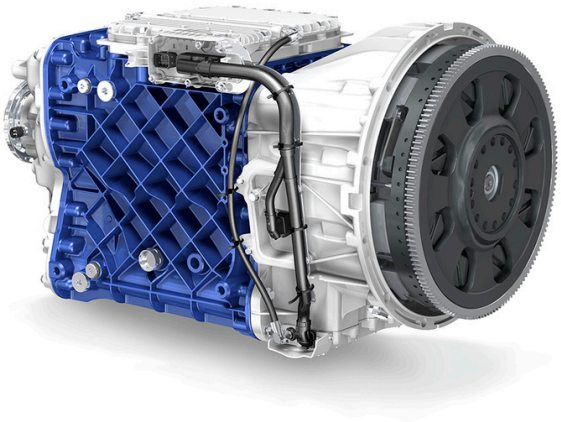
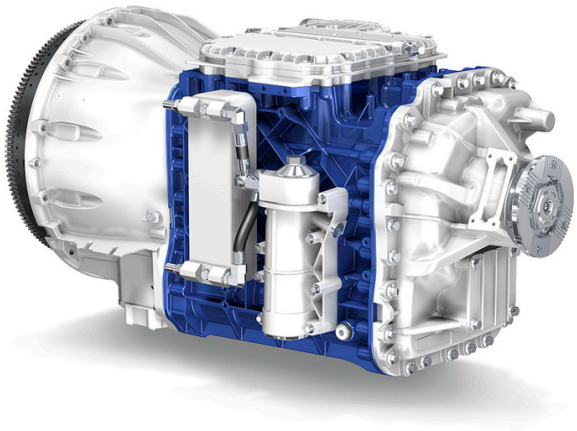
VOLVO

FACT SHEET

TRANSMISSION

SPO2812 I-Shift Dual Clutch





I-Shift Dual Clutch is a gearbox that can be powershifted, giving uninterrupted power transfer to the wheels, at most single-step gear changes. It features 12 gears and it is dimensioned for 2800 Nm of torque.

I-Shift Dual Clutch has a unique and fast gear-changing system, enabling powershift gear changes.

Powershifting makes it possible to perform most single-step shifts with no interruptions in power and torque delivery during gear changing. The large ratio coverage of the gearbox provides high starting traction and low fuel consumption. The advanced software has well-adapted gear change strategies.

I-Shift Dual Clutch handles up to 80 tonnes of gross combination weight, ideal for long haul and regional haul operations, including liquid and timber transports.

In transports where speed and topography vary a lot I-Shift Dual Clutch is ideal to maintain the highest possible average speed in combination with excellent fuel consumption performance. The uninterrupted power transfer also contributes to a very smooth ride to be the perfect choice for many sensitive transports.

A power take-off, compact retarder and emergency power steering pump can be fitted to the transmission. An oil cooler is required for SPO2812.

Long intervals between oil changes promote low operating costs and less environmental impact. With special oil, filter and oil changes take place after a maximum of 450,000 km or every third year.

FEATURES AND BENEFITS

- Smooth and fast gear changing without torque and power loss, giving an extremely good driving comfort.
- Software program package adapts the gear changes to the prevailing transport conditions.
- Powershifting is possible for every single-step gear change except when changing the range gear (gear 6-7).
- Possibility of manual gear selection and locking of the current gear promotes high driving flexibility.
- Low weight thanks to compact construction and aluminium housings.
- Suitable for long haul and regional haul operations, including liquid and timber transports.

PC24

FACT SHEET

TRANSMISSION

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Dual clutch transmission

I-Shift Dual Clutch can be described as “two gearboxes with two clutches”, integrated into one unit. The two clutches are connected to two different input shafts, operating independently of each other.

Since the gearbox has 12 gears, one shaft holds the six odd-numbered gears, while the other holds the six even-numbered gears.

When the first gear is engaged its clutch is applied. The second gear on the second shaft will be engaged, and will be connected when it is time for a gear change. Then the torque is transferred to the second clutch, without torque interruption delivered to the wheels.

The function is referred to as “Powershifting” and can be performed at all single-step shifts except between gear 6 and 7 (range gear shift). Note that in certain cases and/or conditions the gearbox will perform a “normal” gear change, depending on software strategy and factors like vehicle GCW and throttle position.

The clutches are controlled by the DCCA (Dual Concentric Clutch Actuator), which in turn is pneumatically controlled via the DCVU (Dual Clutch Valve Unit). Another unit, GCU (Gearbox Control Unit), controls the gear changing. The clutches are of the dry type.

