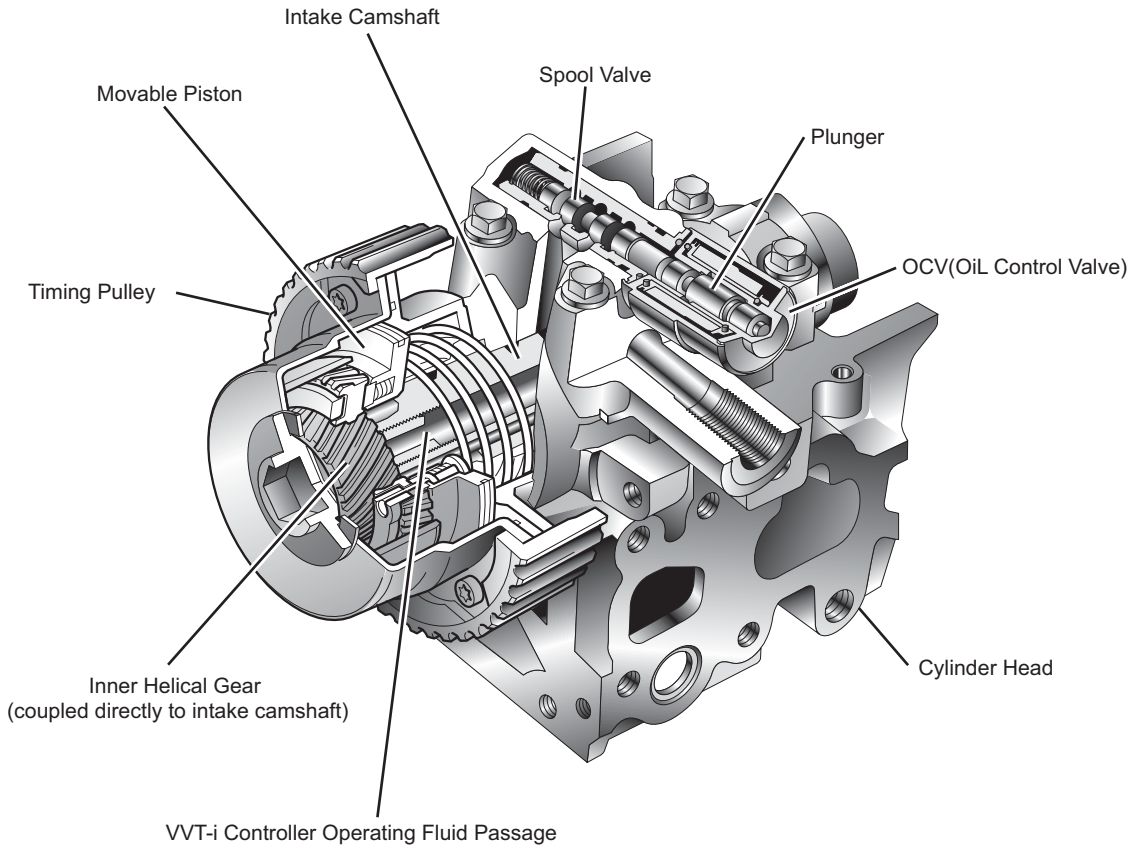
EG

VVT-i Controller

- The VVT-i controller consists of an outer helical gear that is mounted to the timing pulley, an inner helical gear that is mounted to the intake camshaft, and a movable piston that contains helical splines along its inner and outer peripheries.
- The duty cycle signals from the engine ECU cause the plunger in the OCV (Oil Control Valve) to actuate, thus moving the spool valve to switch the hydraulic pressure that acts on the advance chamber and the retard chamber of the VVT-i controller.
- The hydraulic pressure from the OCV acts on the movable piston through the oil passage inside the intake camshaft, causing the movable piston to rotate axially. At this time, the helical splines cause the outer helical gear and the inner helical gear to rotate in the relative directions, and a phase difference is created between the timing pulley and the intake camshaft.
- The VVT-i controller controls this phase difference in order to constantly achieve optimal valve timing in accordance with the driving conditions.



*The illustration shows a conceptual image. The actual shape differs slightly.

