

# Machine components and tools

1. 베어링 (bearing)
2. 구름요소 베어링 (rolling element bearing)
3. 기어 (gear)
4. 벨트, 체인 (belt and chain )
5. 리드스크류, 볼스크류 (lead screw, ball screw)
6. 공작기계 (Machine tools)

# 1. 베어링 (bearing)

: 모양과 재질에 관계없이 하중과 동력을 받은 상태에서 자체 윤활성 내지는 전동체(볼, 롤러)나 자체 미끄럼성을 이용하여 회전, 왕복, 축압(thrust), 각도요동 등의 다양한 운동형태로 힘을 전달시키거나 움직여주는 기계적 부품

## (1) 구름 요소 베어링 (rolling element bearing, rolling contact bearing)

:

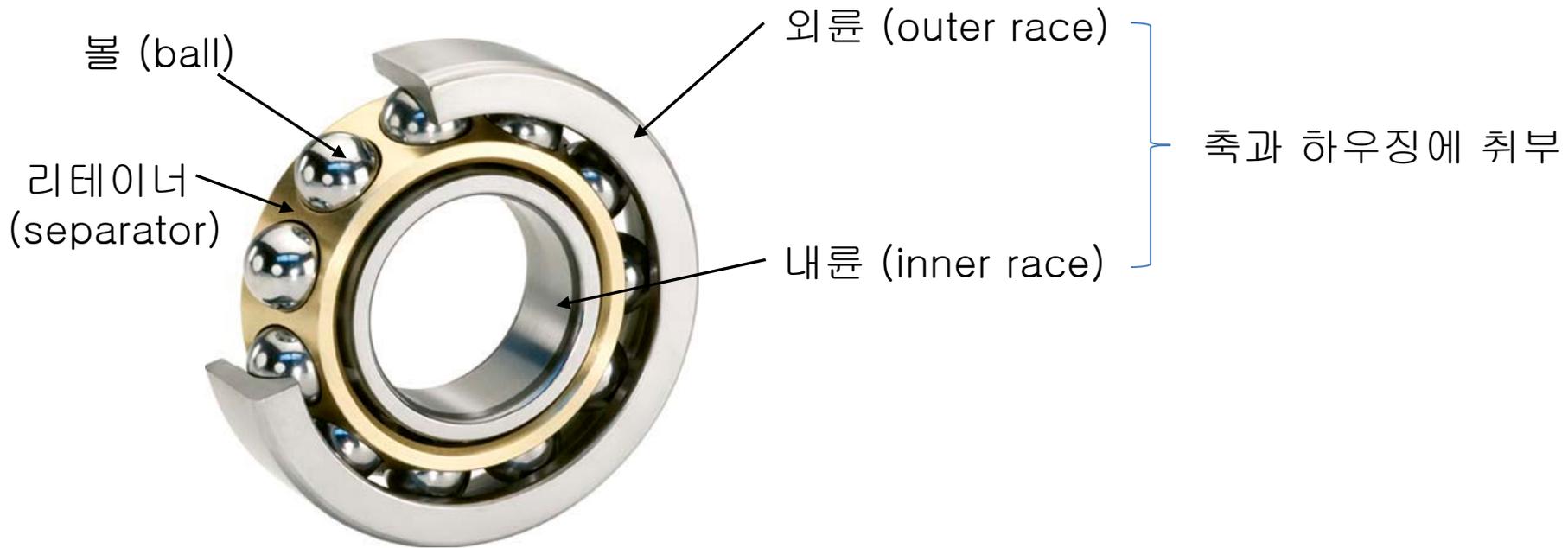
(2) 미끄럼 베어링 (sliding bearing)

◆ 축과 베어링 사이의 압력유지 방법에 따라

◆ 축과 베어링 사이에 작용하는 유체의 종류에 따라

## 2. 구름요소 베어링 (rolling element bearing)

### (1) 볼 베어링 (ball bearing)





radial ball bearing



Thrust ball bearing



Unsealed ball bearing

## (2) 롤러 베어링 (roller bearing)

### ◆ 원통 스트레이트 롤러 베어링 (straight roller bearing)



Radial type: 큰 반경방향 힘



Thrust type: 큰 축방향 힘

◆ 원추 (테이프) 롤러 베어링 (tapered roller bearing)



