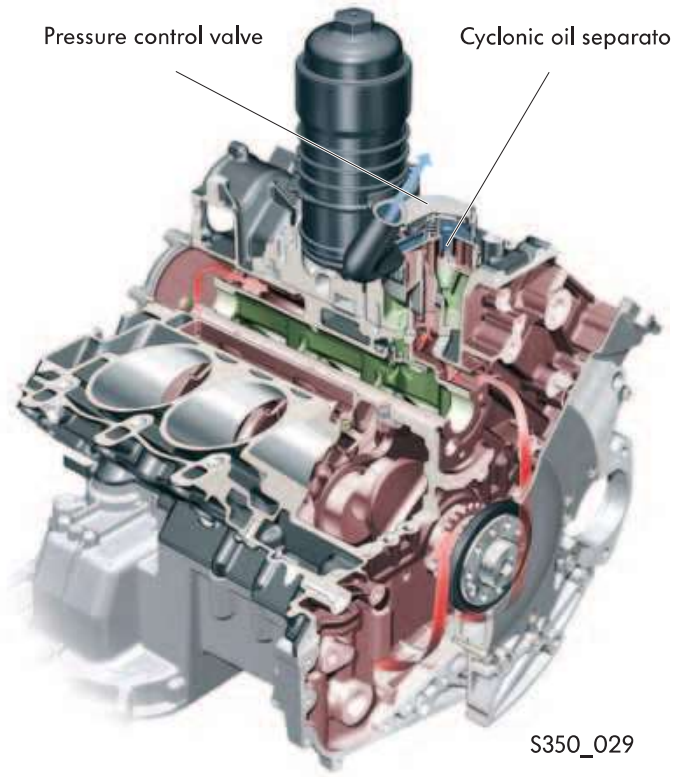
Crankcase breather system

In combustion engines, pressure differences between the combustion chamber and crankcase lead to air flows between the piston rings and cylinder contact surface; these are called blow-by gases.
To prevent environmental pollution, these gases, which contain oil, are fed back to the intake area via the crankcase breather system.
A cyclonic oil separator separates the oil contained in the gases from the air. This oil is returned to the oil pan via a port in the crankcase.



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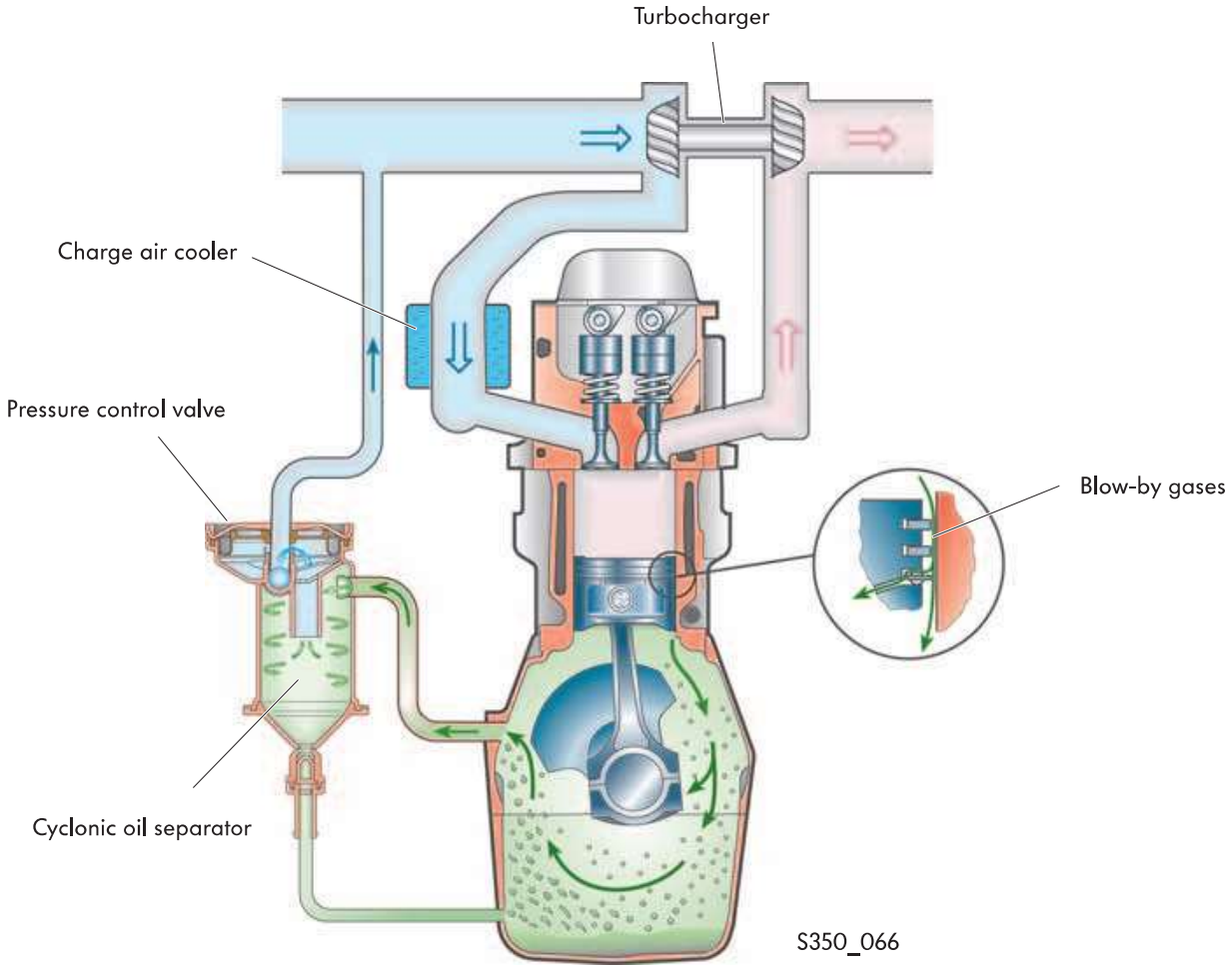
Functional principle