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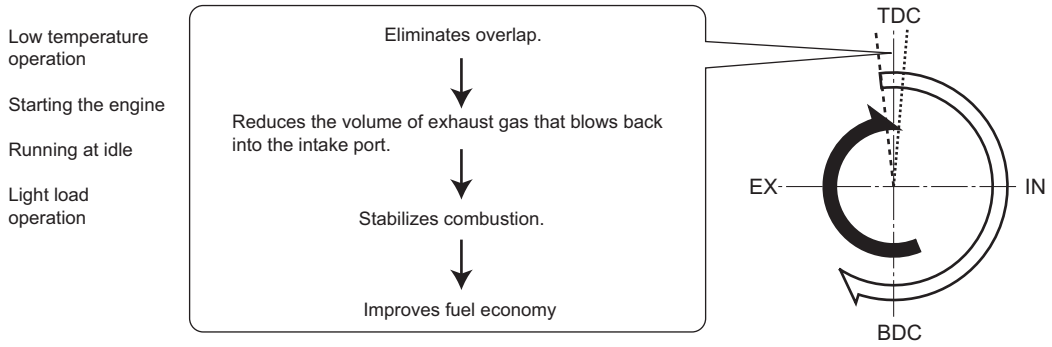
Effects of VVT-i

- The VVT-i continuously varies the phases of the camshaft in order to regulate the valve timing in accordance with the driving conditions. Thus, it realizes fuel economy, high power output, and low emissions.



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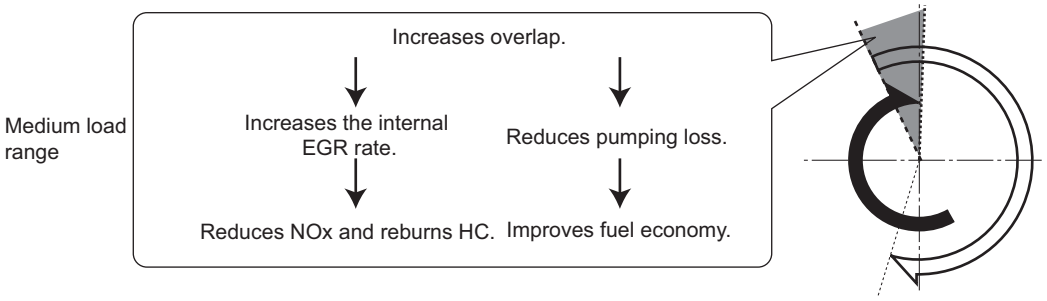
Medium load range



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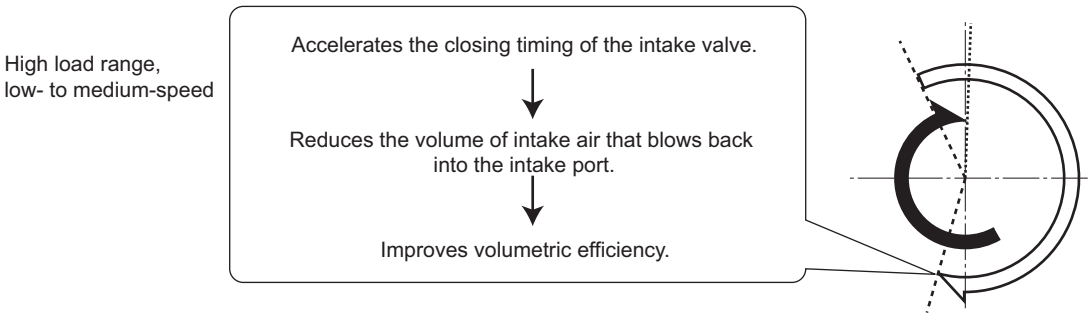
High load range,low- to medium-speed



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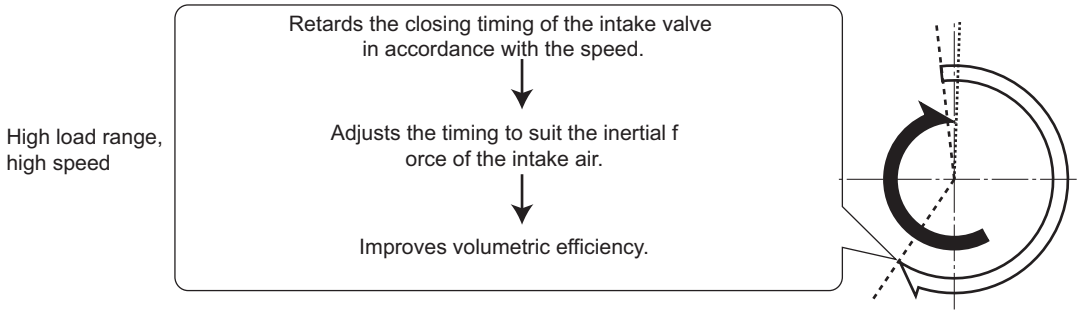
High load range, high speed



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