

# \* Comparison of performance characteristics

1. Power output per unit weight
2. Power output per unit displacement
3. Acceleration
4. Reliability
5. Fuel Economy
6. Fuel Safety

# 1. Power output per unit weight

- CI Engine is 2 to 3 time heavier than SI Engine
- CI Engine may weight about 6.5 kg/kW
- SI Engine may Weight about 2.7 kg/kW

CI → high CR → high pressure → high strength material

## 2. Power output per unit displacement

- SI Engine Required Less Space for the same power output
- High speed CI Engine Deliver Roughly 15 kW per liter of piston displacement
- SI Engine Deliver 30 kW per liter of piston displacement

### 3. Acceleration

Acceleration  $\rightarrow$  fuel supply

CI



Direct injection

SI

P+A  $\rightarrow$  Venturi  $\rightarrow$

Direct control  
is not possible

CI high acceleration  $\rightarrow$  SI

## 4. Reliability

## 5. Fuel Economy

CI Engine high fuel economy compared to SI

→ high CR (CI)

↳  $\eta_{thermal}$  (high)

↳ specific fuel consumption is less.

## 6. Fuel Safety

CI → Advantage in fuel safety

SI

# Comparison of other Cost

1. Initial Cost of Engine
2. Maintenance Cost



# SI and CI Engine Application

The SI Engine offer following Advantages

1. Low initial cost
2. Low weight given power output
3. Smaller size for given power output
4. Easy Starting
5. Less noise
6. Less smoke

The CI Engine offer following Advantages

1. Low specific fuel consumption
2. Utilizes less expensive fuel
3. Reduced fire hazard
4. Long Operating life
5. Better suitable for supercharging

Thank You