축방향 + 반경방향 힘 지지

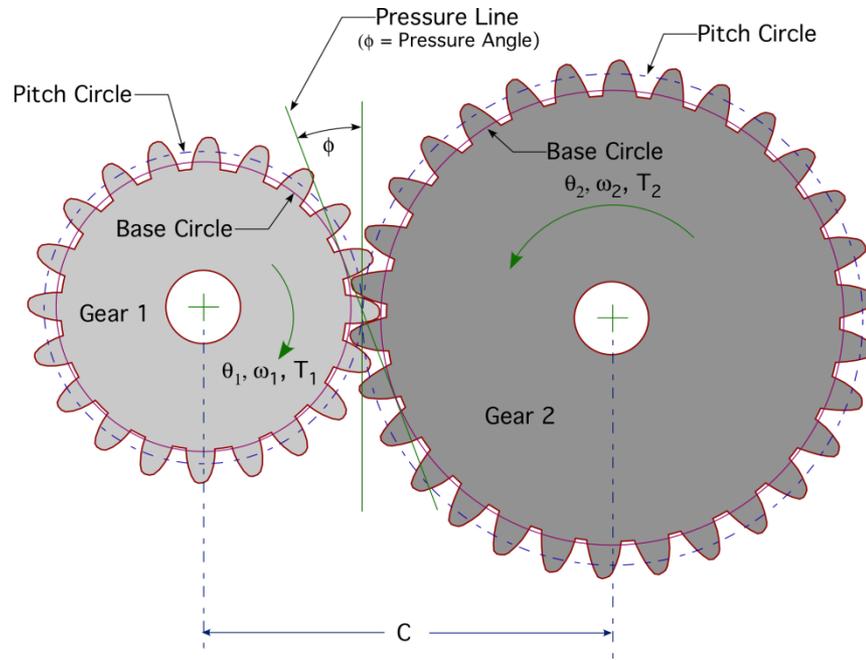
### 3. 기어 (Gear)

#### (1) 스퍼기어 (spur gear)



Gear

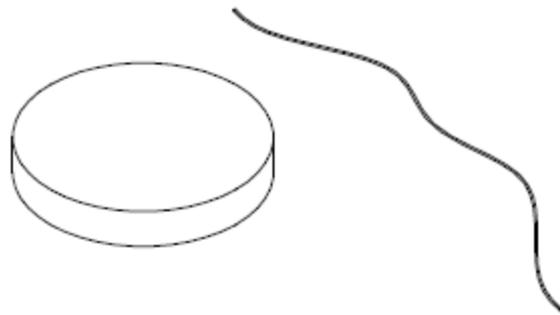
Pinion



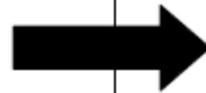
◆ Pitch circle:

◆ Pressure line :

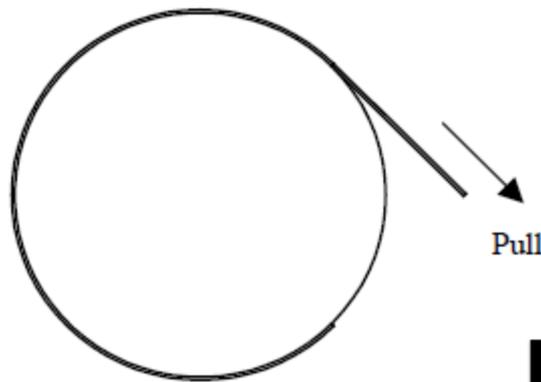
◆ Base circle :



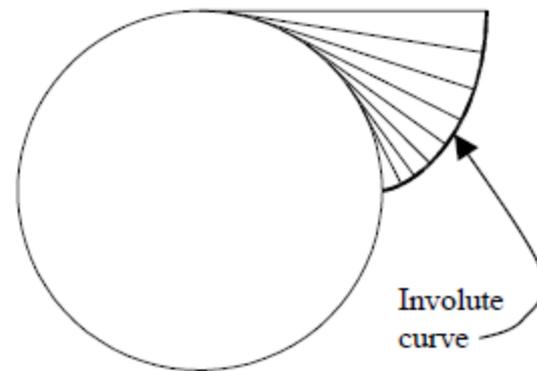
A simple cylinder and a string.



