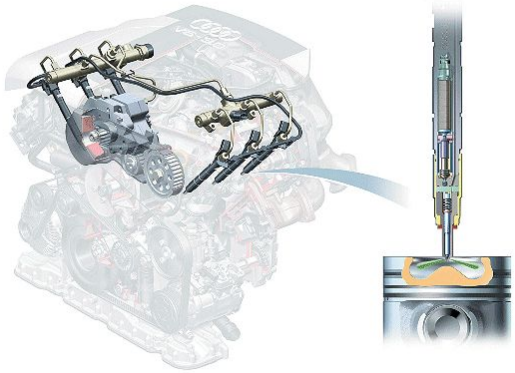
Piezioelectric fuel injector

Illustration

- Here is a picture of a car engine (from Audi) with 4 fuel injectors in place. and a simplified cross-section through one fuel injector.
  - The greyish cylinder on top is the stack of piezoelectric materials. It react very quickly to an applied voltage by elongating (more than 5 times faster than old "solenoid" technology) , thus allowing fuel to be pressed in the cylinder. Just as important, it exerts a very large fore, which is needed because injection takes place at huge pressures (around 1800 bar)



- In principle, the piezoelectric fuel injector is a result of Siemens research. Production began around 2000, in 2005 more than 5 Mio injectors had been delivered. Why? Well, the technology boosts performance while reducing fuel consumption up to **20%** and cutting carbon dioxide emissions.
  - However, High-tech materials do not come cheap. Siemens (together with Bosch) has invested more than 5 Billion € in the technology so far.