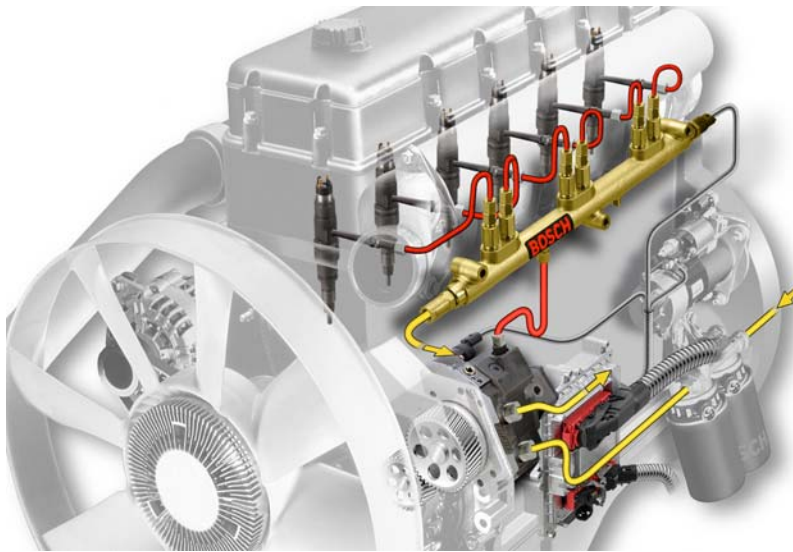


Internal Combustion Engines

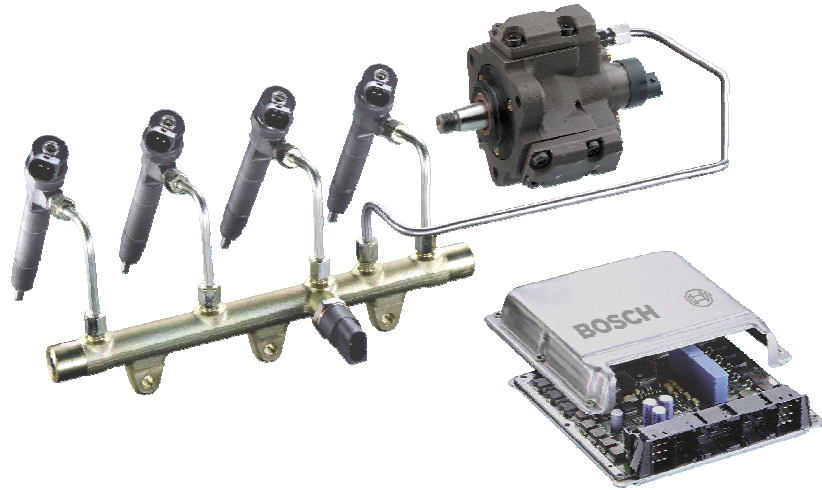
## MIXTURE PREPERATION in CI ENGINES

Prof.Dr. Cem Soruřbay

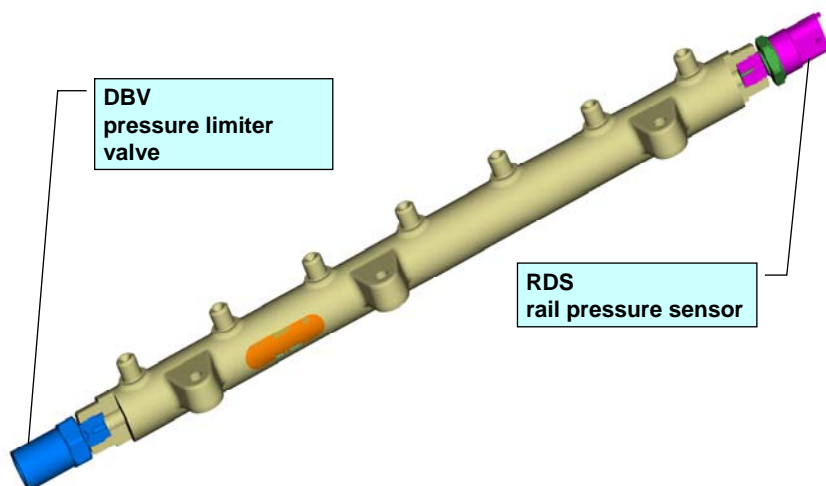
### Common-Rail System (Truck engine)



