Drilling

CUTTING EDGES

LANDS

118° (15N)

B

C

D

THREE VIEWS OF A TWIST DRILL
Three basic parts

- Body
- Shank
- Point
Drill Flutes

- Provide correct rake for cutting edge
- Make chip curl tightly within its self
- Gives a path for chip to escape the drill hole
- Provide path for lubricant to make it to hole
The point

- Dead center (Does not cut. Extrudes metal)
- Point
- Cutting edge
- Heel
- Margin
The shank

- Morse Taper- Held by friction
- Straight – held by chuck or collect
- Large drills – “Silver and Demming”
Point angles

- 135 split point
- 118 standard point
Drills taper

• The web is thinner at the point than the shank
• The diameter is larger at the point than the shank
Drilling troubles

- Cutting lips at different angles
- Cutting lip not centered 72
Lip clearance

12-15 degrees

- 12 for harder materials
- 15 for softer materials
Incorrect form
Too much speed
Semi Precision Drilling

- Scribe lines
- Center punch
- Fixture
- Combo drill and counter sink
- Drill and chamfer edge