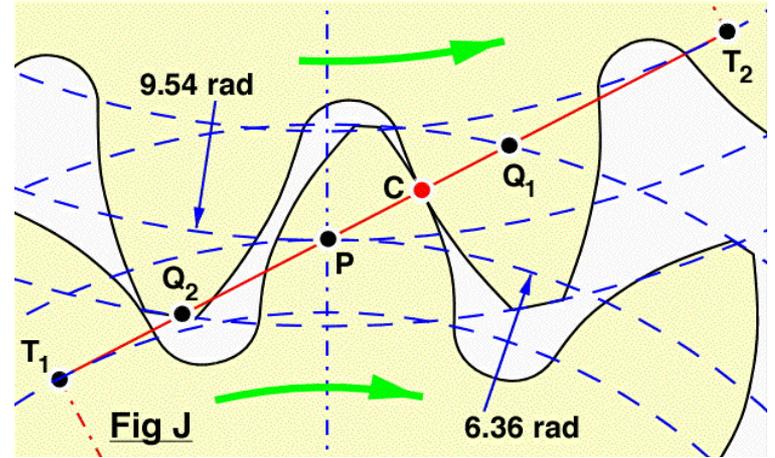
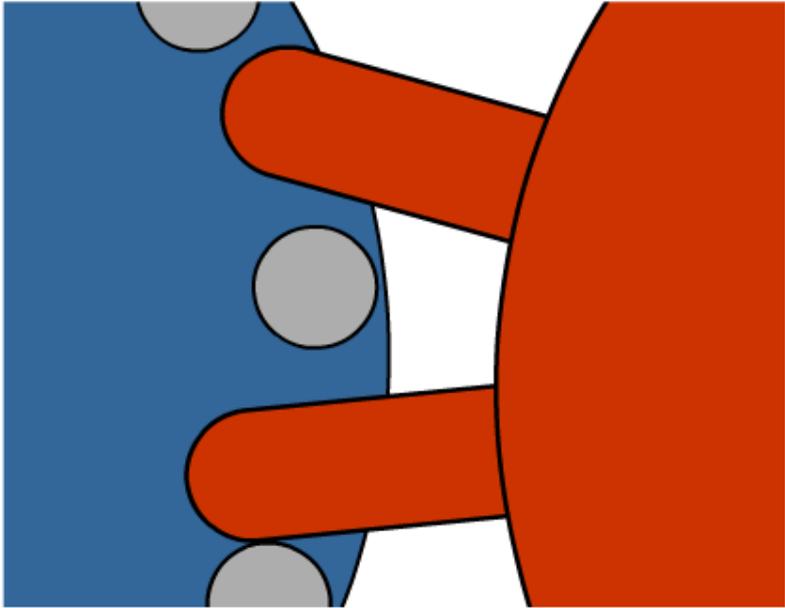
Wrap the string around the cylinder.



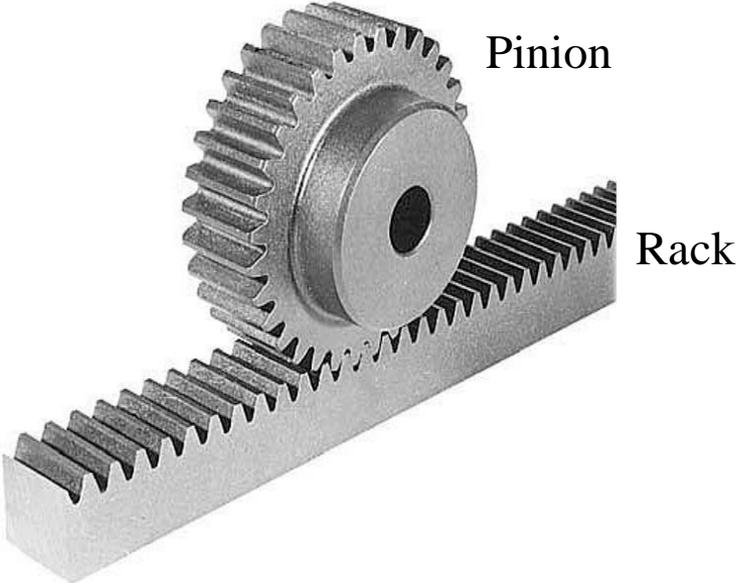
Pull the string tight and keep it tangent to the cylinder.



Trace the end of the string while un-wrapping it around the cylinder. The resulting trajectory is an involute curve.



