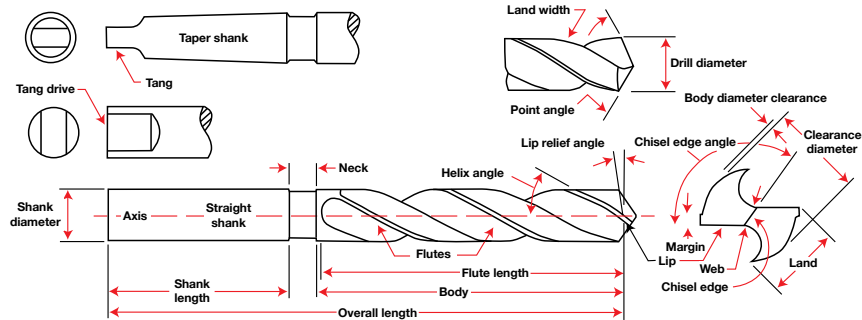


Taper Shank – in accordance with American National Standard B5.10. Machine Tapers



Axis: The imaginary straight line forming the longitudinal center line of the drill.

Back Taper: A slight decrease in diameter from front to back of the drill body.

Body: The portion of the drill extending from the shank or neck to the outer corners of the cutting lips.

Body Diameter Clearance: The portion of the land that has been cut away to prevent rubbing against the walls of the hole.

Chip Packing: The failure of chips to pass through the flute during the cutting action. Generally results in tool failure.

Chipping: The breakdown at a cutting lip or margin by loss of fragments broken away during the cutting action.

Chisel Edge: The edge at the end of the web that connects the cutting lips.

Chisel Edge Angle: The angle included between the chisel edge and the cutting lip, as viewed from the end of the drill.

Clearance: The space provided to eliminate undesirable contact between the drill and the work piece.

Clearance Diameter: The diameter over the cut away portion of the drill lands.

Cutting Lips: The cutting edges of a two flute drill, extending from the chisel edge to the periphery. In core drills, the cutting edges extending from the bottom of the chamfer to the periphery.

Drill Diameter: The diameter over the margins of the drill, measured at the point.

Flutes: Helical or straight grooves cut or formed in the body of the drill; these provide cutting lips, permit removal of chips, and allow cutting fluid to reach the cutting lips.

Flute Length: The length from the outer corners of the cutting lips to the extreme back end of the flutes. This includes the sweep of the tool used to generate the flutes. Does not indicate the useable length of the flutes.

Heel: The trailing edge of the land.

Helical Flutes: Flutes which are formed in a helical path around the axis.

Helix Angle: The angle made by the leading edge of the land with a plane containing the axis of the drill.

Land: The peripheral portion of the body between adjacent flutes.

Land Clearance: The preferred term is body diameter clearance; see above.

Land Width: The distance between the leading edge and the heel of the land, measured at a right angle to the leading edge.

Length of Twist: The preferred term is flute length; see left.

Lip Relief: The axial relief angle at the outer corner of the lip. It is measured by projection into a plane tangent to the periphery at the outer corner of the lip.

Margin: The cylindrical portion of the land which is not cut away to provide clearance.

Overall Length (OAL): The length from the extreme end of the shank to the outer corners of the cutting lips. Does not include the conical shank end often used on straight shank drills. Does not include the conical cutting point used on both straight and taper shank drills. In core drills, the overall length of drills with an external center on the cutting end is the same as for two flute drills. Drills with an internal center on the cutting end are measured from the extreme ends of the tool.

Point: The cutting end of a drill, made up of the ends of the lands and the web. Resembles a cone, but departs from a true cone to furnish clearance behind the cutting lips.

Point Angle: The angle included between the cutting lips, projected upon a plane parallel to the drill axis and the two cutting lips.

Relief: The result of the removal of tool material behind or adjacent to the cutting lip and leading edge of the land to provide clearance and prevent rubbing (also known as heel drag).

Shank: The part of the drill by which it is held and driven.

Straight Flutes: Flutes which form lands lying in an axial plane.

Straight Shank Drills: Drills with cylindrical shanks which may be the same or different diameter than the body of the drill. The shank may be made with or without driving flats, tang, grooves or threads.

Tang: The flattened end of a taper shank, intended to fit into a driving slot in a socket.

Tang Drive: Two opposite parallel driving flats on the extreme end of a straight shank.

Taper Shank Drills: Drills with conical shanks suitable for direct fitting into tapered holes in machine spindles, driving sleeves or sockets. Tapered shanks generally have a tang.

Twist Drill: A rotary end cutting tool with one or more cutting lips, having one or more helical or straight flutes for the passage of chips and the admission of a cutting fluid.

Web: The central portion of the body that joins the lands. The extreme end of the web forms the chisel edge on a two flute drill.

Web Thickness: The thickness of the web at the point, unless another specific location is indicated.