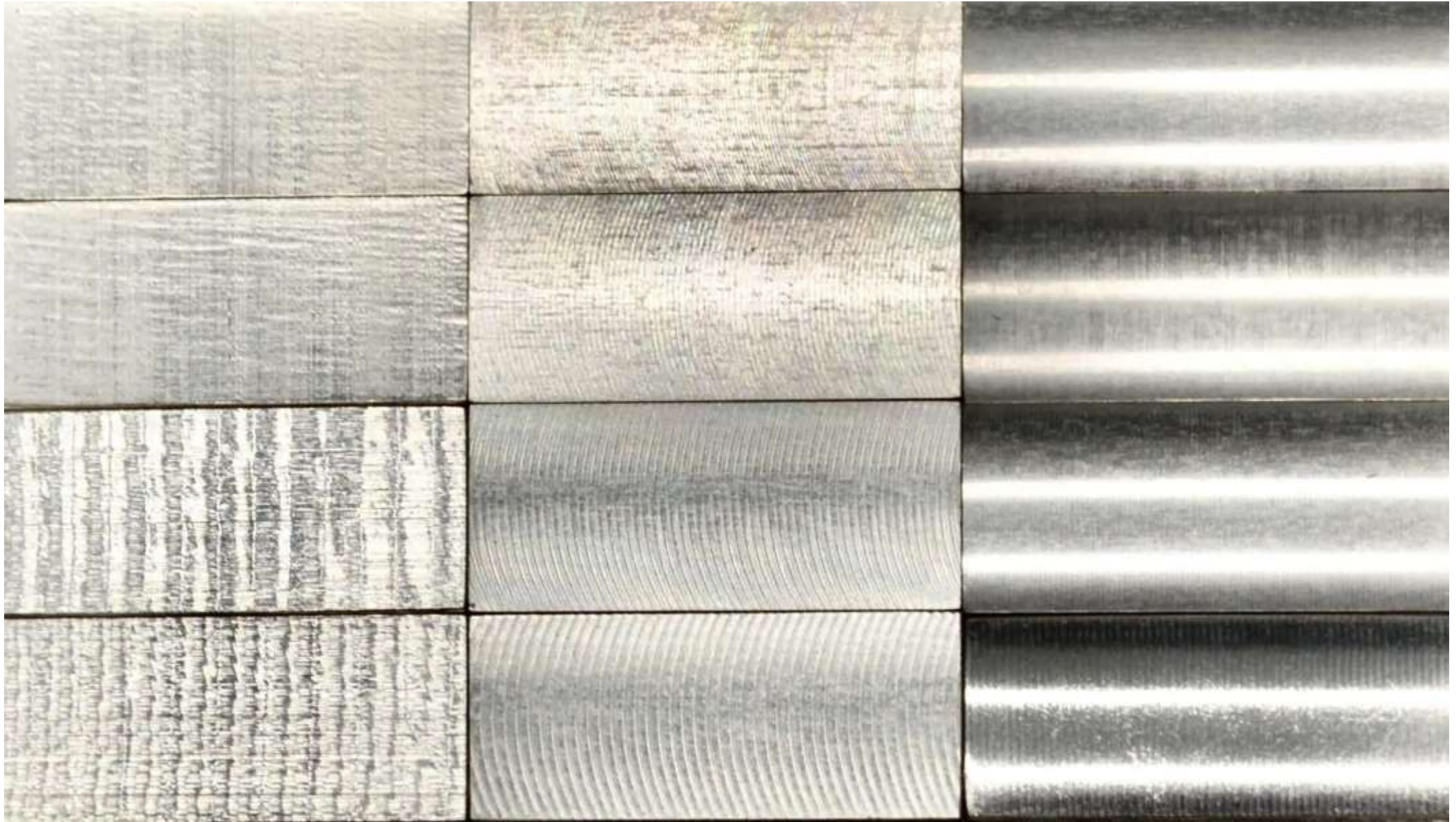




Chapter 5

(Metal Finishing Process)

