SNS COLLEGE OF TECHNOLOGY

(An Autonomous Institution)
COIMBATORE-35
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UNIT III: GEARING MECHANISM

TOPIC: **Design Principle**

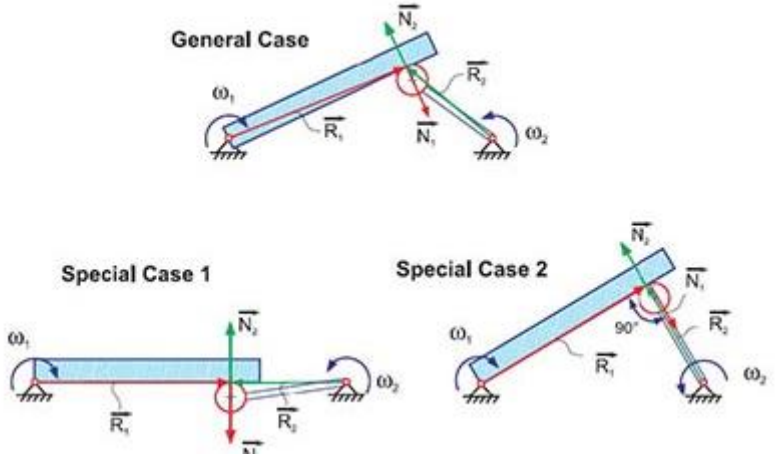
TOPIC OUTLINE

- Introduction
- Block Diagram
- Characteristics
- Types
- Advantages
- Disadvantages
- Applications

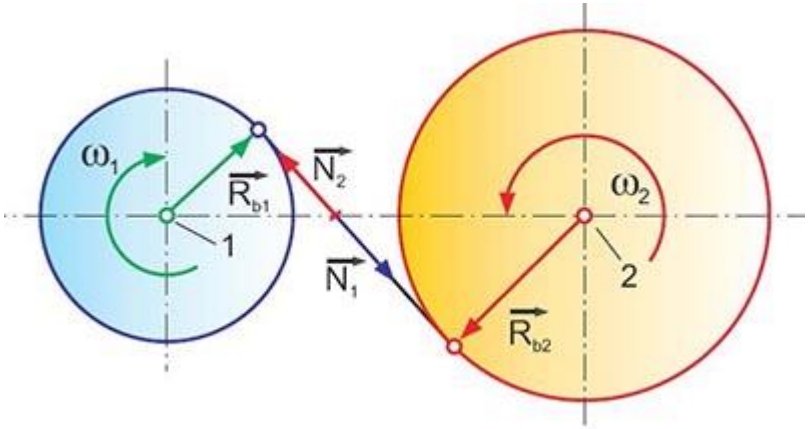
Introduction

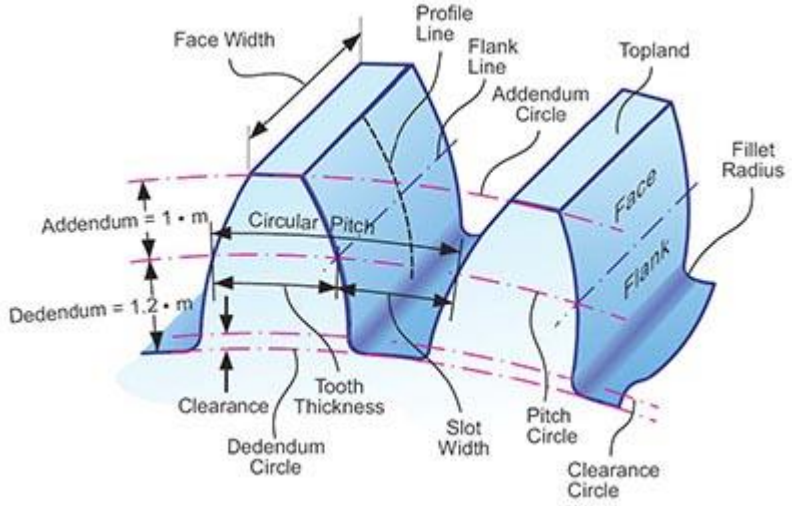
- A gear is a rotating machine part having cut teeth, which mesh with another toothed part to transmit torque.
- Geared devices can change the speed, torque, and direction of a power source.
- The teeth on the two meshing gears all have the same shape.
- Gears almost always produce a change in torque, creating a mechanical advantage, through their gear ratio, and thus may be considered a simple machine.