(2) Rack and pinion





(4) Helical gear

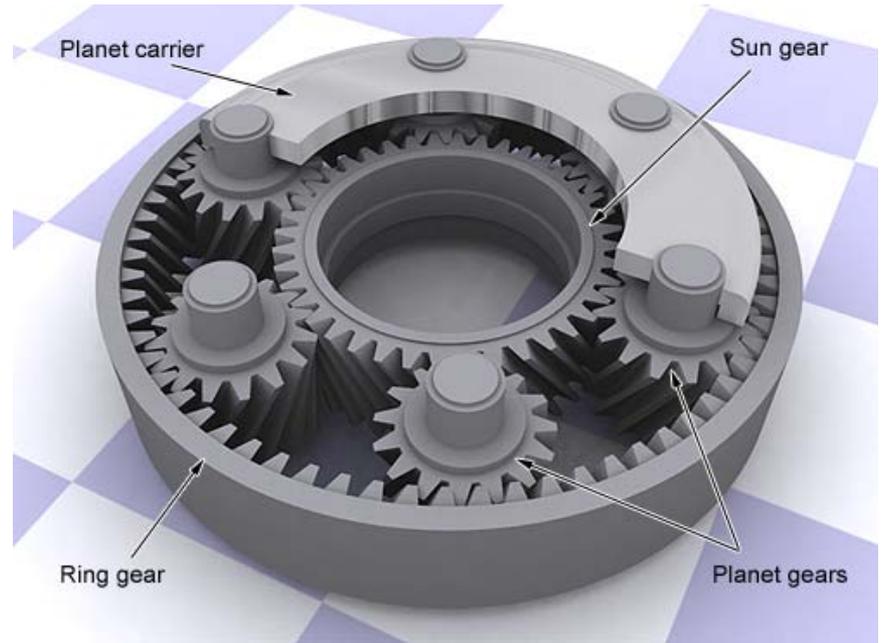
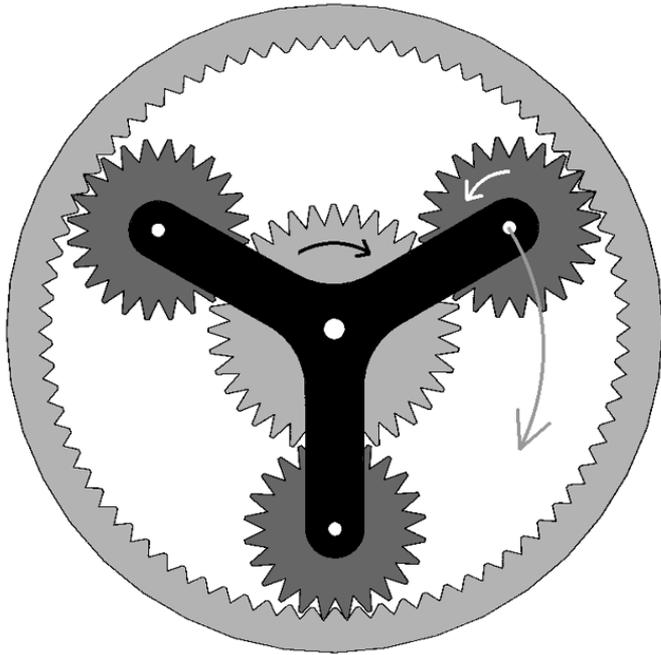


Spiral bevel gear

(5) Worm gear

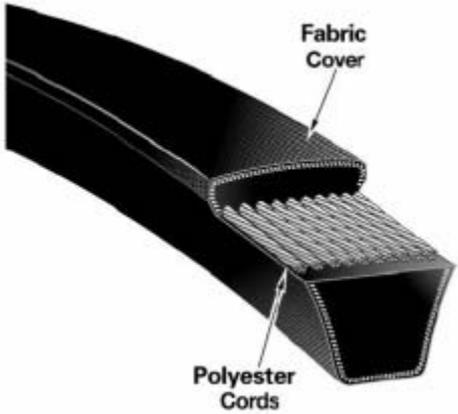
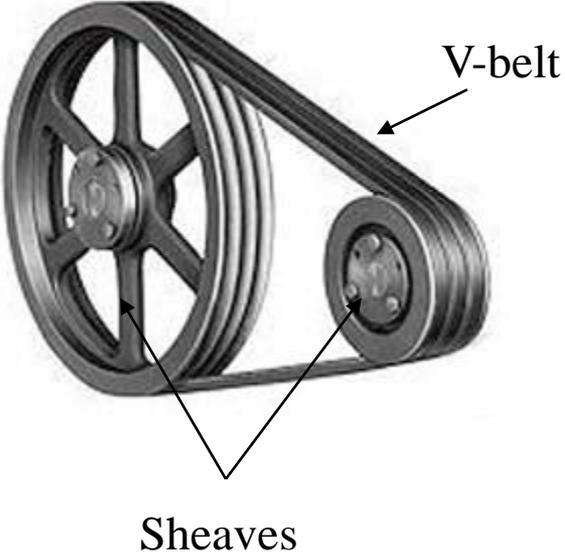


