

CUTTING TOOL DESIGN



Cutting Tool Design Introduction

- Setup Rigidity
- Cutting Tool Strength
- Weak Links
- Force Limitations
- Speed, Feed, & Size
- Related Force Components
 - Feed Force
 - Radial Force
 - Tangential Force
- Chip Disposal
- Chatter
- Rudimentary Cutting Tool Angles
 - Face/Rake Face
 - Flank
 - Rake Angle
 - Clearance/Relief Angle

Single-Point Cutting Tool Design

- Tool Signature
 - Back-Rake Angle
 - Side-Rake Angle
 - End-Relief Angle
 - Side-Relief Angle
 - End-Cutting-Edge Angle
 - Lead Angle
 - Nose Radius
 - Chipbreaker Design
- Toolholder Design

Multi-Point Cutting Tool Design

- Linear Travel Multi-Point Cutting Tools
- Rotary Travel Multi-Point Cutting Tools
 - The Broach
 - Face Angle
 - Back-Off Angle
 - Face-Angle Radius

- Back-Of-Tooth Radius
- Chip Space
- Land
- Tooth Depth
- Pitch
- The Twist Drill
 - The Shank
 - The Flutes
 - The Drill Point
 - Cutting Lips
 - Chisel Edge
 - Drill Web
- The Face Mill
 - Climb Milling Mode
 - Conventional Milling Mode
 - Effective Diameter
 - Cutter Hand
 - Cutter Geometry
 - Positive Radial Rake
 - Negative Radial Rake
 - Positive Axial Rake
 - Negative Axial Rake
 - Negative Radial & Axial Rake
 - Positive Radial & Axial Rake
 - Negative Radial & Positive Axial Rake
- Insert Pocket Design
- Cutter Pitch