

Hot-film air mass meter

The hot-film air-mass sensor registers the intake air mass and is located in the intake port between the air filter and the throttle valve.

Due to the double arrangement of the fresh air intake, the S62 engine with MSS52 uses two hot-film air mass meters. The DME control unit calculates the air mass flow from both measured values.

Design and function

A heated surface of the hot-film air mass sensor in the flow of intake air is controlled to a constant temperature with respect to the intake air. The intake air flowing past this surface cools this heated surface and thus changes its resistance. The heating current is permanently regulated to retain the excess temperature. This heating current is the measured variable for the air mass drawn in by the engine. The DME control unit uses it to calculate the load signal and thus the basic variable for the injection timing.

Important advantages:

- Changes in air pressure (air density) are recorded
- Temperature influences are compensated
- Low pressure drop in the intake pipe due to low air resistance particularly at high air mass flow rates.
- Compensation of pressure pulsation in the intake duct
- No moving parts
- Large measuring range

Self-diagnosis and emergency operation

Self-diagnosis of the hot-film air-mass sensor system includes the following:

- Check for faults in the sensor signal
- Check for breaks in wiring
- Check of plausibility of the sensor signal

A fault code is entered in the DME fault memory if a fault occurs during engine operation. Further engine operation (engine emergency program) is then based on the evaluation of the throttle valve angle.