FOCUS Haldex system



What is it?

The **Haldex coupling**, used in all-wheel-drive vehicles, **allows for the management of different values of torque between the two axles**, continuously varying the percentage allocated to the front and rear wheels.



What is it made of?

It consists of a cylindrical housing containing **two sets of plates**, one connected to the front axle and the other to the rear axle, which make up the package of the electro-hydraulic multidisc clutch managed through elect ronic control. The clutch is of the oil-bathed multidisc type, and the pressure with which the plates are pushed together determines the amount of torque exchanged between the axle connected to the engine and the axle that comes into action in case of traction loss.





How does it work?

The system interacts and operates through the following components:

Oil reservoir

Preloaded spring accumulator, which provides the rapid increase in pressure necessary in case of sudden intervention request

Electronic control unit, connected to those of ABS and ESP

Hydraulic pump

Oil pressure control valve

Piston actuators, which bring closer or move away the two sets of plates

Under normal driving conditions, the Haldex clutch is open; therefore, the two axles are independent. However, if the ABS wheel speed sensor detects that the front axle is rotating faster than the rear axle, **the control unit activates the hydraulic pump**. By increasing the oil pressure in the actuators, **the pump brings the two sets of the clutch closer together**, tightening the clutch pack and allowing the transfer of torque between the two axles, thanks to the increased friction between the plates.



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