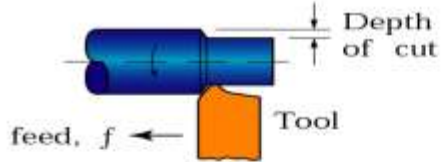


LATHE OPERATIONS

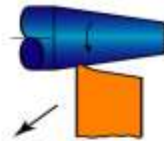
- **Turning:** to remove material from the outside diameter of a workpiece to obtain a finished surface.
- **Facing:** to produce a flat surface at the end of the workpiece or for making face grooves.
- **Boring:** to enlarge a hole or cylindrical cavity made by a previous process or to produce circular internal grooves.
- **Drilling:** to produce a hole on the work piece.
- **Reaming:** to finishing the drilled hole.
- **Threading:** to produce external or internal threads on the work piece.
- **Knurling:** to produce a regularly shaped roughness on the workpiece.

LATHE OPERATIONS

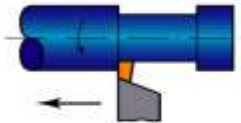
(a) Straight turning



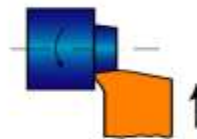
(b) Taper turning



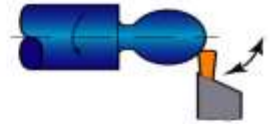
(d) Turning and external grooving



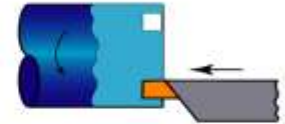
(e) Facing



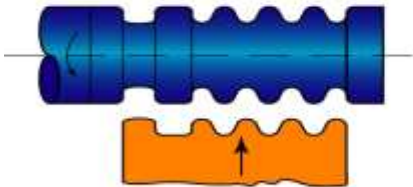
(c) Profiling



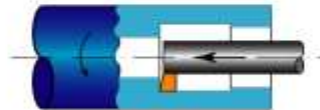
(f) Face grooving



(g) Cutting with a form tool



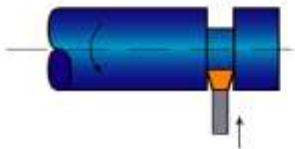
(h) Boring and internal grooving



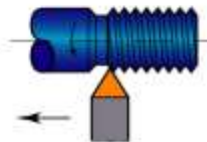
(i) Drilling



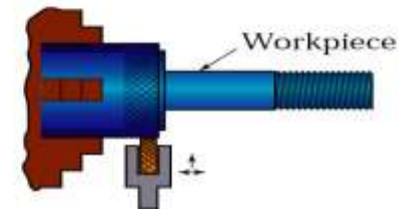
(j) Cutting off



(k) Threading



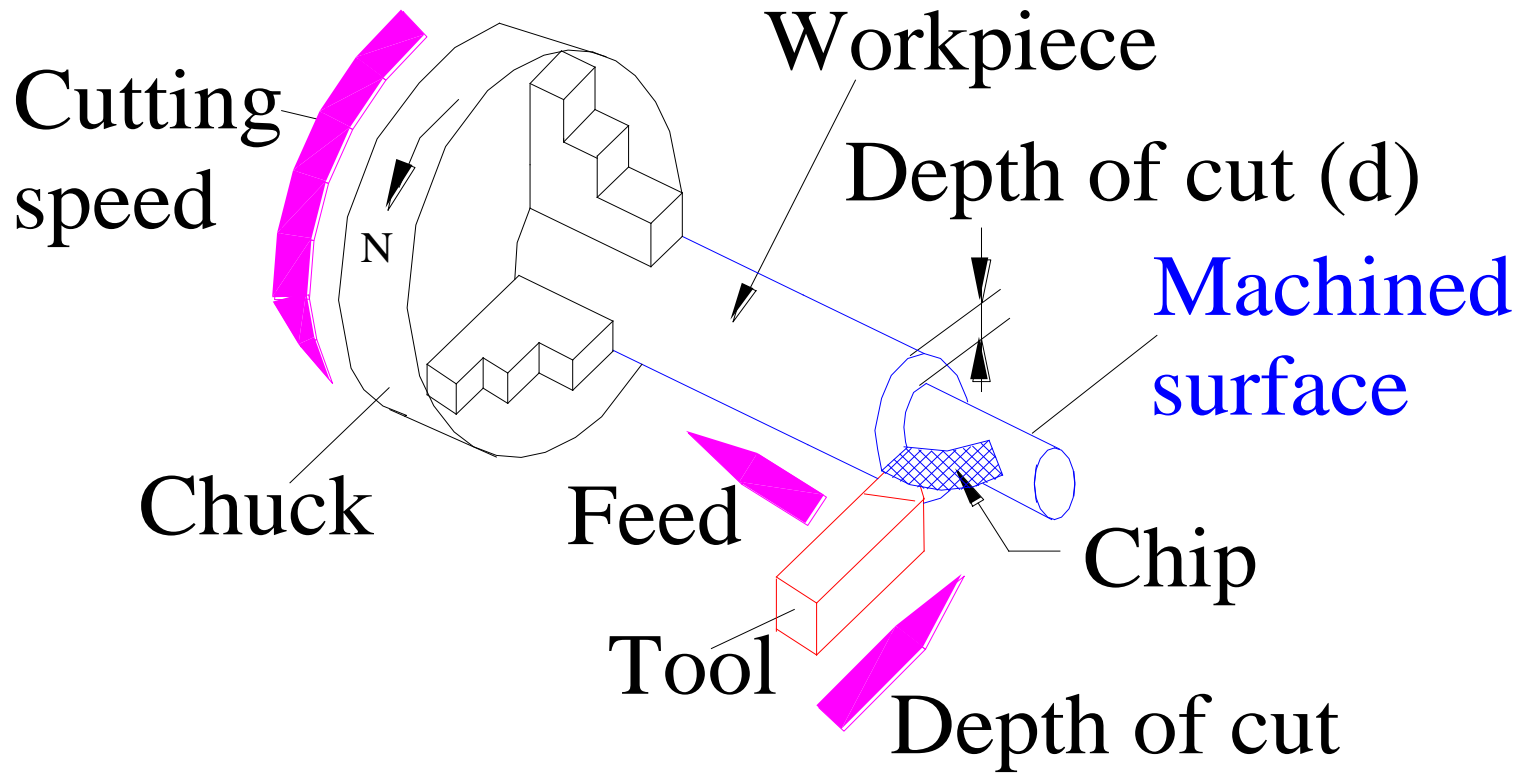
(l) Knurling



Operations on Lathe ..

Turning ..

