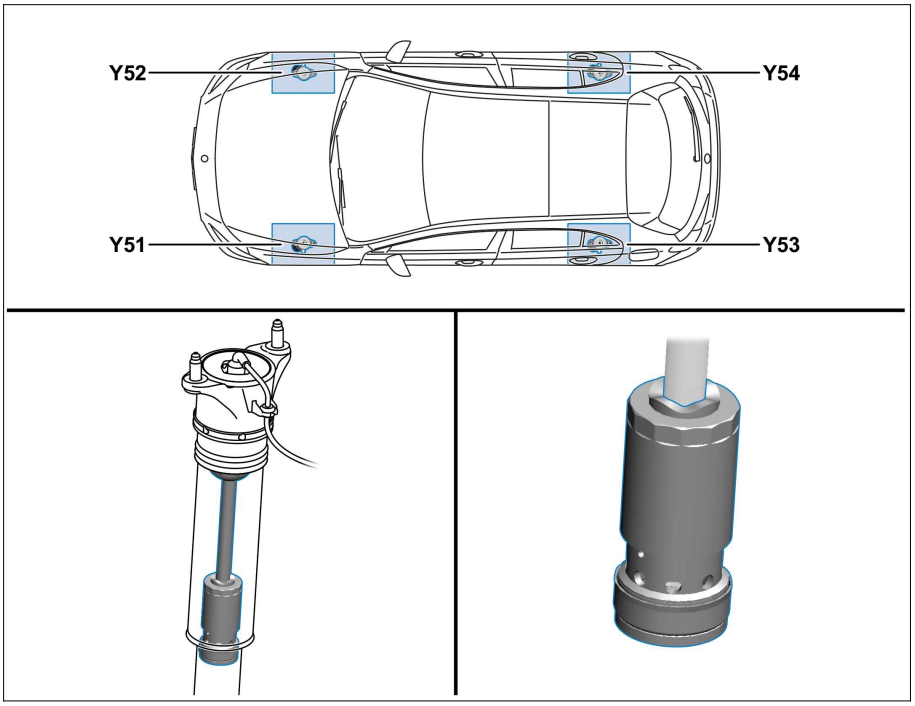
Model **all (CAR)**

Shown on model 177.0

Y51 *Left front damping valve unit*
Y52 *Right front damping valve unit*
Y53 *Left rear damping valve unit*
Y54 *Right rear damping valve unit*



P32.32-2299-76

Overview

This document contains information on:

- **Location**
- **Task**
- **Structure**
- **Function**

Location

The damping valve units are located on the corresponding shock absorbers.

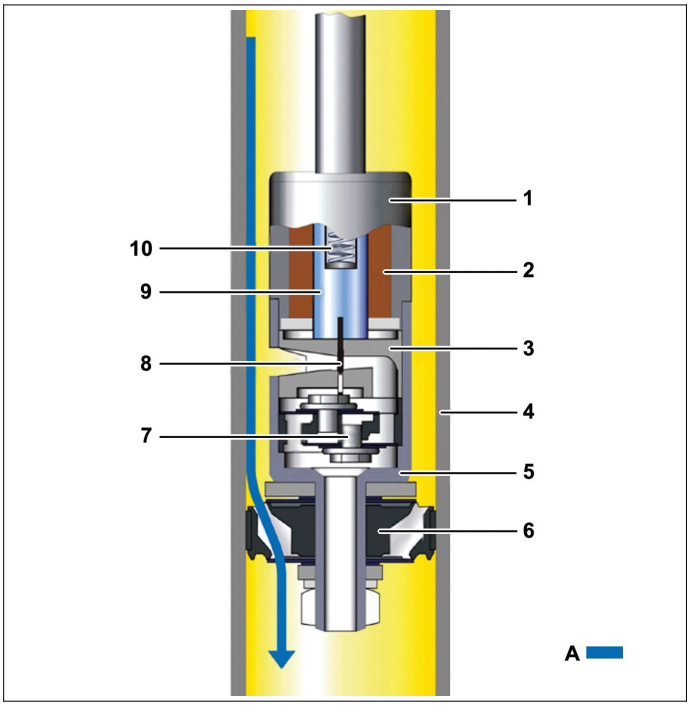
Task

The damping valve units continuously regulate dampening for each wheel depending on which damper characteristic is specified by the adaptive damping system control unit. This means that dampening can be adapted to the driving style and road surface condition.