(6) Planetary gear

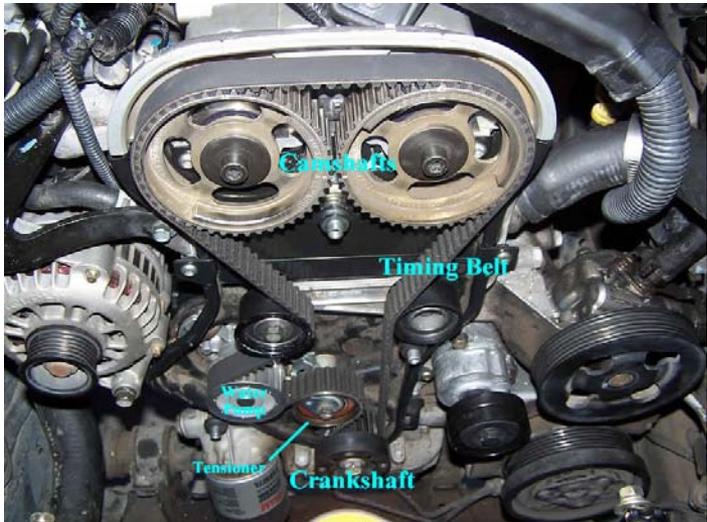


## 4. 벨트, 체인

(1) V-belt



(2) Timing belt

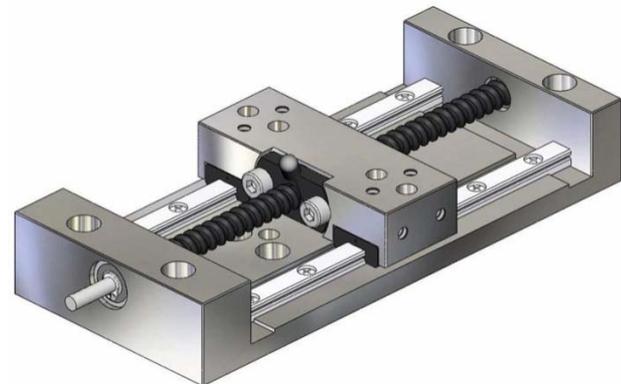
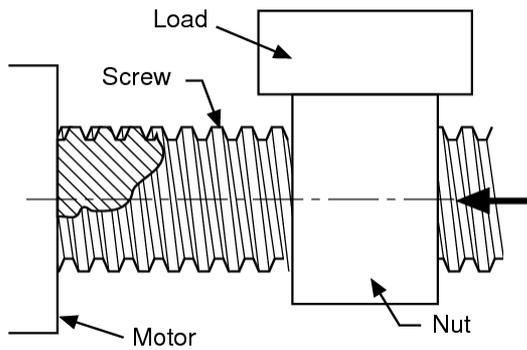