Cylindrical job

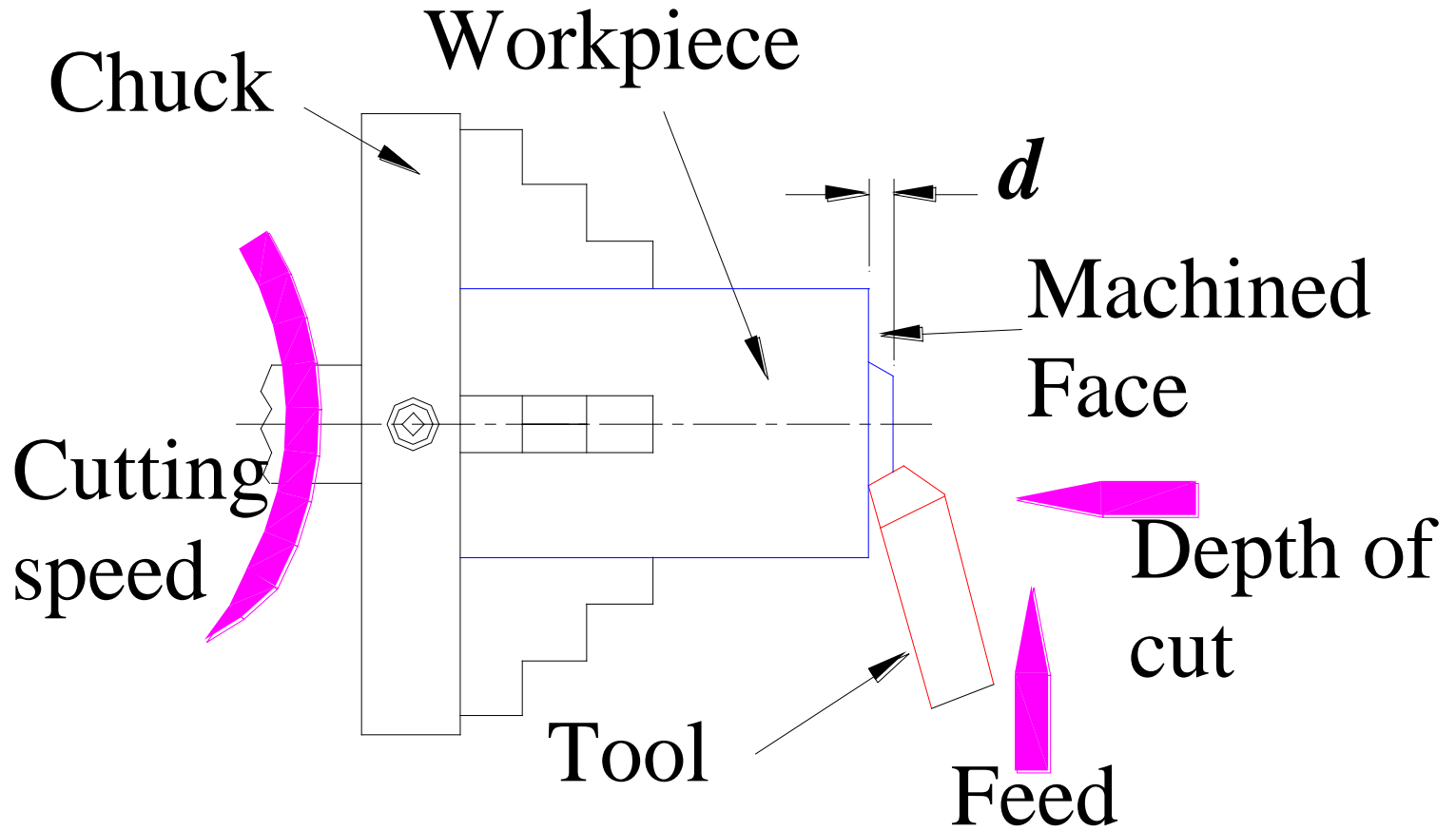


Turning ..

- Excess Material is removed to reduce Diameter
- Cutting Tool: *Turning Tool*
- Work is held in either chuck or between centers.
- Longitudinal feed is given to the tool either by hand or power.

Facing

Flat Surface/Reduce length



Facing ..