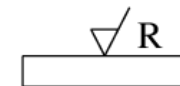
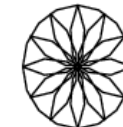
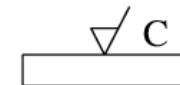
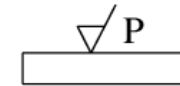
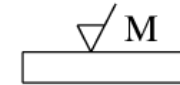
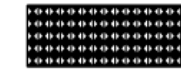
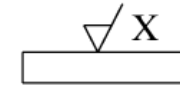
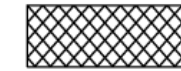
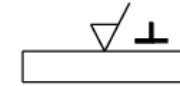
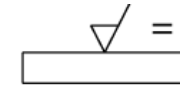
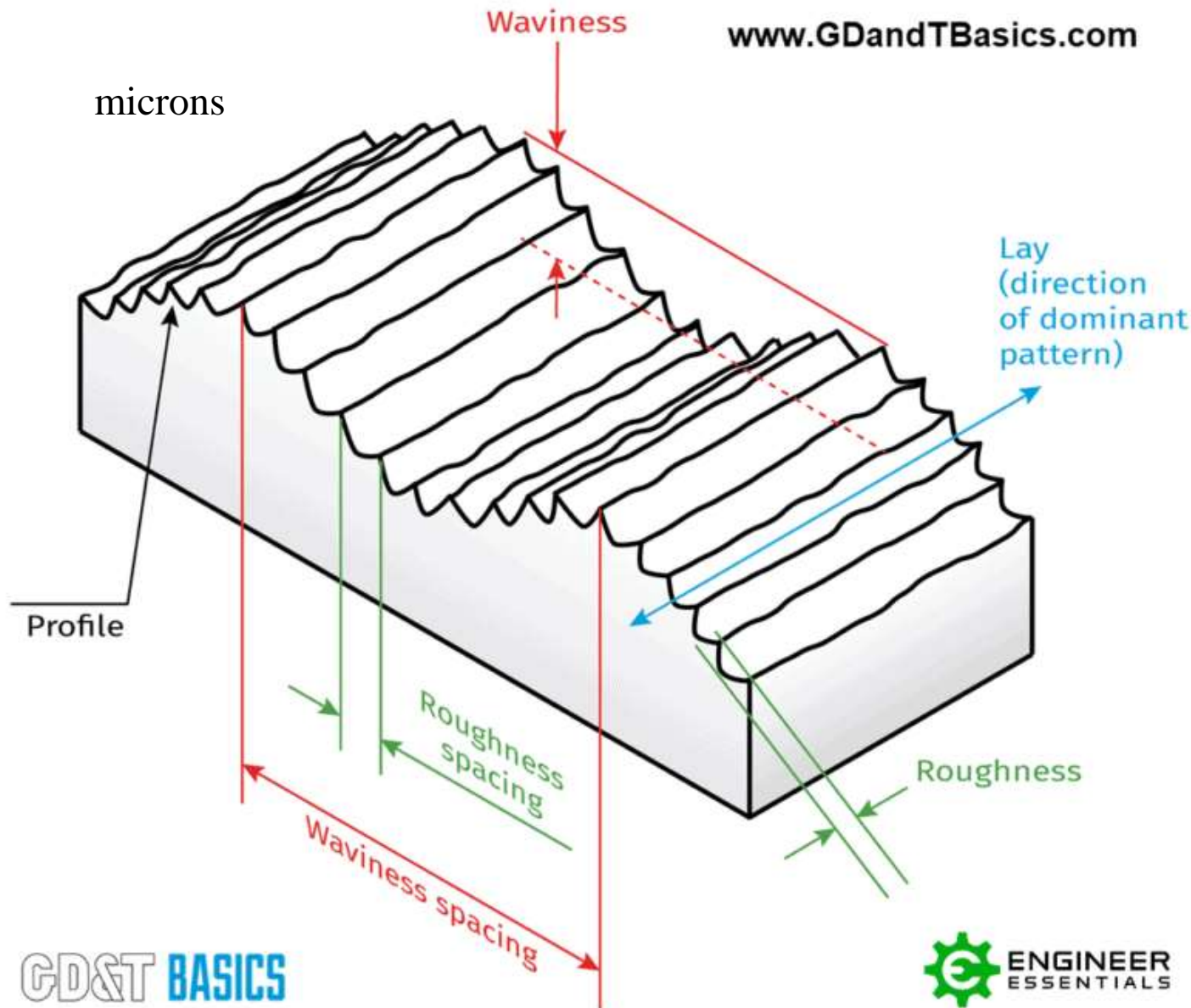
Introduction



Purpose of Finishing Surfaces

- i) To improve surface appearance.
- ii) To improve dimensional accuracy.
- iii) To provide clean finish to the surface so they can be coated with other metals.
- iv) To improve functional properties such as wear resistance, fatigue strength, corrosion resistance etc.

