**SACHS shock absorbers**

- control suspension oscillation
- prevent vehicle body roll and pitch
- maintain optimal wheel contact

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**Monotube shock absorbers**

**Compression**
Vehicle vibrations compress the shock absorber.

The piston valve exerts pressure against the oil flowing upward from the chamber below the piston, which stops the piston’s downward movement.

The gas cushion compresses by the volume of the piston rod moving in.

**Rebound**
Vehicle vibrations cause the shock absorber to extend.

The piston valve exerts pressure against the oil flowing down from the chamber above the piston, which stops the piston’s upward movement.

The gas cushion expands by the volume of the retracting piston rod.

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**Twin-tube shock absorbers**

**Compression**
Vehicle vibrations compress the shock absorber, with the base valve doing the damping.

When the piston rod moves in, the oil it displaces flows into the compensation chamber, while the base valve resists this flow and thus slows down the piston.

The piston valve is open. It functions as a non-return valve during this stage.

**Rebound**
Vehicle vibrations cause the shock absorber to extend, with the piston valve assuming the damping function.

The piston valve exerts pressure against the oil flowing down from the chamber above the piston, thus slowing the upward movement of the piston.

The oil flows unobstructed out of the compensation chamber through the non-return valve back into the working cylinder where it is needed.