Two input shafts and synchronised range gear

The main section has two input shafts, three main forward ratios and one reverse ratio. A synchronised range gear of planetary type is located in the range housing. The dog clutches of the main section are unsynchronised.

In all powershifts, a mechanical unit carries out an appropriate synchronisation of speeds prior to engaging a gear (while power is transferred in another gear). In other shifts, speed synchronisation is performed by controlling the engine and a brake in the gearbox.

Strong and dependable components

All the gears are made of special, casehardened steel, providing considerable strength. With helical gears in the main- as well as the range-change section, more gear surface is in mesh at any given time. This promotes quiet operation and high reliability.

Flexible gear-changing system

I-Shift is a very flexible gear-changing system. In Auto mode, gears change automatically even with the cruise control engaged.

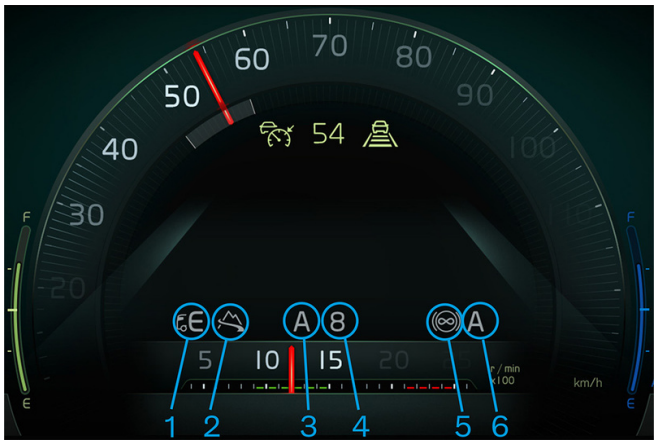
In sensitive driving conditions with seat mounted gear selector, the driver can switch to the Manual mode. In Manual mode the driver changes gear manually using a button integrated into the gear lever. Since clutch operation is controlled by the gear changing system, there is no clutch pedal.

I-Shift gear selector in seat or in dashboard

For I-Shift gearboxes, there is a choice between a seat mounted and a dashboard-mounted gear selector. The seat mounted is best suited for rough or complex driving while the dashboard-mounted selector provides extra room in the cab. For more information, see fact sheet “I-Shift gear selector”.

I-Shift drive modes and for optimum efficiency

The I-Shift gearbox’s functions are optimized with specially adapted drive modes, which make the gearbox even more practical and economical by adapting the gearshift functionality to the current transport conditions. For more information, see fact sheet “I-Shift drive modes and software functions”.



Shown on the display: 1. Drive mode 2. I-See symbol (Green = Working / Grey = Engaged “Ready to work”) 3. Automatic gear shifts / Manual gear shifts 4. Selected gear 5. Aux Brakes engaged 6. Brake level in position automatic (A=Brake blend)

PC24

FACT SHEET

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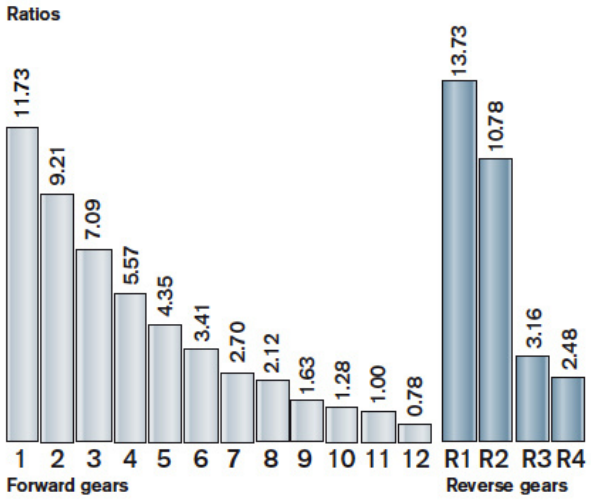
SPECIFICATION

Type designation..... SPO2812
Generation..... A
Type..... Dual clutch over drive transmission
Max incoming torque..... 2800 Nm
Max gross combination weight..... 80 tonnes
Number of forward gears.....12
Number of reverse gears.....4
Weight without oil..... 307 kg
Oil-change volume..... approx. 16 l
Oil-change volume incl. oil cooler with normal capacity....approx. 16 l
Oil-change volume incl. oil cooler with high capacity.....approx. 17 l



Ratios SPO2812