Electromotive regulating throttle EDR-Di

Product summary (diesel vehicles)

Vehicle:	Product:	Electromotive regulating throttle EDR-Di
Various with SDI engines	**Pierburg no.:**	Various: See the current catalog, TecDoc CD or system using TecDoc data.

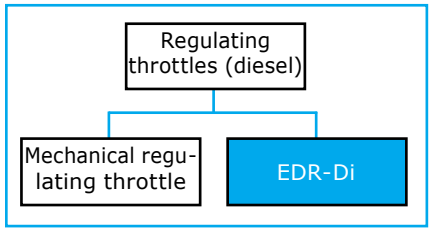
In the past, throttle bodies were used only for gasoline engines. In diesel vehicles, throttles have been incorporated in the air intake only recently. (For information regarding throttle bodies with gasoline vehicles, see -> S7 *0072.)*

Exhaust gas recirculation as a means of pollution reduction in diesel engines requires high rates of exhaust gas return (up to 60%), for which the pressure differential between the exhaust and intake side alone is insufficient. Therefore to increase the rate of exhaust gas return and control it precisely, "regulating throttles" are used in the intake manifold to increase the vacuum.

Another common designation is "diesel throttles".

The regulating throttle is a single flow throttle body with an attached gear, and electric servo motor with position feedback and integrated circuitry.

With the EDR-Di the entire range of throttle settings between *open* and *closed* is controlled by the integrated electronics and electromotive drive.



Overview of regulating throttles

The EDR-Di acts in two ways in diesel vehicles:

- The vacuum needed for effective exhaust gas recirculation is produced by continuous adjustment of the throttle valve.
- When the engine is turned off, the regulating throttle is closed early, thus avoiding "shut down shakes".

The electromotive regulating throttle for diesel vehicles is distinguished by the following features:

- High precision control for exhaust gas recirculation through accurate valve positioning.
- Electrical control via pulse width modulation ("PWM").
- Mechanical limit stops in the "open" and "closed" positions.
- As separate components or
- as a unit with an EGR valve ("mixed components")
- If the voltage supply is interrupted, a mechanical reset system puts the regulating throttle in the "valve open" position (emergency position).

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Subject to change and deviation from the illustrations.

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Information for the workshop

Electromotive regulating throttles generally do not require maintenance.

However, if a malfunction does occur, the cause is usually contamination, particularly in conjunction with exhaust gas recirculation (EGR).

In this case, the regulating throttle must be checked for contamination.

Intake air with a high oil content can lead to deposits which

- reduce the flow cross-section,
- cause the regulating throttle to respond sluggishly or
- cause moving parts to stick.

Thus, for example, it can occur that the regulating throttle no longer operates normally and that the on-board diagnostics detect this and indicate a malfunction.

Causes can include leakage from the pistons or piston rings ("blow-by"), which allows gases from the combustion chamber to get into the crankcase. Crankcase ventilation causes the gases to be returned to the engine for combustion.

Please also check:

- Any switches present
- Wear on the throttle shafts (for vehicles with high tachometer readings)
- Possibly defective mass air flow sensor (false input signals to the engine control unit can cause the EDR-Di to be controlled incorrectly).