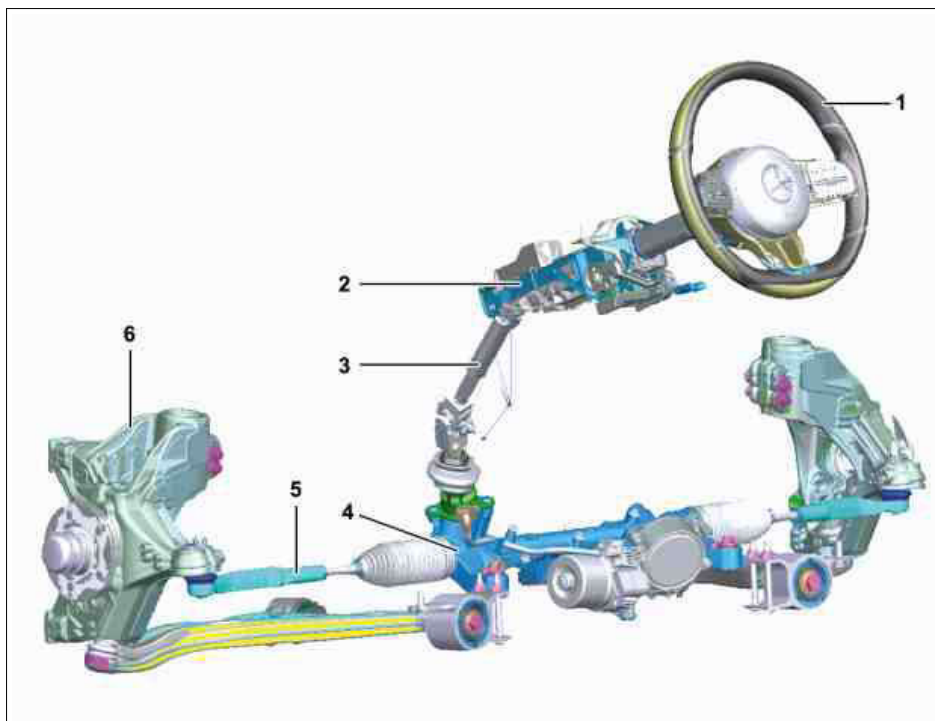


Model all (CAR)

**Example illustration of mechanical steering components**

- 1 Steering wheel
- 2 Steering column tube
- 3 Steering shaft
- 4 Rack-and-pinion steering
- 5 Tie rod
- 6 Steering knuckle



P46.00-2218-76

**Overview**

This document contains information on:

- General
- Function

**General**

Mechanical steering components describe the mechanical interaction between steering components during the transfer of steering forces.

**Function**

In the electrical power steering system, the system, the driver and an actuator motor as an electromechanical auxiliary power steering system act on the vehicle's steering ability. The following components are involved in mechanically implementing a steering maneuver:

- Steering wheel
- Steering column tube
- Steering column

- Rack-and-pinion steering
- Tie rod

*Steering wheel*

The driver influences the vehicle's steering ability using the steering wheel. The steering wheel angle is adjusted and the steering torque transferred via the steering wheel. The steering wheel angle describes the twisting angle of the steering wheel measured from the straight-ahead position. The steering wheel angle is positive on a left turn. The steering torque describes the steering forces applied manually to adjust the steering wheel angle. The steering torque also has a positive value on a left turn.

*Steering column*

The steering column tube is used to mechanically transfer the steering movement to the rack-and-pinion steering via the steering shaft and drive pinion. The steering column tube guides the torque to the rack-and-pinion steering and includes the mechanical or electrical adjuster unit. The steering column adjuster unit enables the steering to be aligned to the driver.

*Rack-and-pinion steering*

The rack-and-pinion steering is responsible for transferring the steering torque in its role as steering gear. The toothed rack positioned perpendicular to the vehicle's longitudinal axis transmits the steering movement via the tie rods and the steering arms to the steering knuckles. A drive pinion - which is connected to the steering column tube in a torque-proof manner via a joint coupling - is used to transfer the steering torque to the toothed rack. The toothed part of the toothed rack enables a variable steering ratio (for Direct-Steer system (CODE 213)). The gear ratio is defined by the ratio of turns on the drive pinion to the toothed rack stroke.

*Tie rod*

The tie rod connects the rack-and-pinion steering to the steering knuckle via the tie rod end and, in this way, transfers the toothed rack stroke to the front wheels.

	<b>Further basic functions</b>		
	Rack-and-pinion steering, basic function	Model all (CAR)	GF46.20-P-1001A
	<b>Control units</b>		