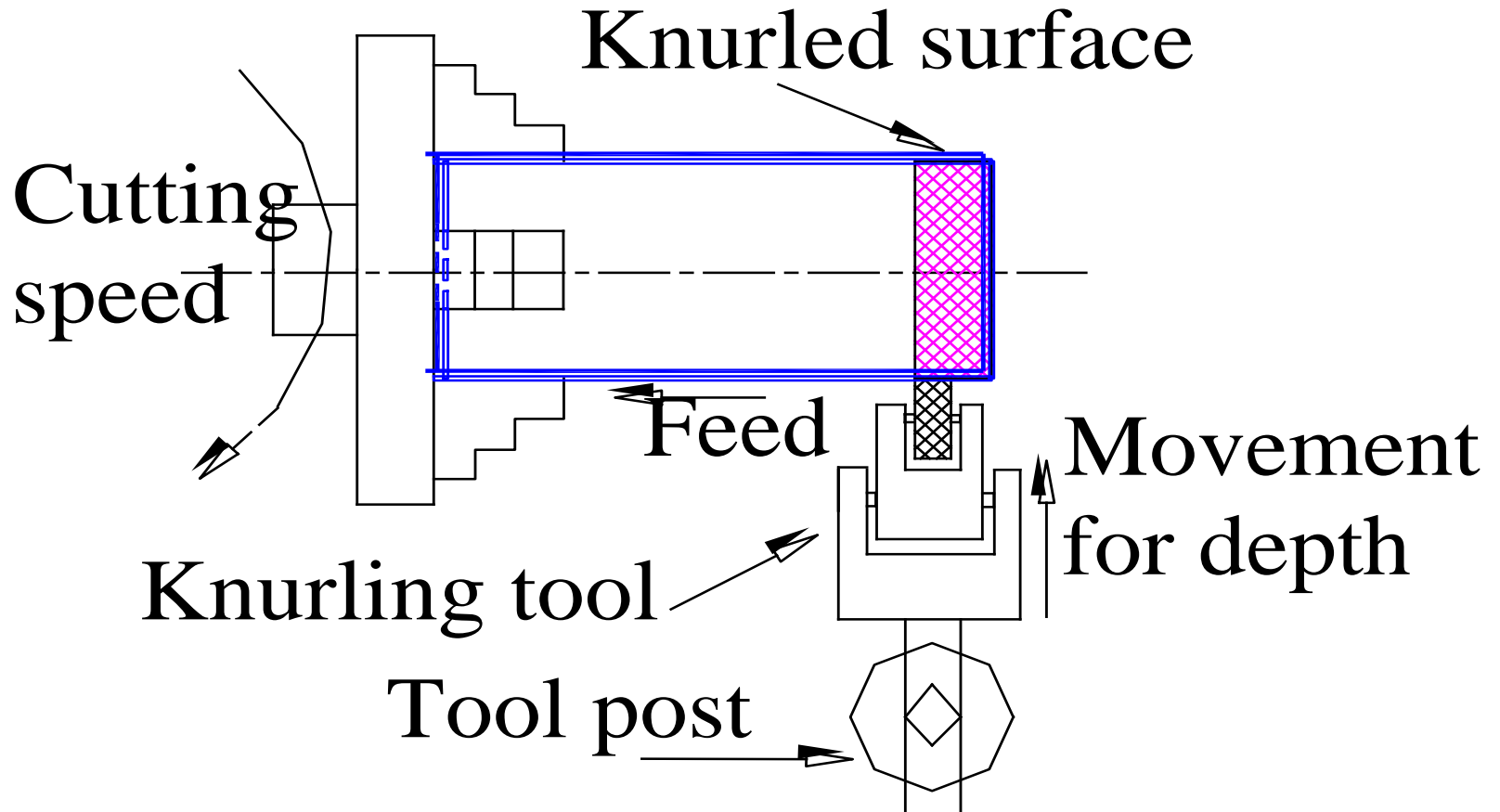
- machine end of job \Rightarrow Flat surface or to Reduce Length of Job
- Turning Tool
- **Feed**: in direction perpendicular to workpiece axis
 - Length of Tool Travel = radius of workpiece
- **Depth of Cut**: in direction parallel to workpiece axis

Knurling

- Produce rough textured surface
 - For **Decorative** and/or **Functional** Purpose
- *Knurling Tool*
- ❑ *A Forming Process*
- ❑ $MRR \sim 0$

Operations on Lathe ..