Structure

Schematic diagram for strong damping (hard suspension)

1 *Housing*
2 *Coil*
3 *Flow diversion/slide guide*
4 *Single-tube gas-filled shock absorber*
5 *Piston pin*
6 *Main piston*
7 *Comfort valve*
8 *Flat slide valve*
9 *Armature*
10 *Spring*
A *Volume flow A*

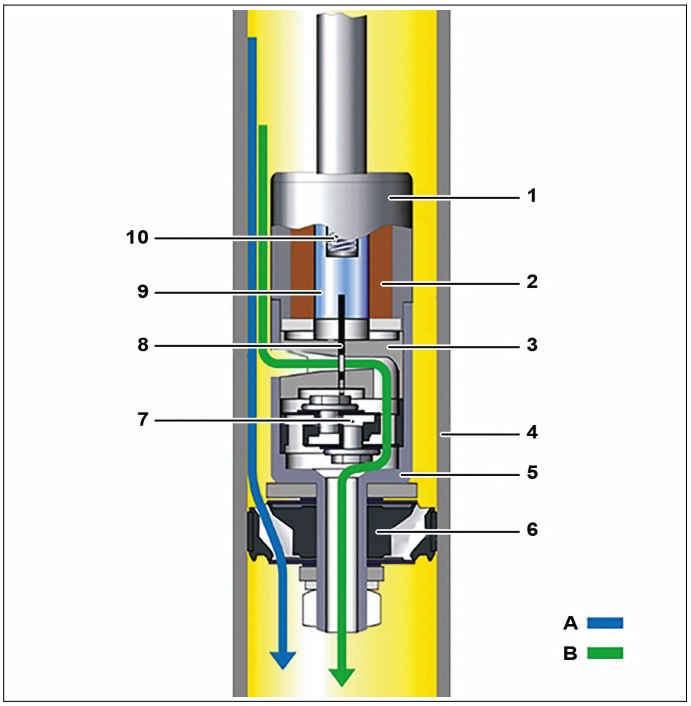


P32.32-2293-82

During strong dampening, the coil in the damping valve unit is deenergized and flow to the comfort valve is closed by the flat side valve. The entire volume flow must pass through the main piston, thereby generating strong damping.

Schematic diagram for weak damping (soft suspension)

1 Housing
2 Coil
3 Flow diversion/slide guide
4 Single-tube gas-filled shock absorber
5 Piston pin
6 Main piston
7 Comfort valve
8 Flat slide valve
9 Armature
10 Spring
A Volume flow A
B Volume flow B



P32.32-2294-82

During minor dampening, the coil in the damping valve unit is energized. The armature pulls the flat slide valve upwards and determines, depending on the vehicle speed, the flow area. The flow volume in the monotube gas-filled shock absorber can flow through the comfort valve and the main piston of the monotube gas-filled shock absorber.
The dampening changes depending on the flow area to the comfort valve. When the flow area is completely opened by the flat slide valve, the flow volume goes through the main piston as well as the comfort valve. Monotube gas-filled shock absorbers, as a result, have the lowest dampening.

Function
There are two solenoid valves in every damping valve unit with which continuous damping adjustment can be carried out. The damping valve units can be controlled independent of each other for each wheel.
The damping valve units are actuated by the control unit using a pulse width modulated signal at a frequency of approx. f = 800 Hz. The switching frequency of damping valve units can be up to f = 5 Hz. An open circuit to the individual damping valve units is detected by the adaptive damping system control unit.