(3) Chain

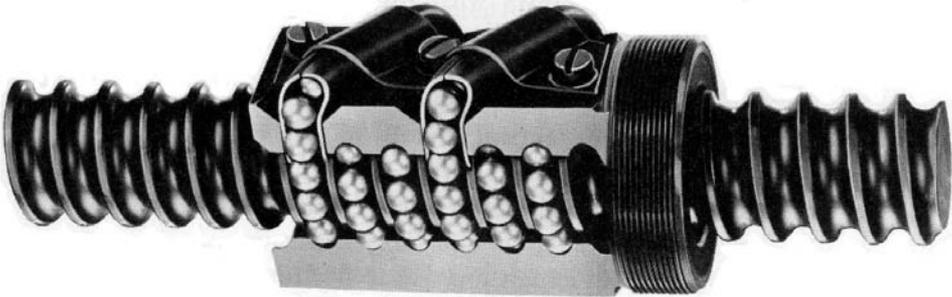


## 5. Lead screw, ball screw

### (1) Lead screw

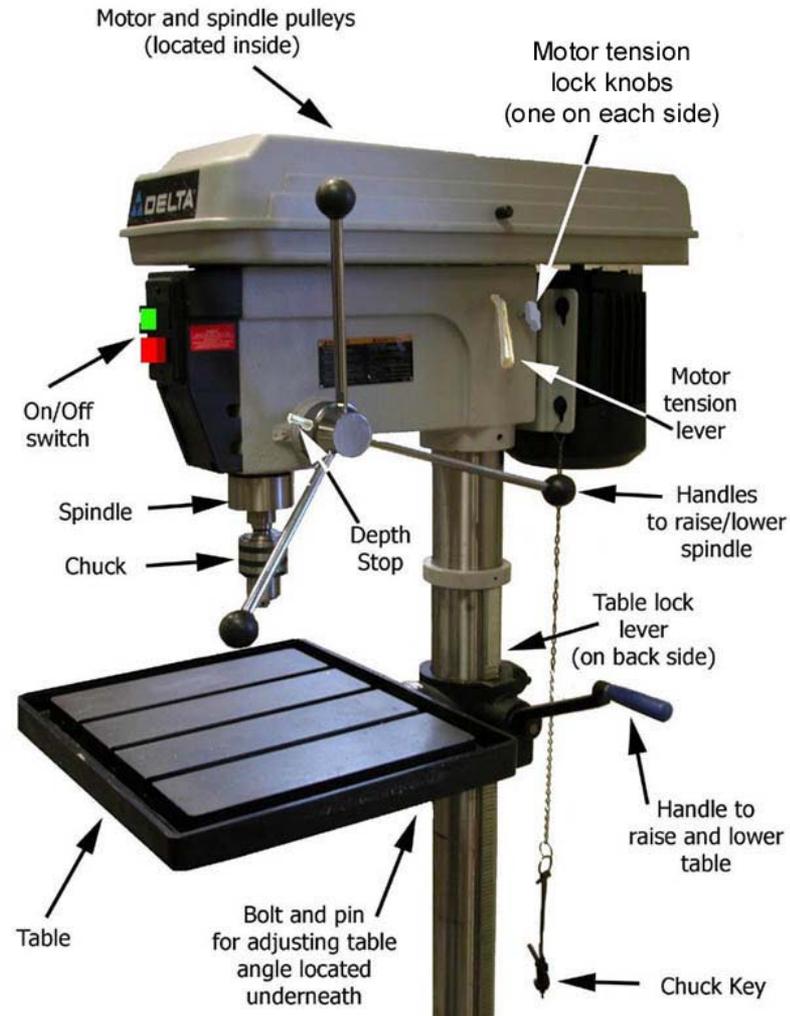