Surface Roughness-Definition and units



Surface finishing Process



Surface finishing Process

```
graph TD; A[Surface finishing Process] --- B[Honing]; A --- C[Lapping]; A --- D[Polishing]; A --- E[Buffing]; A --- F[Burnishing]; B --- G[Used for internal surface such as drilled or bored holes, or external honing as journal of shafts]; C --- H[Used to obtain geometrical true surface for better dimensional accuracy]; D --- I[Used to remove scratches, tool marks and similar other irregularities]; E --- J[Performed after polishing to provide a high lustre to the polished surface]; F --- K[Used for getting smooth and shiny surface by contact and rubbing of work-piece against the walls of a hard burnishing tool.];
```

Honing

Used for internal surface such as drilled or bored holes, or external honing as journal of shafts

Lapping

Used to obtain geometrical true surface for better dimensional accuracy

Polishing

Used to remove scratches, tool marks and similar other irregularities

Buffing

Performed after polishing to provide a high lustre to the polished surface

Burnishing

Used for getting smooth and shiny surface by contact and rubbing of work-piece against the walls of a hard burnishing tool.

Surface finishing Process

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graph TD; A[Surface finishing Process] --- B[ ]; B --- C[Honing]; B --- D[Lapping]; B --- E[Polishing]; B --- F[Buffing]; B --- G[Burnishing];
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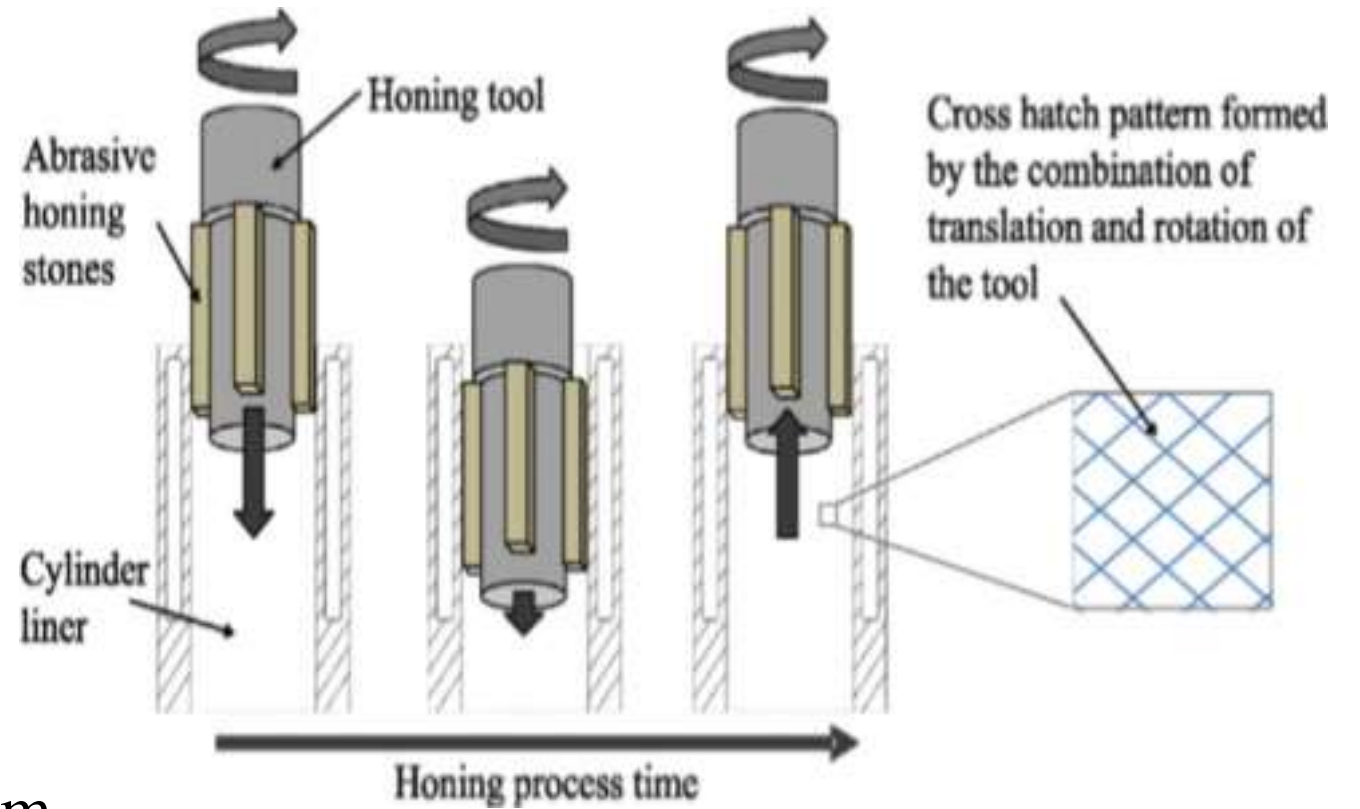
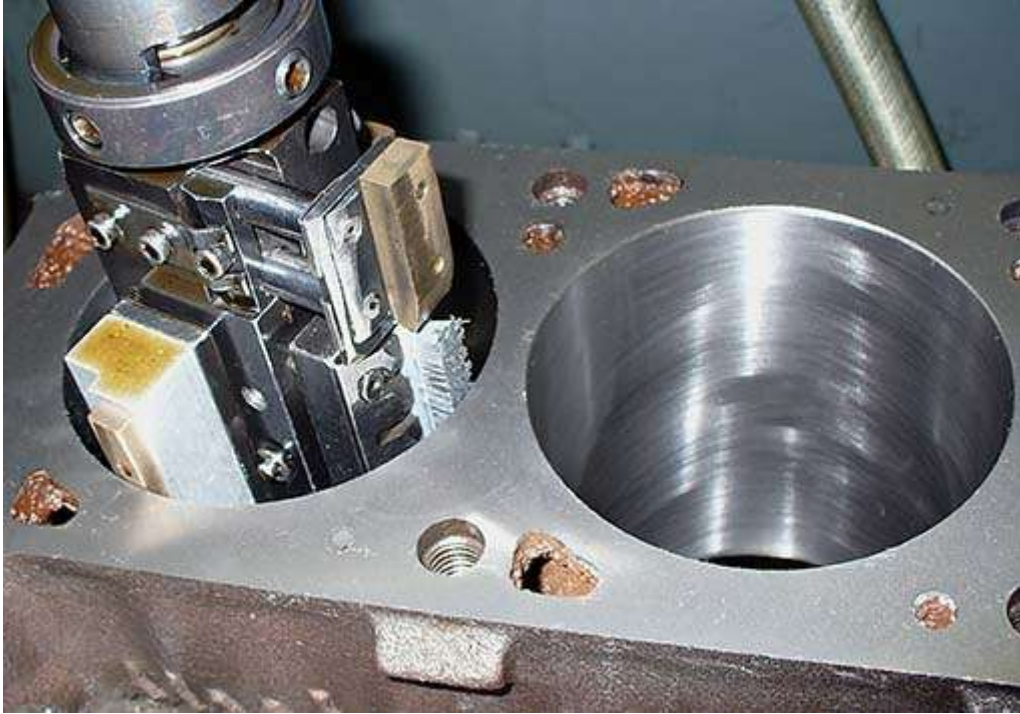
Buffing

