



Technical Tip #151 – Types of Threading Infeed Angles

0° Radial Angle: Cuts on both sides of the thread form, which puts all the cutting edge in the cut and protects the edge from chipping. The disadvantage is the tool develops a channel cut that may be difficult to handle. Tip chipping occurs when cutting high tensile materials.

10° Modified Flank Angle: Cuts using both sides of the thread form, but more on the leading edge than the trailing edge. The tool is protected from chipping similar to the 0° infeed angle. A channel-type chip can develop, but uneven chip thickness helps remove the chip in a way similar to the flank infeed below.

10° Flank Angle: Cuts with the leading edge of the threading tool, which gives the chip a definite flow out of the thread form area. This flow reduces the burr problem on the trailing edge of the tool. To avoid bad surface finish, chipping, or excessive flank wear due to rubbing of the trail edge, the infeed angle should be 3° to 5° smaller than the angle of the thread. This is a type of modified flank thread. The disadvantage is the trailing edge of the insert may drag or rub, and tends to chip. Torn threads or poor surface finish can result when cutting soft, gummy materials like low carbon steels, aluminum, and stainless steels.

Alternating Flank Angle: The alternating infeed increases tool life because both cutting edges are used equally. Please note that some machine tools may require special programming techniques to achieve this method of infeed. The main disadvantage is this type of infeed is difficult to cut on conventional machinery.