

FACT SHEET

VOLVO DYNAMIC STEERING



Volvo Dynamic Steering

Volvo Dynamic Steering is an active steering system that produces a torque overlay of up to 25 Nm. The steering is progressive and gives more power to the steering when needed. It obtains a predetermined steering feel, independent of load and tyres, and contributes to a more relaxed driving through improved directional stability.

Additional torque to the steering gear

An electric motor is connected to the hydro-mechanical steering gear, giving an additional torque to it. The motor is electronically controlled through an ECU that receives signals from existing vehicle state sensors and an integrated torque sensor.

To fulfil the steering homologation, the hydraulic steering gear is available with two ratios (18.6 and 23.2). The standard steering wheel can be used.

If a severe failure is detected, Volvo Dynamic Steering goes to a failsafe state in which its electric motor is switched off. When the electric motor of the Volvo Dynamic Steering is switched off, the hydraulic assistance is still active and the steering works as on a truck without Volvo Dynamic Steering.

DRIVER APPEAL

- Reduced steering force by up to 85%.
- Reduced steering kicks caused by pot holes and other road damages at low speed.
- Reduction of driver wear and tear injuries through lower shunting forces (light steering at low speeds).
- The steering wheel returns to neutral when the truck is moving, thus making both reversing and forward driving at low speed easier.
- With personal settings, the driver can create and save their own steering feeling.

SAFETY

- Improved directional stability at high speed.
- Keeps the steering wheel straight forward also when braking on split friction.
- If the truck starts to skid, Stability Assist adds a guiding steering torque that helps the driver keep control of the truck.

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Sales variants

ACTST-TO Volvo Dynamic Steering

Active steering features

ASFE-BAS Basic features

ASFE-PS Personal settings

ASFE-OG Stability Assist

ASFE-PO Personal setting and Stability Assist

LKE-TBO* Lane keeping at emergency, tire blowout

*Included in ASFE-OG and ASFE-PO.

Personal setting

The driver can choose between some predefined steering feeling settings, but also create their own steering feeling by adjusting some steering parameters.

The settings allow the driver to adjust the steering feeling according to their own preferences on different type of roads and in different driving situations.

There are a number of predefined settings to choose from:

Default	The production setting, which gives a balanced steering feeling that is designed to be good for most drivers.
Light	Gives a very light, but still damped, steering wheel (low spring, high damping/friction).
Stable	Gives a firm, stable feeling, which may be desired, for example, on narrow roads (high spring, high damping/friction).
Response	Gives a sporty feeling (high spring, low damping/ friction).
Custom	Gives the driver the possibility to make their own tuning.

Create an own steering feeling

In custom mode the driver can create an own steering feeling by setting some steering parameters:

Straight ahead	Spring stiffness effect in the steering wheel around the straight ahead position (at small angles) at high speed. Gives a torque in the inwards direction towards the straight ahead position.
Cornering	Spring stiffness effect in the steering wheel in curves (at bigger angles) at high speed. Gives a torque in the inwards direction towards the straight ahead position.
Return	The amount of steering wheel return towards the straight ahead position when manoeuvring at low speed.
Damping	A speed-dependent torque resisting both inwards and outwards movement of the steering wheel, which gives a damping effect. Damping works at all vehicle speeds.

The Driver ID from the driver card is used to store personal settings for up to ten different drivers.



Personal settings allow the driver to adjust the steering feeling according to their own preferences on different types of roads and in different driving situations.

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On-centre adjustment

Vehicle pulling can happen due to a banked road, heavy side wind or uneven load distribution. A few trucks can have the problem that the straight ahead position differs significantly between unladen and laden vehicle or has changed after the body is installed on the chassis.



The on-centre adjustment function can be used for adjusting the straight ahead position of the steering wheel in strong side wind, on banked roads or with uneven load distribution.

If the vehicle is pulling, the driver can compensate this by moving the slider in the Volvo Dynamic Steering app. This will change the straight ahead position of the steering wheel. The setting will be changed back to default at key off.

Lane keeping at emergency

For trucks with Lane keeping assist (LSS-DWC) or Pilot assist (LSS-DW3) and ASFE-OG or ASFE-PO an additional safety feature reacts to emergency situations such as a tire blowout. This feature will further stabilise lateral side drift in the occurrence of an emergency.

Note! LKE-TBO will only be available for certain combinations, in VSS this will be visible.

Stability Assist

Stability Assist supports the driver when driving on low friction surfaces. It helps the driver to keep control of the vehicle and also helps the Electronic Stability Control (ESC/ESP) system to act quicker.



Stability Assist helps the driver keep control of the truck by adding a guiding steering torque when the trucks start to skid.

The purpose of the function is increased safety when driving on low friction roads.

Once Volvo Dynamic Steering detects that the truck starts to skid, the Stability Assist function starts to counter-steer, in the same way a very experienced driver would do to recover from the skid. This is done by adding a small guiding steering torque, resulting in a corrective steering action.

The corrective steering provides a further enhancement of the ESC/ESP system that controls the brakes. The skid is identified by the yaw rate sensor and Volvo Dynamic Steering adds a torque in the steering direction during a limited time, to support the driver in counteracting the oversteering. During an intervention, the ESC/ESP symbol in the instrument cluster comes on.

The Stability Assist system is useful in the following situations:

- When driving uphill on a slippery road, where the rear end of the truck may swing out when the driver accelerates.
- When driving through a curve on a slippery road, where the rear end of the truck may swing out when accelerating after the curve.
- When driving straight ahead on a slippery road, where the rear end of the truck may swing out when hitting an ice edge.
- When driving with no trailer on a slippery road, for example, in-between transport missions. The rear end of the truck may swing out when the driver accelerates.

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Pilot Assist

Volvo Dynamic Steering works together with Lane Support System – Pilot Assist (LSS-DW3). A front facing camera tracks the lane markings on the road and supports the driver. When the truck is on its way to cross the line, and the corresponding direction indicator is not activated, the system supports the driver with a gentle steering support to come back to the middle of the lane again.

Pilot Assist requires HWSS-AC/HWSS-ACB and ACTST-TO. For more information, see the fact sheet for LSS-DW3.