Performed after polishing to provide a high lustre to the polished surface

Burnishing

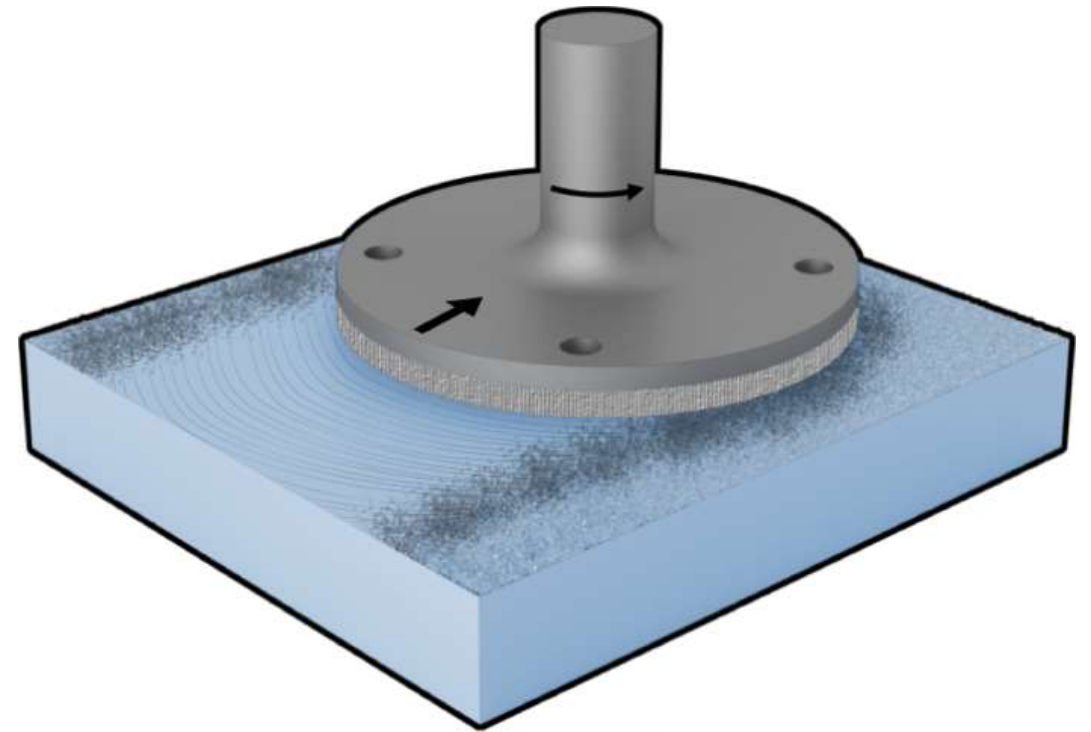
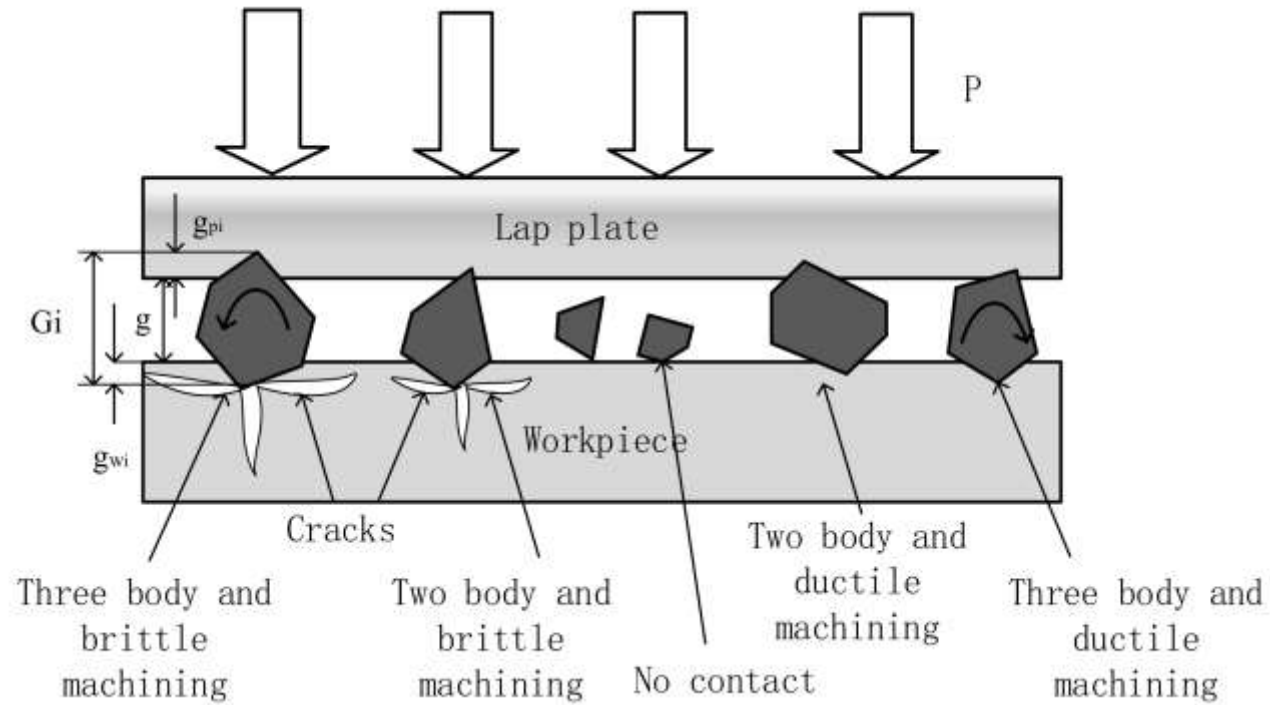
Used for getting smooth and shiny surface by contact and rubbing of work-piece against the walls of a hard burnishing tool.

