

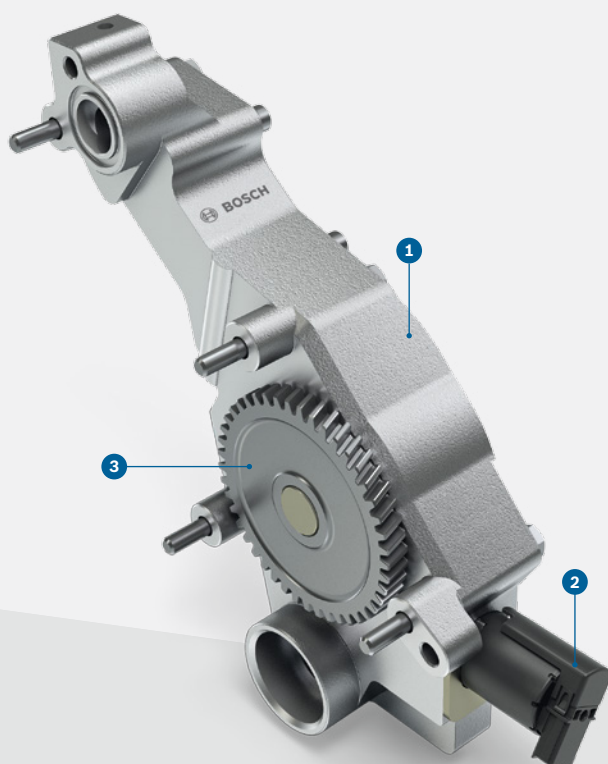
# Engine lubrication and piston cooling

Variable oil pump for gasoline and diesel engines



**BOSCH**

Invented for life



## PRODUCT BENEFITS

- ▶ Lower CO<sub>2</sub> emissions
- ▶ Constant and variable delivery pressure over the entire temperature range
- ▶ Can be combined with vacuum or water pump
- ▶ Wide range of displacements and pump speed
- ▶ Optional safety valve for higher cold-start requirements
- ▶ High quality (Bosch Production System)

- 1 Housing
- 2 Solenoid control valve
- 3 Drive gear



# up to -50% CO<sub>2</sub>

due to the variable oil pump with proportional valve compared to a fix displacement oil pump

## TASK

For efficient engine lubrication and piston cooling, the variable oil pump supplies exactly the right amount of oil in all situations and minimizes the torque absorption in non-critical operating points. Fuel consumption and CO<sub>2</sub> emissions are reduced by displacement adjustment.

## FUNCTION

Bosch variable oil pump is based on the multi-vane principle. Its design enables displacement adjustment, in such way the oil pressure level can be freely regulated within a defined pressure range. Hereby, customer- and engine-specific calibration is tuned to ensure a sufficient oil supply at all critical operating points and to minimize the oil pump torque absorption at non-critical operating points.

## VARIANTS

To meet various customer requests, Bosch offers the variable oil pump in different versions, such as oil pan design, compact front design and engine cover design.

## 3-stages

optimization: variable oil pump, oil circuit, and specific driving cycle

## one solution

for hardware, software, and calibration to achieve particularly efficient oil circuits and to reduce CO<sub>2</sub> emissions

## TECHNICAL CHARACTERISTICS

Regulation	displacement adjustment through eccentric stator
Control strategy	self-regulation, two-pressure level, full-map control
Pressure level	fully variable from 1 to 5 bar
Drive	directly by crankshaft or via pulley, gears or chain

- 1 Electronic engine control unit
- 2 Oil pressure sensor
- 3 Oil filter
- 4 Solenoid control valve
- 5 Variable oil pump
- 6 Oil pan filter
- 7 Oil pan