Block Diagram



Characteristics





Types

Following are the different types of gears are as under :-

- Spur gear
- Helical gear
- Herringbone gear
- Rack and pinion
- Bevel gear
- Worm and worm gear

Advantages

ADVANTAGES OF GEAR DRIVES

- 1- Compact as compared to belt and chain drives.
- 2- Positive drives.
- 3- wide range of speed ratios.(6:1 to 4900:1)
- 4- High speed ratio than belt drives
- 5- Used for shafts parallel, intersecting, non-parallel, non-intersecting.
- 6- Large power transmission
- 7- Transmits power at higher speed.

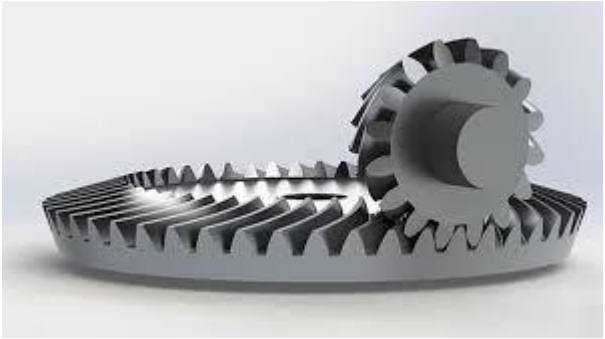
Disadvantages

Disadvantages of gear drive

Disadvantages:

- Gear drive is costlier than other drives
- Error during cutting teeth causes vibration & noise while operation
- Gear drive requires proper lubrication for smooth running

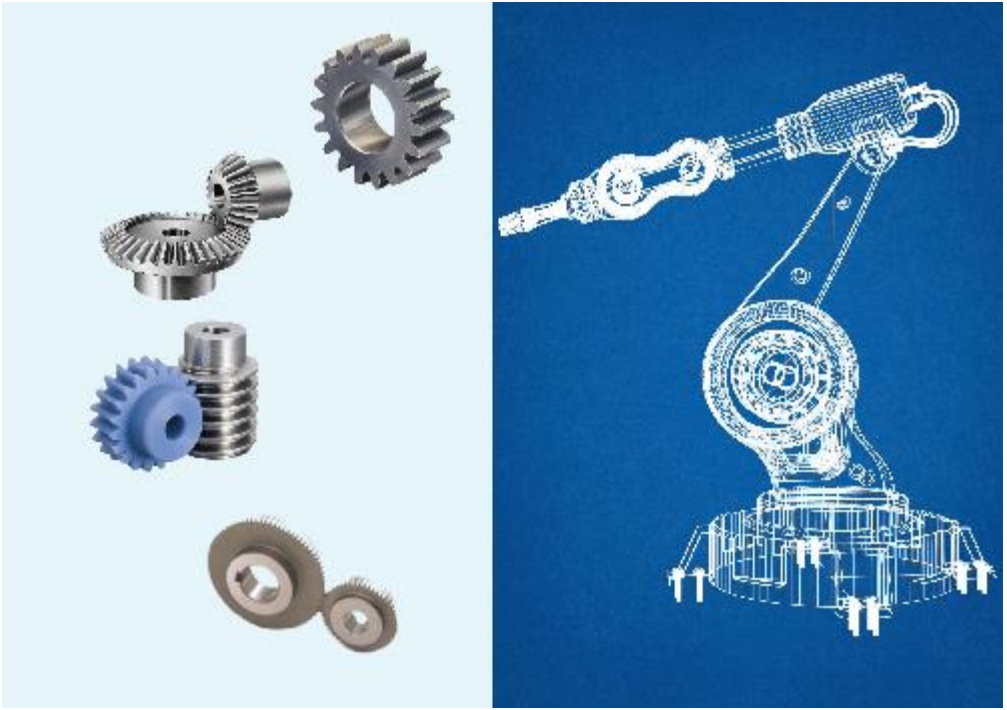
So as usual, designers has to be logical and optimal during selection of drive.



Applications

Application	
General Application Gears	**Custom Application Gears**
• Stock gears. • Gearboxes with interchangeable gear sets (like old machine tools). • Mechanical drive prototyping. • Low production machined gears.	• Plastic and metal molded, powder metal, die cast, and forged gears. • High production machined gears. • Gears with special requirements and for extreme applications.

Real Time Application



RECAP….

…THANK YOU