Knurling

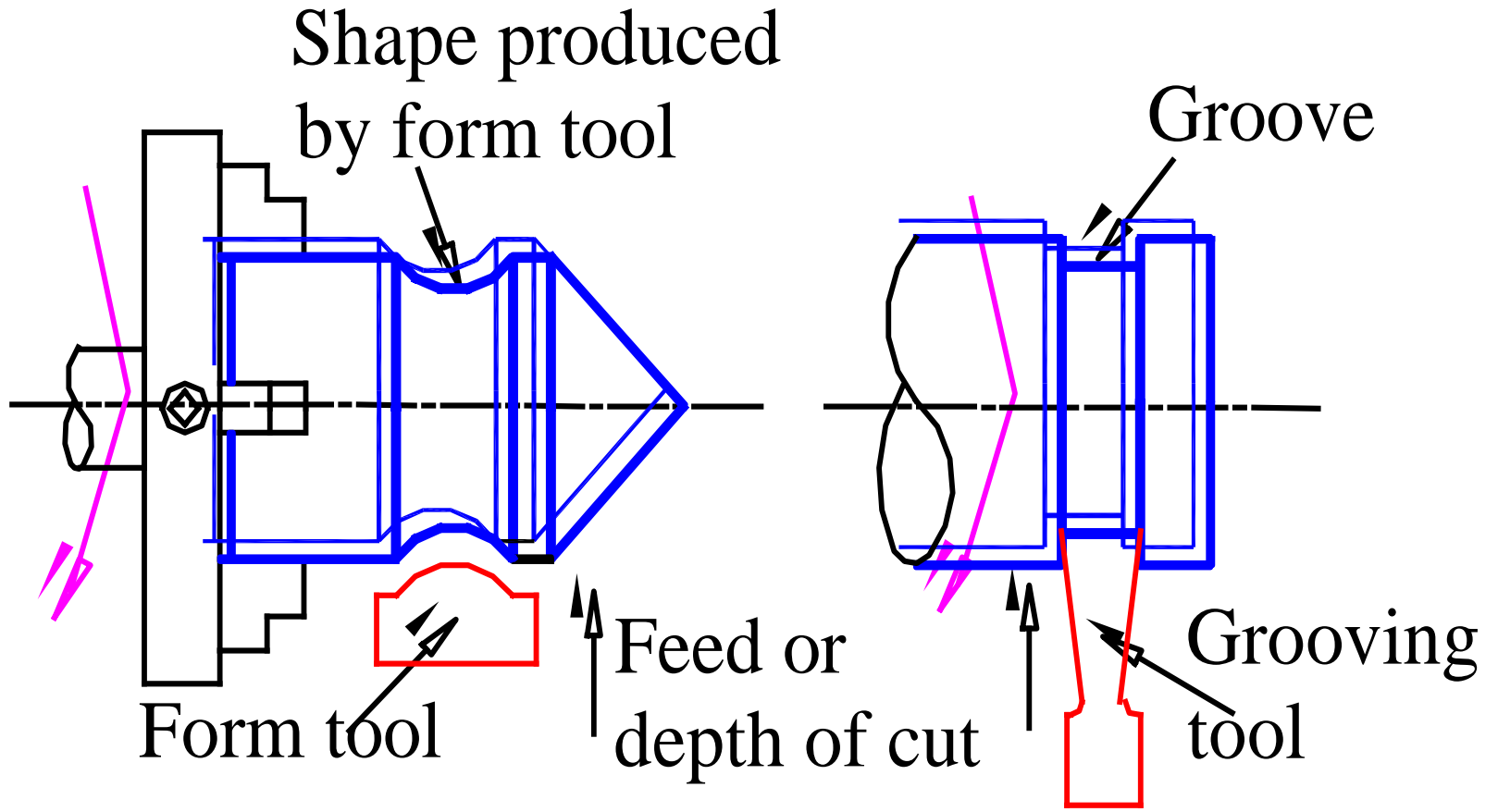


Grooving

- ▶ Produces a Groove on workpiece
- ▶ Shape of tool \Rightarrow shape of groove
- ▶ Carried out using Grooving Tool \Rightarrow A form tool
- ▶ Also called Form Turning

Operations on Lathe..

Grooving..