Honing



Honing material removal rate 0.1-0.25 mm

Lapping



Lap is solid rectangular or circular block of cast iron or bronze

Lapping



Applications: -

Aeronautical

Automotive

Electronics

Marine

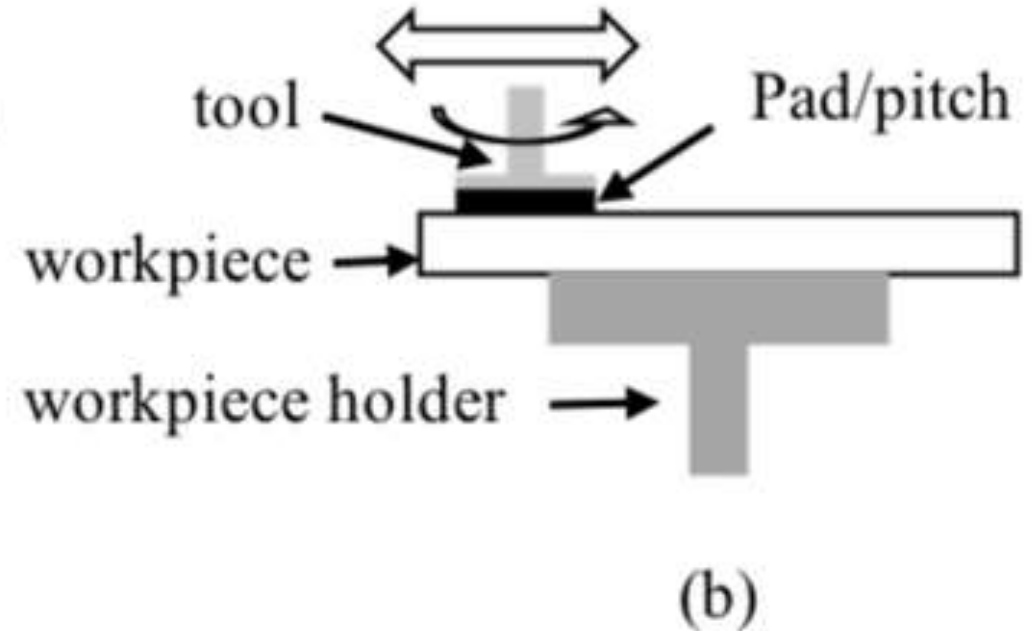
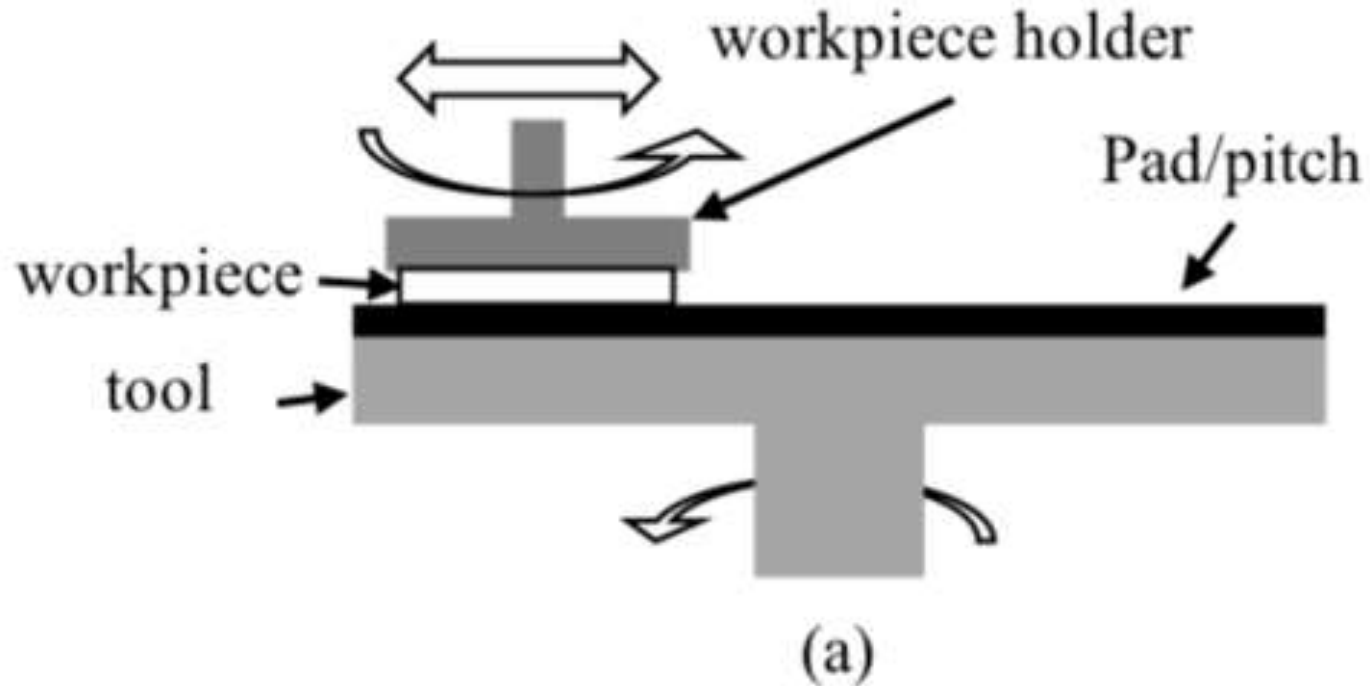
Metallurgical

