# SNS COLLEGE OF TECHNOLOGY

**(An Autonomous Institution)**

**COIMBATORE-35.**

Accredited by NBA – AICTE and Accredited by NAAC – UGC with 'A+' Grade

Approved by AICTE, New Delhi & Affiliated to Anna University, Chennai.

## DEPARTMENT OF AUTOMOBILE ENGINEERING

## COURSE NAME : 19AUB301 – AUTOMOTIVE FUELS AND LUBRICANTS

III YEAR / V SEMESTER

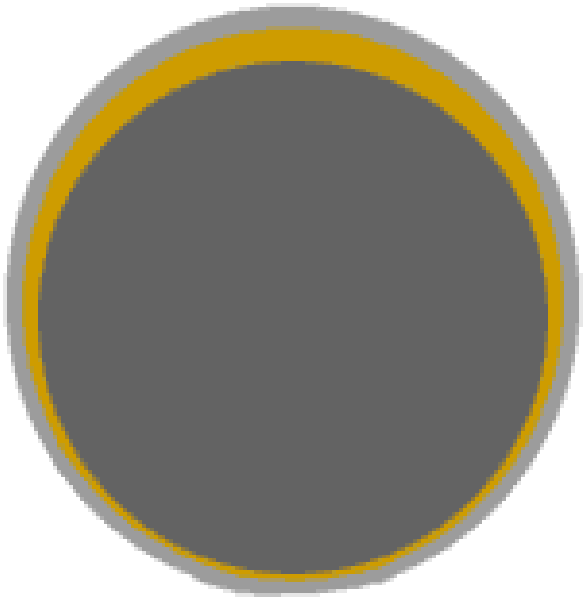
Unit 2- Theory of Lubrication

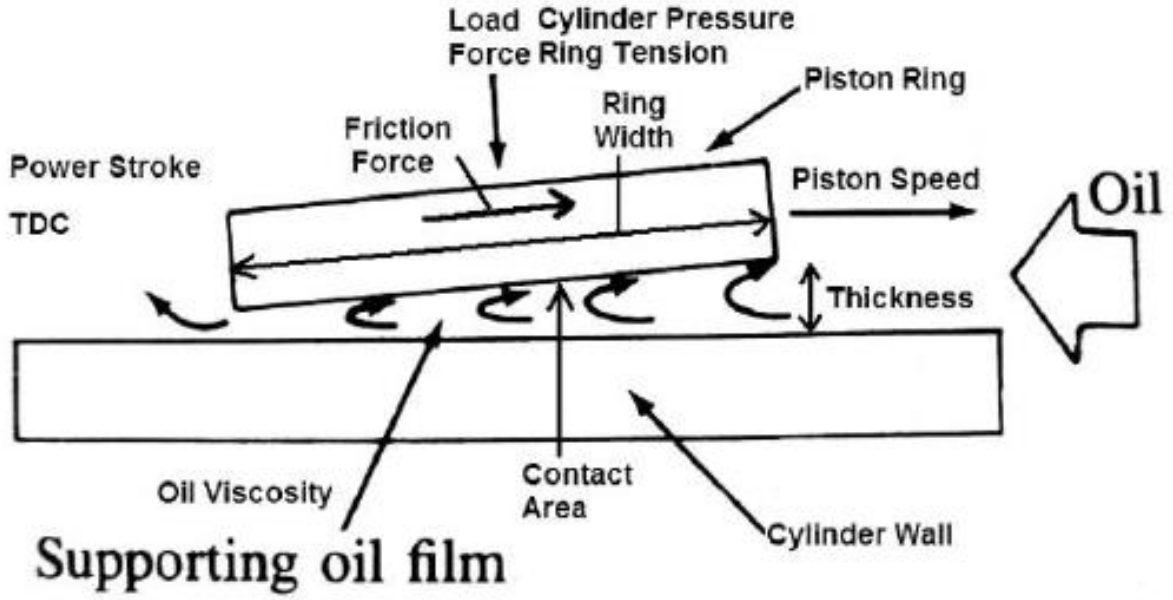
Topic : Mechanism of Lubrication

# FLUID FILM OR THICK FILM OR HYDRODYNAMIC LUBRICATION

- In this, the moving or sliding Surfaces are separated from each other by a thick-film of fluid, so that direct surface-to surface contact rarely occurs.
- The lubricant film covers or fills the irregularities of the sliding or moving surfaces and forms a thick layer in between them, so that there is no direct contact between the material surfaces.
- This consequently reduces wear.
- The lubricant chosen should have the minimum viscosity.

