exceed 75 RPM
- Never start rotating a taper mill with it resting on the fish. Enter the fish with a rotary speed of 75 RPM or less.
- Use less weight when running a taper mill than a junk mill or pilot mill. After you have entered the fish, increase the tool weight slowly to 1,000 - 2,000 pounds. Watch for any torque increase.

How to Clean Up Whipstock Windows Using a Taper Mill

- 1) Use a Taper Mill of the same diameter as the largest mill used to mill the window (or slightly larger than the bit to be used).
- 2) Run the Taper Mill into the hole to within five feet of the top of the window.
- 3) Start the rotary table and rotate at approximately 40 RPM down the face of the whipstock.
- 4) Keep the weight under 1,000 lbs. Excessive weight May cause the Taper Mill to slip out of the window prematurely.
- 5) Rotate slowly, with light weight, down the full length of the face of the whipstock. Do not attempt to make hole using this tool.
- 6) To clean up all rough edges, repeat the above procedure several times until the mill runs smoothly for the full length of the whipstock.

Procedures for Reaming Out Collapsed Casing

- 1) Determine the approximate diameter using an impression block or bit that will pass through the collapsed interval. Do not use a Taper Mill if the collapsed interval has passed center. (See Paragraph 6 below)
- 2) Use a Taper Mill about 1/4" larger than the minimum I.D. of the collapsed section and mill out the collapsed interval by stages. In other words, if the collapse is great, use several different sizes of mills to bring the I.D. of the pipe to full gauge. This will minimize any tendency to sidetrack.
- 3) A String Taper Mill can be used if there is any danger that sidetracking may occur. The length and diameter of the String Taper Mill will be governed by the casing conditions. If used, the action of this tool is purely reaming.
- 4) Begin milling at a table speed of about 50 RPM.
- 5) The milling weight is governed by the torque encountered. In most cases, milling weights of around 2,000 - 3,000 pounds are used.



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- 6) Where the pipe is greatly collapsed, the lower portion of the collapsed interval may act as, a whipstock. The Taper Mill, in this case, may cut through the upper portion of the collapsed interval and be deflected into the formation by the lower section of the damaged casing. Use very light weight with a table speed of about 125 RPM to mill out the collapsed portion and enter the undamaged casing below. Paragraph 3 above suggests another approach if there is an opening large enough to get tubing or "macaroni" lead through.

Use a Taper Mill to Ream Out Guide Shoes

In some cases, the bull plug on the bottom of liners or casing may be jagged or split to such a degree that the string hangs up coming out of the hole. This condition can be remedied, generally, by reaming through the guide shoe with a Taper Mill. Use the procedure recommended for enlarging restrictions through retainers and adapters.