

Piezo Common rail (PCR) injectors

Instructions for handling and commissioning

Piezo common rail injectors are nowadays used mainly in modern diesel engines. The injector needle is no longer controlled by an electromagnet, but by a high precision piezo actuator. This consists of over 300 wafer thin ceramic plates, layered on top of each other. The piezo actuator expands as soon as a switching voltage is applied, whereby the injection holes of the nozzle are opened within milliseconds. Thanks to these extremely short response times, the fuel can be injected precisely and consistently up to seven times per combustion cycle. This contributes significantly to combustion efficiency.

Piezo common rail diesel injectors may malfunction after high mileage due to wear. This can be manifested by various symptoms:

- Loss of power
- Engine running rough
- Difficulties starting
- Increased exhaust emissions
- Soot or white smoke
- Knocking noises from the engine
- Increased fuel consumption
- Check engine lights is on

If an injector is suspected to be defective, a test should be carried out using the diagnostic tool. A return flow rate measurement can also be carried out. The injector must only be replaced if a fault is confirmed.

Removing the Injector:

- Thoroughly clean the repair area
- Remove the return line (Caution : fuel can escape due to residual pressure. Wear safety goggles and gloves)
- Remove the rail line from the injector and seal the open end immediately.
- Use special tools or release spray to remove the injector
- Check the injector shaft and clean if necessary.
- Remove the old combustion washer
- If necessary, rework the seat of the combustion chamber in the cylinder head with a suitable tool



Fitting the new or reconditioned injector

- Note the encoding on the injector
- Do not remove the protective caps on the injector until immediately before installation to prevent contamination and damage.
- Replace the combustion seal (washer)
- Insert new injector
- Insert the new clamping claw with a new screw and fasten to tightening torque as specified by the manufacturer
- Replace the high pressure line if the vehicle manufacturer recommends when replacing an injector
- Install the high pressure line without tension and fasten it to the tightening torque specified by the vehicle manufacturer
- Enter the previously noted encoding for the new injector in the engine control unit using a suitable diagnostic tool (VAG COM)
- Replacing the connection adapters of the return line and their safety clips is recommended
- With engine running, inspect the rail and return lines for leaks

IMPORTANT

A PCR injector is a precision component and that must be handled sensitively and carefully

Please observe the vehicle manufacturers specifications