(2) Ball screw

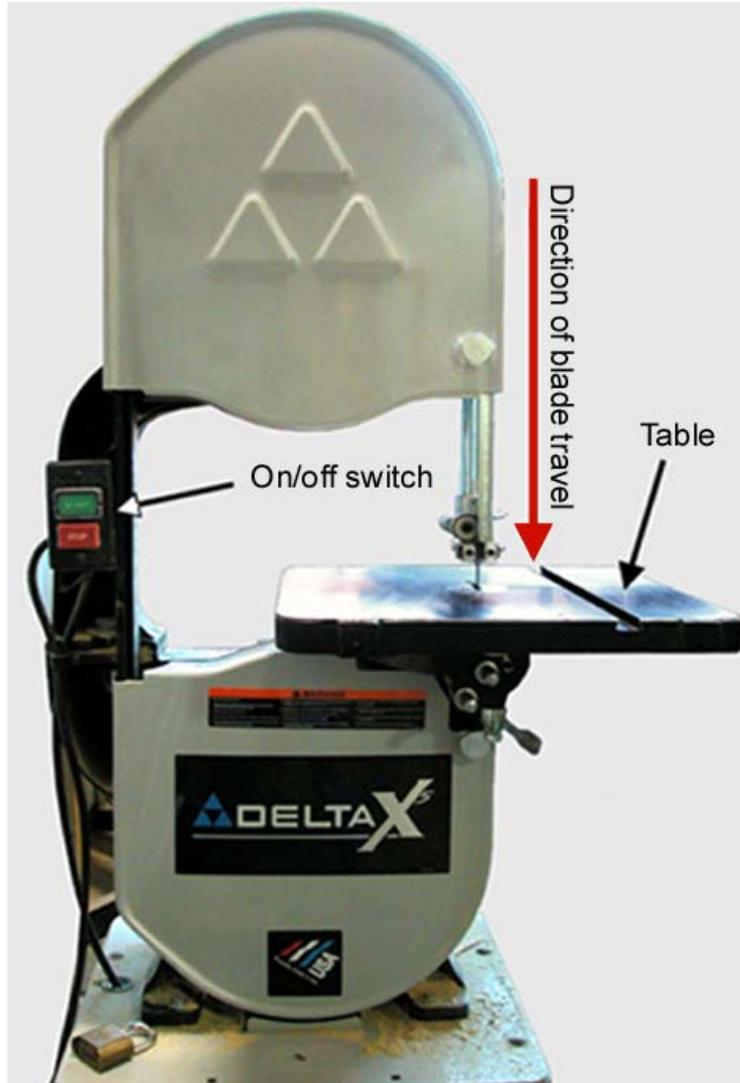


## 6. 공작기계 (Machine tools)

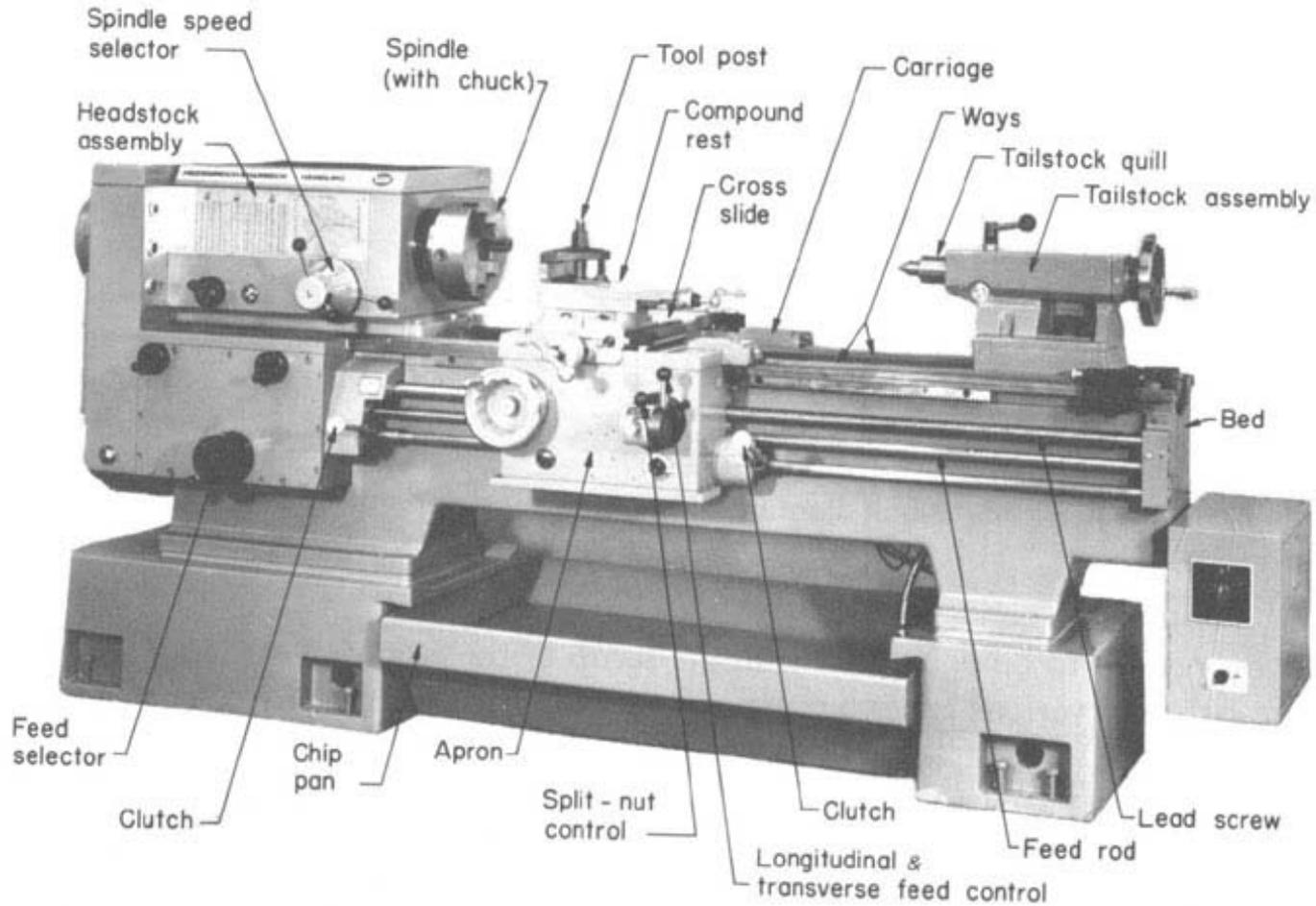