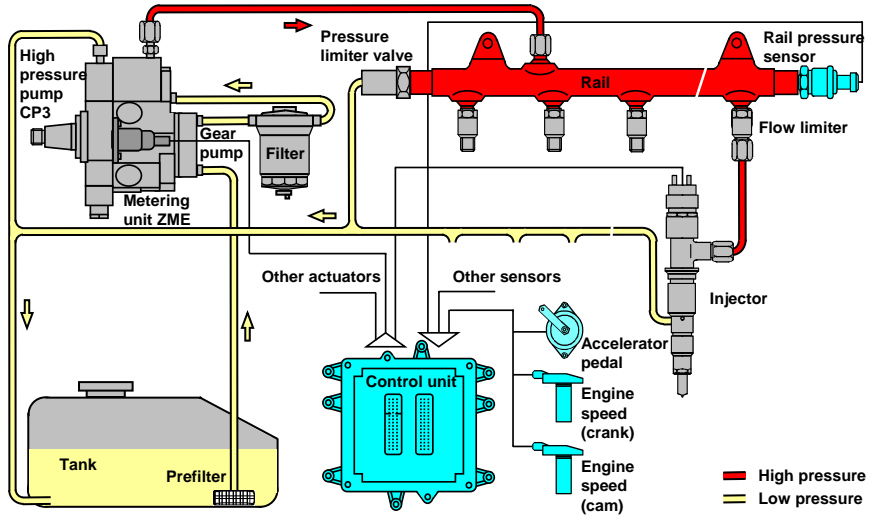
## Common Rail System



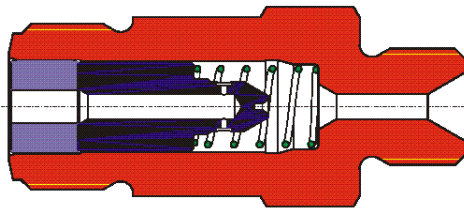
## Common-Rail (Truck Rail Basic Design)



## Common-Rail System



## Flow Limiter



## Common Rail Fuel Injector (Heavy Duty)

### Valve Group:

- Reduced control volume
- Improved piston geometry

### Nozzle:

- Miniature sac hole or sac hole respectively
- Nozzle guided pushrod
- Single needle guidance
- Flat shoulder