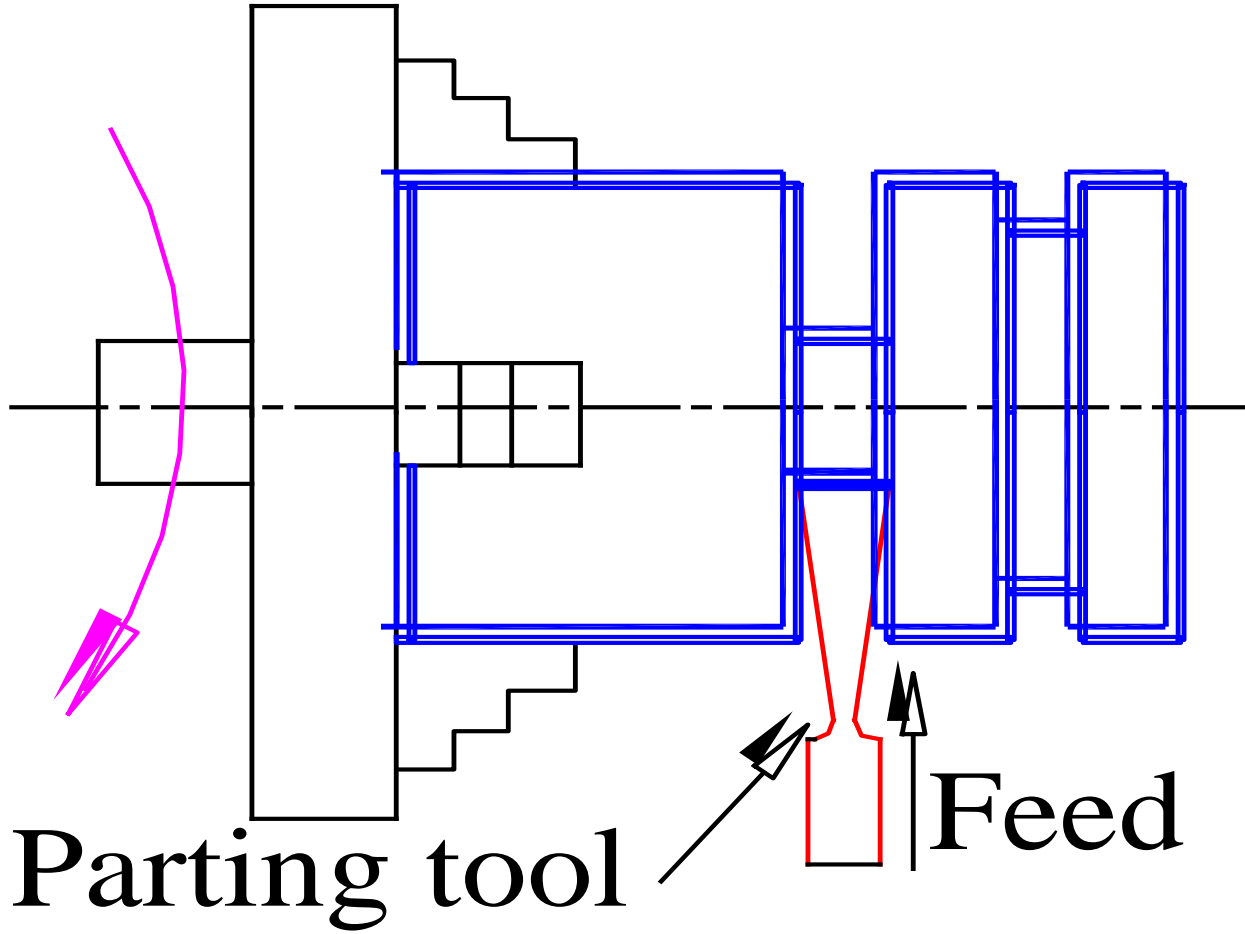
Operations on Lathe ..

