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As part of Precision Twist Drill's Technical Support Program to our distributors and end users, the Technical Support Division presents many seminars and training programs.

The discussion of drilling basics is one area that consistently gets positive response in our seminars. This topic awakens our customers to many things that they should be doing and perhaps are not doing, or reinforces what they are doing right.

A DRILL IS ONLY NEW ONCE-

This seems like a very simple statement, but it is very true. What we are basically saying is that a drill is used "brand new" one time. Subsequently, it is used in a reconditioned state the rest of its life.

GOOD TOOL HABITS CAN PROLONG DRILL LIFE-

The better able you are to monitor your drilling performance, remove the drill from its operation and regrind it before excessive wear occurs, the longer the drill will last and the lower your cost per hole will be.

WEB DRILLS SHOULD BE THINNED TO 12% OF THE DRILL DIAMETER-

This enables the tool to drill more freely and easily, reduces drill thrust, and lessens the chance of drills splitting up in the web.

WEB DRILLS WITH SPLIT POINTS ARE WELL SUITED FOR PORTABLE DRILLING-

Split point drills start at the point of contact; that is, they reduce walking or skidding on the drill surface. Additionally, drills with split points require less thrust for penetration. Split point drills help breakup chips. This prevents the chip from curling around drill spindles or motors, which can potentially cause damage or injury. Finally, drills with split points are excellent for drilling on curved surfaces because of the reduced walking nature of the point geometry.

EQUAL CUTTING LIPS ON DRILLS IS THE MAJOR FACTOR IN HOLE SIZE-

Drills should be repointed so that each side of the point angle (cutting lips) is as equal to the other side as possible. The closer the cutting lips are to being equal to each other, the closer the drill will bore to its diameter specification.

DOUBLE ANGLE POINTS REDUCE EXIT BURR ON SOFT MATERIALS-

When drilling soft materials, the nature of drilling is such that upon the drill exiting the material, it can create a burr or deformation of the hole. In order to reduce this exit burr and eliminate this deformation, a double angle point is recommended. The original two-thirds of the cutting lip should be left in tact and the outer corners of the drill should be angled at approximately 45 degrees per side (90 degrees included). This double angling allows the drill to shave its way as it exits the hole thus reducing burr and hole deformation.

DOUBLE ANGLE POINTS ALSO REDUCE CORNER WEAR ON ABRASIVE MATERIALS-

Drills wear from the outside in, and the double angle point helps reduce premature wear due to the abrasive nature of some materials. Double angle points also reduce outer corner chipping when drilling through cross holes. When drilling through material that has a cross hole, the drill has a tendency of hanging up as it passes through this area. This occurrence is referred to as "lock up" and it causes the outer corners to chip. A double angle point reduces this problem. Double angle points also reduce outer corner chipping when exiting uneven surfaces. With an uneven surface, one part of the drill exits before the other. As a result, the drill has a tendency of "hanging up" or "locking up". Double angle points help reduce or eliminate this problem.

REMEMBER...

These simple good habits will enable our customers to increase productivity, reduce hole cost, generate longer drill life, and prepare them for high performance/high production drilling which will become more common in the future.

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