### Magnet Group:

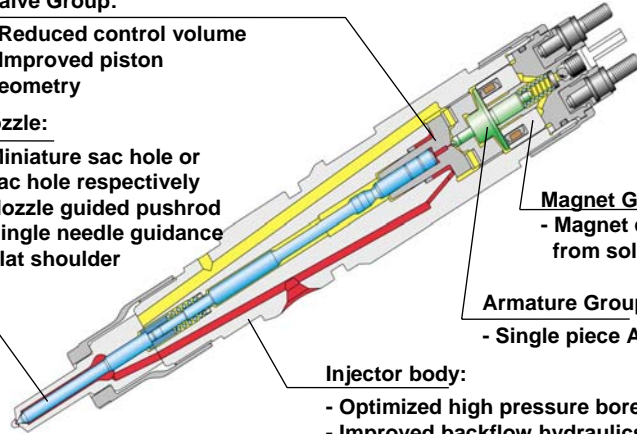
- Magnet core from solid

### Armature Group:

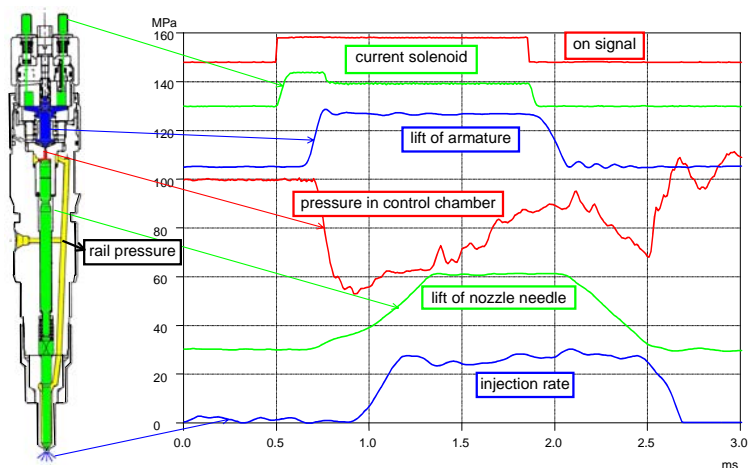
- Single piece Armature

### Injector body:

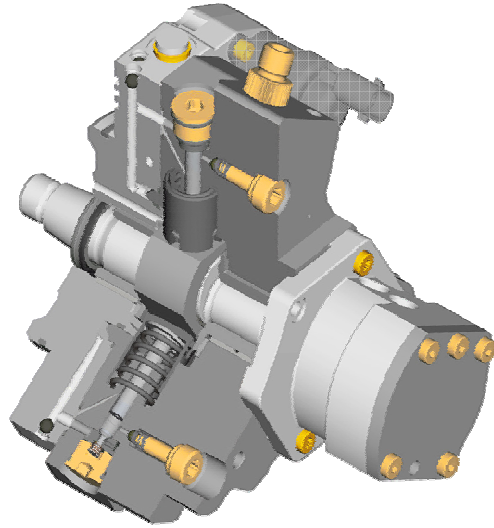
- Optimized high pressure bore geometry
- Improved backflow hydraulics



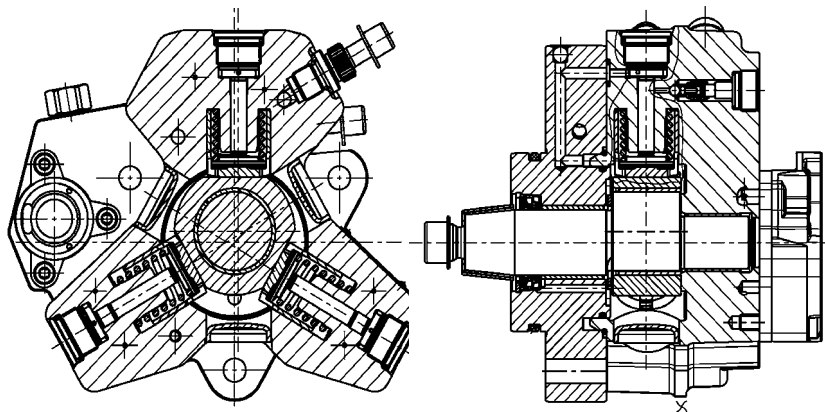
## Common Rail Fuel Injector



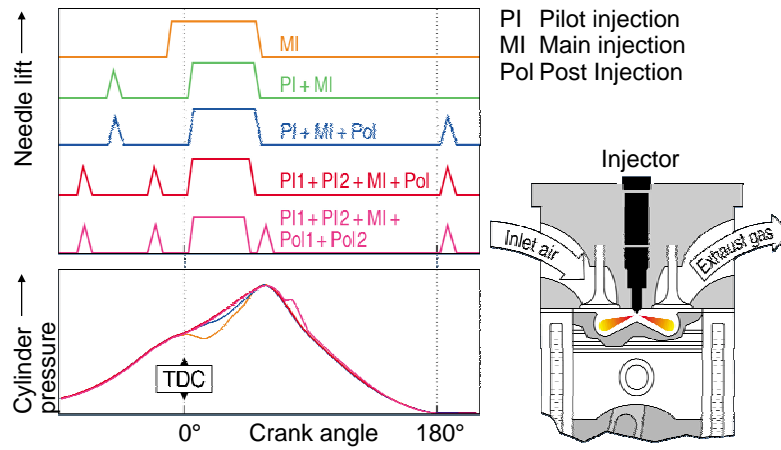
## High Pressure Pump



## High Pressure Pump



## CR System – Comparison of Injection Strategies



## DI Engine – warm up after cold start at -20° C