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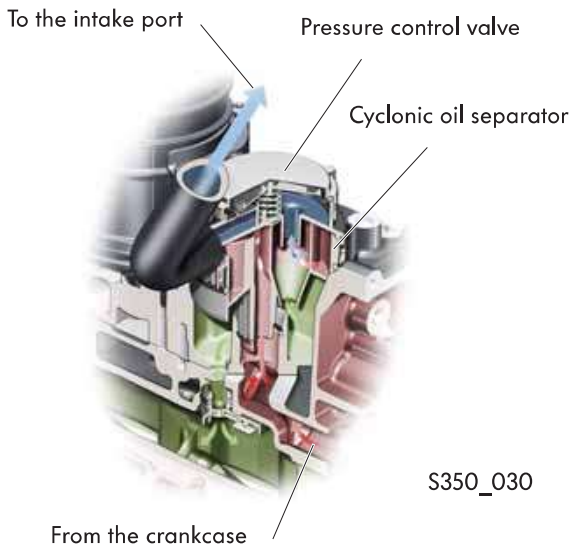
Function of the cyclonic oil separator

The blow-by gases are fed to the cyclonic oil separator via a port inside the engine.

The cyclonic oil separator causes the air to rotate. Due to the centrifugal force which occurs, the oil spray is spun onto the wall of the separator.
Oil droplets form there, and these flow off into the oil pan via a port in the crankcase. The air, from which the oil spray has been removed, is fed back into the intake port via the pressure control valve.



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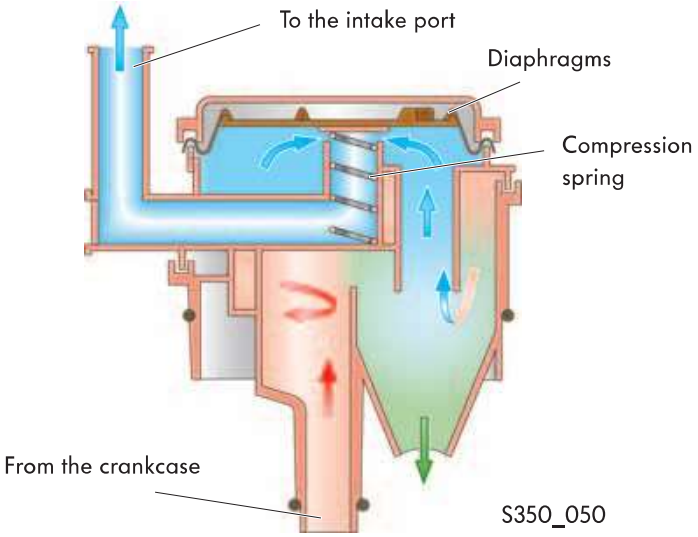
Function of the pressure control valve

The pressure control valve is located in the cover of the cyclonic oil separator. It is comprised of a membrane and a pressure spring, and regulates the pressure for venting the crankcase.

When the blow-by gases are introduced, the pressure control valve limits the vacuum in the crankcase, as engine gaskets may become damaged if there is an excessive vacuum.

If the vacuum in the intake port is high, the pressure control valve closes. In the case of a low vacuum in the intake port, it opens by means of the pressure spring's force.

Pressure control valve open



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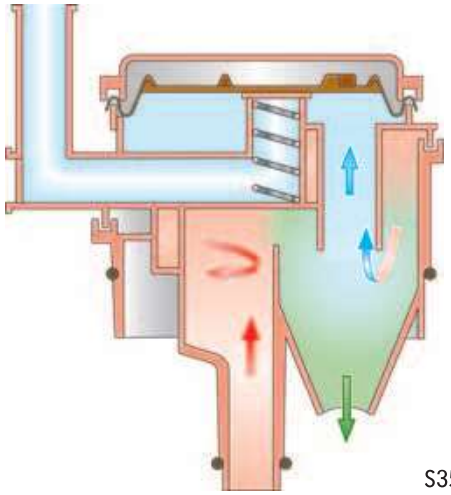
Pressure control valve closed



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