Optical

Surface Plate

Engine Valve and valve seat

Polishing



To remove scratches, tool marks and irregularities.
It does not control dimensional accuracy.

Buffing

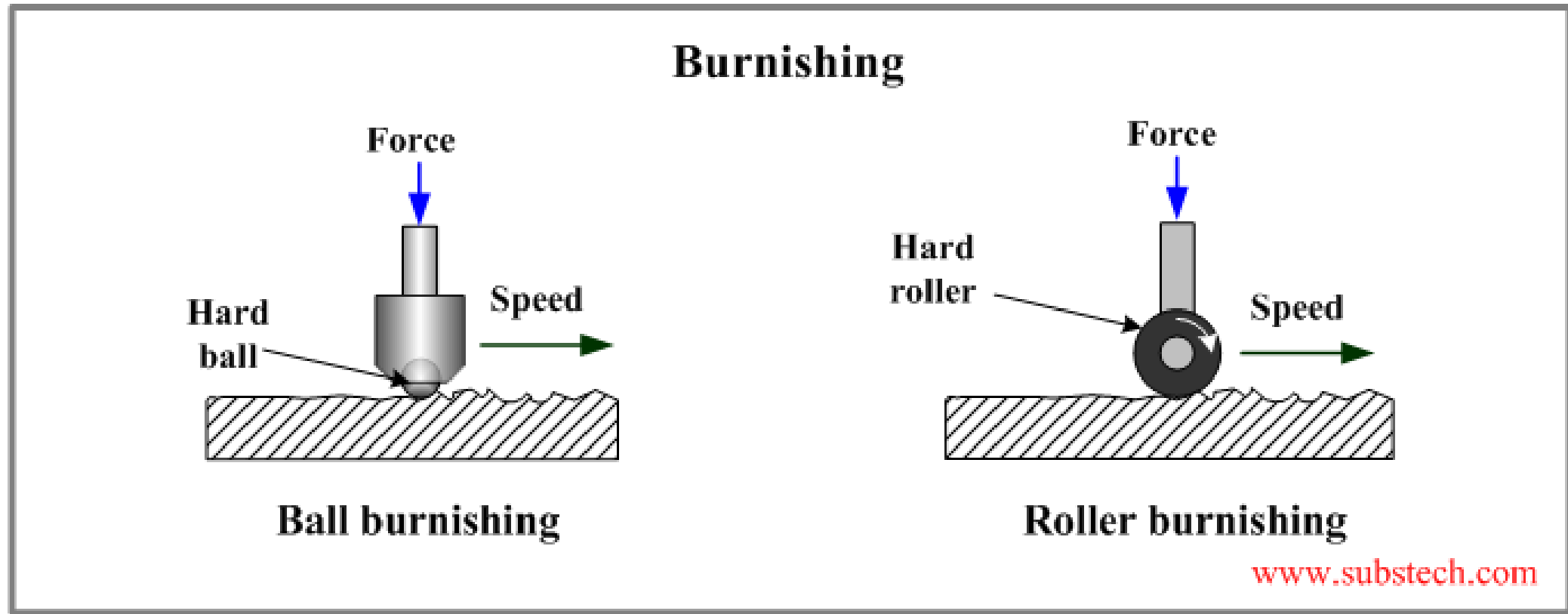


Wheel used in buffing is made of linen, cotton cloth, felt or leather

Applications

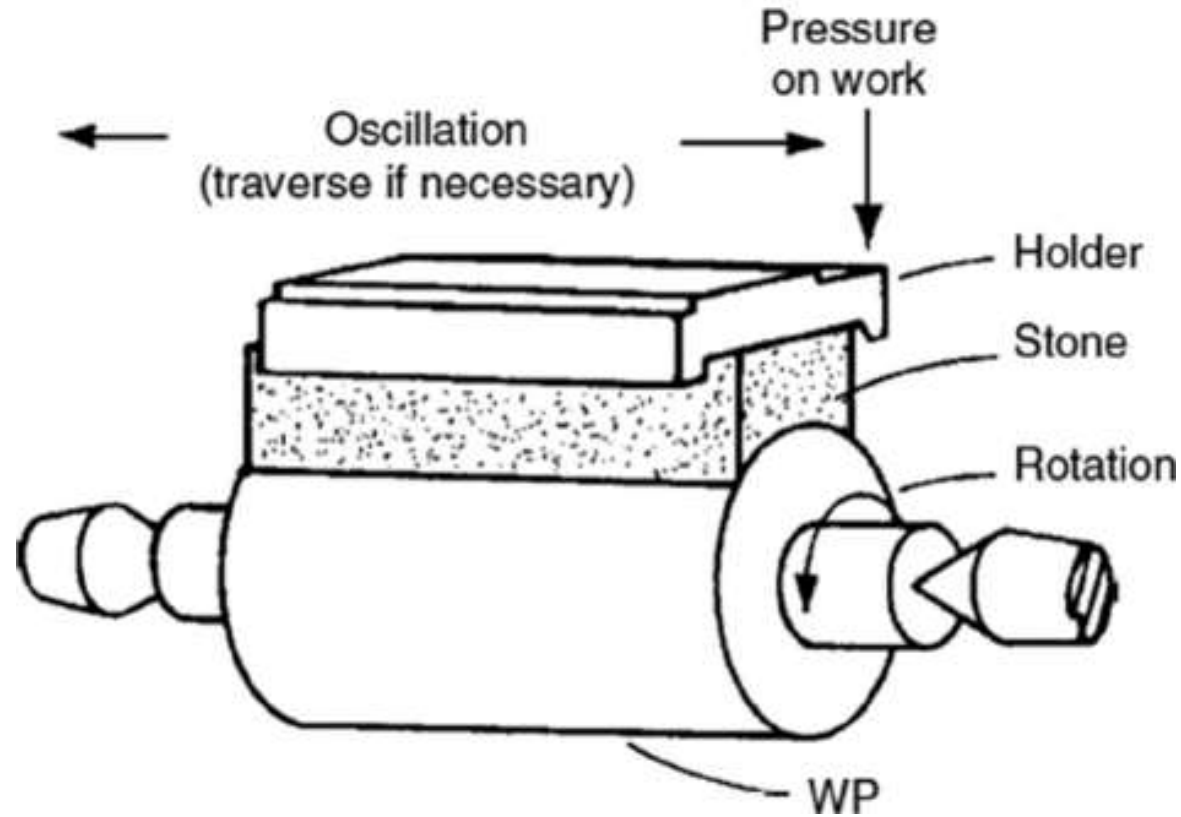
- All parts to be electroplated and made of steel and harder materials
- Finish by buffing is used on plated article such as silver ware and jewelry.

Burnishing



It is the operation of getting smooth and shiny surface by contact and rubbing of workpiece surface against the walls of a hard tool

Super finishing



It is the process of producing highest class of surface finish by using bonded abrasive at low speeds, low pressure.