Parting

- Cutting workpiece into **Two**
- Similar to grooving
- *Parting Tool*
- Tool rides over – at slow feed
- Coolant use

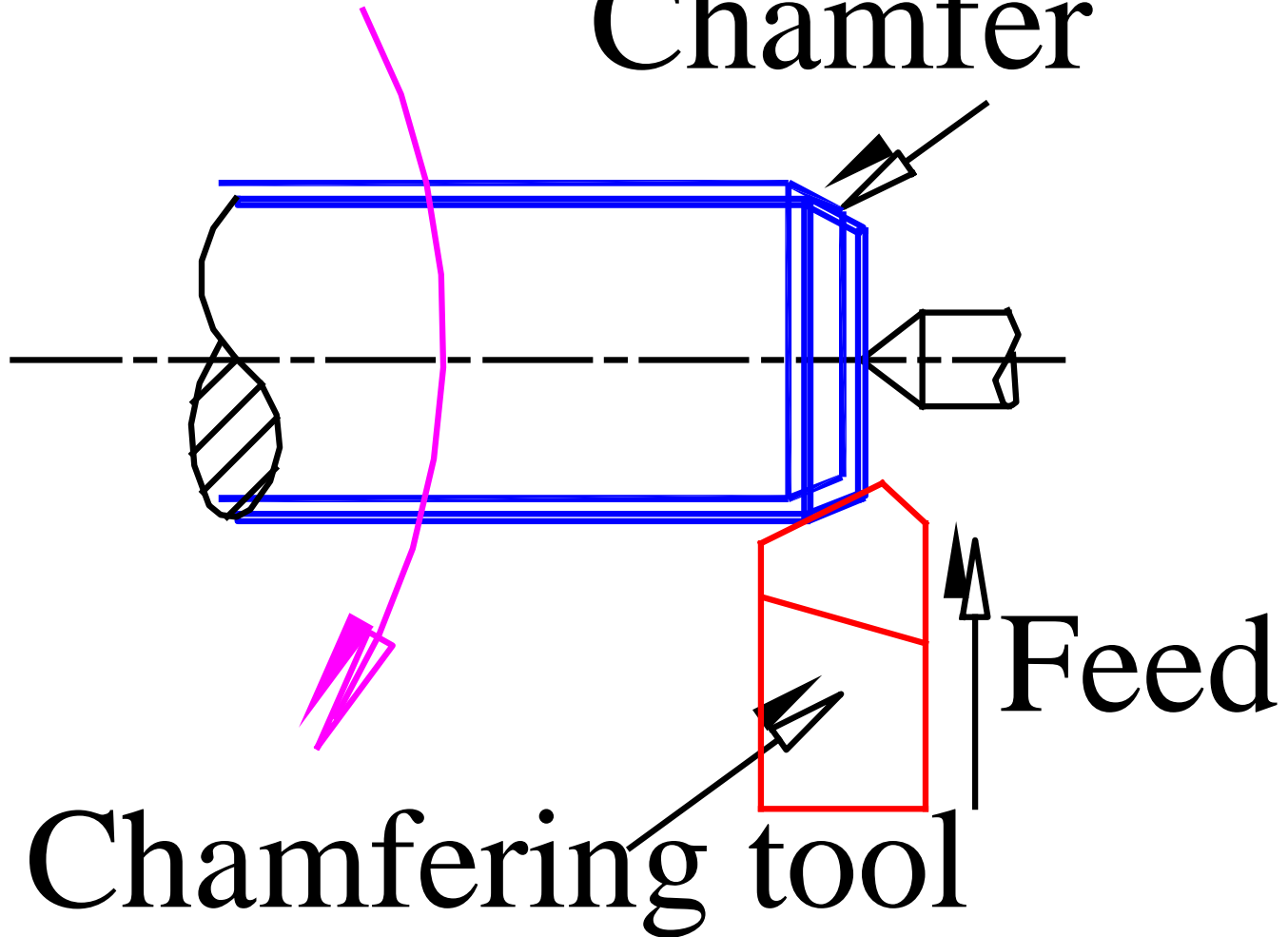
Operations on Lathe ..

Parting ..



Chamfering

Chamfer



Chamfering

- ★ Beveling sharp machined edges
- ★ Similar to form turning
- ★ Chamfering tool – 45°
- ★ To
 - Avoid Sharp Edges
 - Make Assembly Easier
 - Improve Aesthetics

Operations on Lathe ..

Drilling

Drill – cutting tool – held in TS – feed from TS

