NISSAN

VQ35HR Engine/VQ25HR Engine

The VQ35HR and VQ25HR are the two newest engines in the VQ series, developed as part of Nissan's ongoing pursuit of the ultimate in responsive, smooth-revving powerplants. From the time the series debuted in 1994, the VQ has been highly acclaimed* for its powerful evolution in line with the concepts of simplicity, compactness, low friction and responsiveness.
Both of these V-6 engines have inherited the core elements of earlier VQ generations, with further enhancements to boost their capability to rev to high speeds and improve their smooth operation. They have evolved into next-generation FR V-type engines that offer a smooth and comfortable driving experience.


New VQ35HR engine

*The VQ is the only engine in the world to win a spot on Ward's "10 Best Engines" list for 14 years running, starting from the inception of the list in 1995 through 2008.

Features

Revs up smoothly to high speeds

- Radical reduced level of friction plus improved rigidity

  ➡ Redlines at 7500 rpm

Top-in-class power output

- Incorporating VTC produces optimal valve open/close timing, intake and exhaust on both sides

  ➡ Enhanced intake, exhaust and combustion efficiency

Better fuel efficiency and lower exhaust emissions

- Incorporates the world's first hydrogen-free valve lifter coated with diamond-like carbon (DLC), which significantly reduces friction

  ➡ Better practical fuel efficiency, lower CO_2 emissions

These elements combine to achieve the cleanest emissions in class.

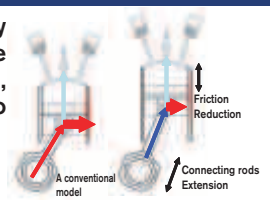
Compelling, dynamic sound

- Positioning the intake and exhaust systems symmetrically gives the engine a clear and impressive resonance

Examples of Newly Incorporated Technology

Longer connecting rods

Lengthening the connecting rods by 7.6 mm reduces piston knock on the cylinder walls. This lessens friction, supplying smoother piston action to enhance high-rev performance.



Ladder frame support

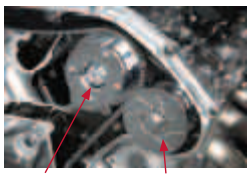
(Note: VQ35HR only)

Adding a ladder frame to support the crank strengthens rigidity, which dampens vibrations and greatly reduces friction at high speeds.


Ladder frame

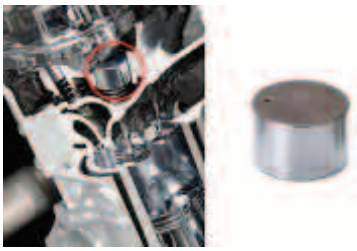
CVTC installed on both the intake and exhaust

The CVTC (continuously variable valve timing control) system sets the optimal opening and closing of the intake and exhaust valves according to the engine's speed.
The hydraulic CVTC expands the valve angle on the hydraulic intake cam side, while an e-CVTC (electromagnetic CVTC) system is used on the exhaust side. Together, they boost fuel efficiency at all engine speeds.


Hydraulic CVTC Electromagnetic CVTC (e-VTC)

Hydrogen-free DLC-coated valve lifter

Coating the valve lifter with smooth-surfaced hydrogen-free diamond-like carbon, or DLC, has reduced friction by approximately 40 percent and improved practical fuel efficiency.


Hydrogen-free DLC valve lifter

Isometric exhaust manifold

Making the left and right exhaust manifolds of equal length produces a clearer and more dynamic exhaust note. This isometric design prevents unwanted interference between the exhaust pulsations each cylinder produces following combustion, minimizing undesirable sound components. Exhaust efficiency is also improved, producing extra torque at low to mid speeds.

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