

Planetary Gearboxes



The large span of the front and rear bearings is distributed inside the box body, forming a stable integrated structure to ensure high torsion rigidity and accuracy. They are widely used in servo applications.

Planetary Gearboxes consists of three major components

- Sun gear
- Planet gear
- Ring gear

The sun gear is meshed around with the planet gears, which in turn are meshed with ring gear. Planet gears are connected to each other by a carrier, which helps them to rotate around the sun gear.

Advantages of Planetary system over helical gearbox

- They are compact and take less space and are light weight, as the load is shared between the planet gears.
- The noise and vibration is reduced as the load is shared. This also increases efficiency.
- Since the shafts are inline and concentric, bending moment is absent.
- The manufacturing of these components is relatively cheaper due to smaller size as compared to parallel axis gearboxes.

Disadvantages

- The gear system is complex and needs precision manufacturing.
- Teeth ratios are specific and assemble is according to them.
- Calculations of efficiency are a bit difficult.