# FLUID FILM OR THICK FILM OR HYDRODYNAMIC LUBRICATION





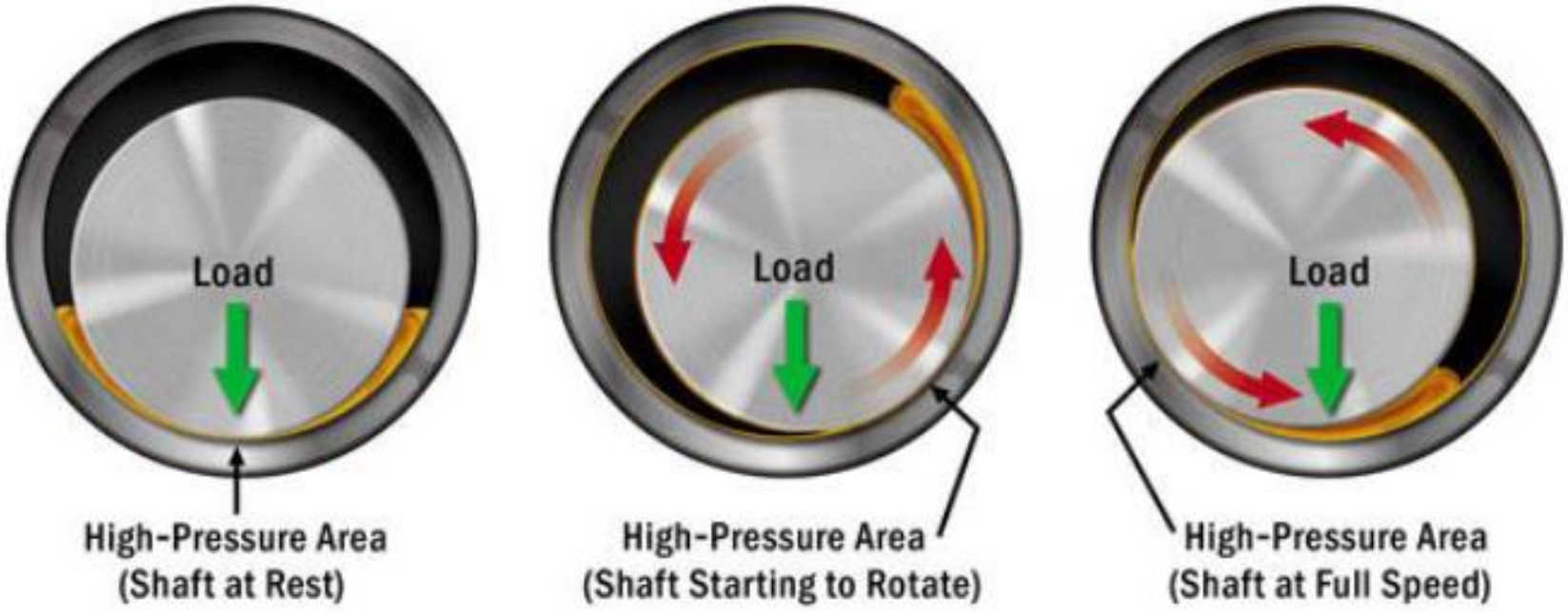

# BOUNDARY LUBRICATION

- If the film thickness between the two surfaces in relative motion becomes so thin that formation of hydrodynamic oil film is not possible.
- The surface high spots or asperities penetrate this thin film to make metal to metal contact then such lubrication is called boundary lubrication.
- This happens when
  - A shaft starts moving from rest
  - The speed is very low
  - The load is very high
  - Viscosity of the oil is too low.
- As the speed increases it switches on to hydrodynamic lubrication.

# ELASTO HYDRODYNAMIC LUBRICATION

- When the load acting on the bearings is very high, the material itself deforms elastically against the pressure built up of the oil film.
- This type of lubrication is called elasto hydrodynamic lubrication
- It occurs between cams and followers, gear teeth, and rolling bearings where the contact pressures are extremely high.

# BEARING LUBRICATION



# REFERENCE


- https://learnmech.com/lubrication-purpose-lubricants-method-of-lubrication/

# THANK YOU !!!