### (1) Drill press



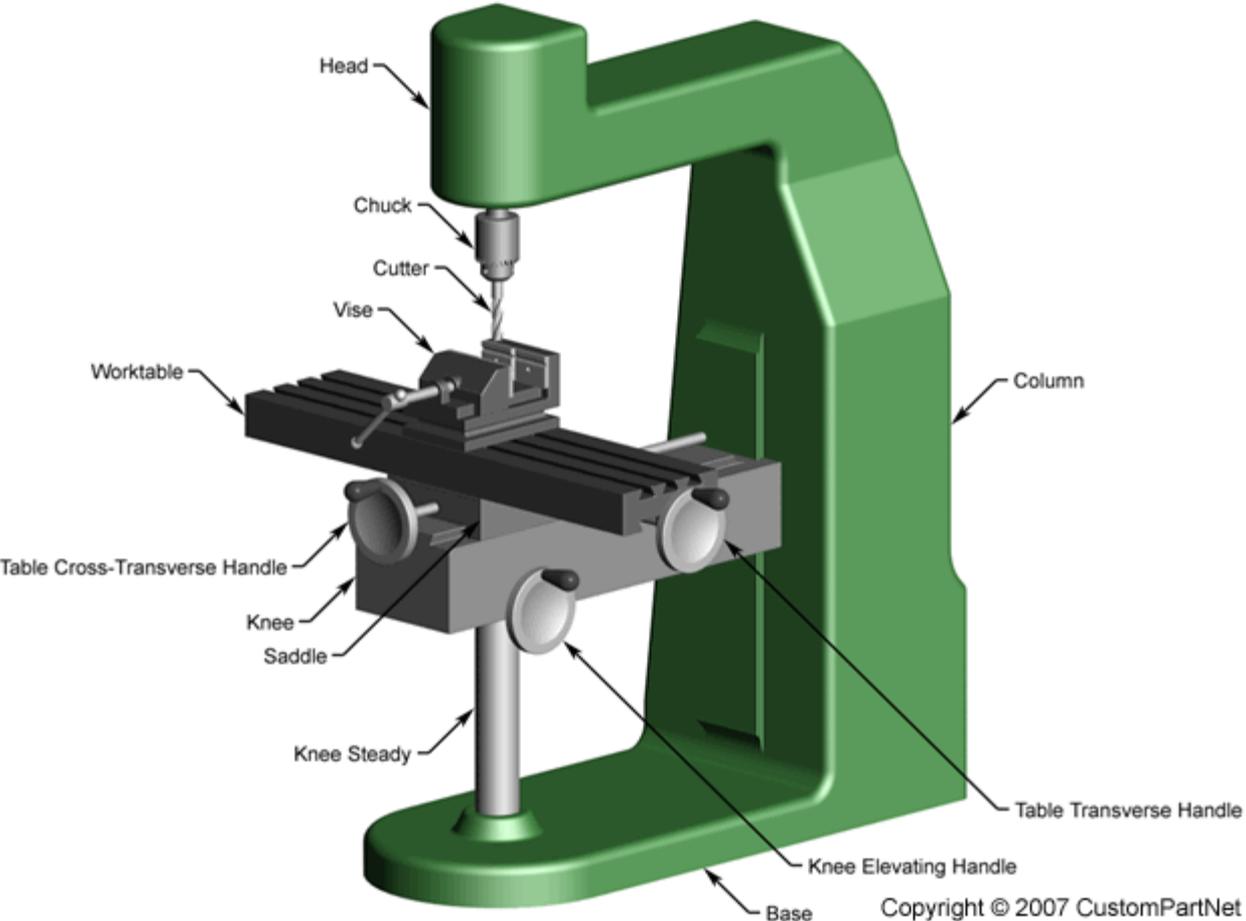
## (2) Band saw



### (3) Lathe



(4) Mill



(5) CNC (computer numerically controlled) machine

