

HR15DE Engine and MR20DE Engine

The HR15DE and the MR20DE are in-line 4-cylinder gasoline engines, developed jointly by Nissan and Renault as global strategy engines for use on both companies' volume-selling models.

HR15DE



Replacement for Nissan G15/G16 engines

MR20DE



Replacement for Nissan R20 and G18 engines

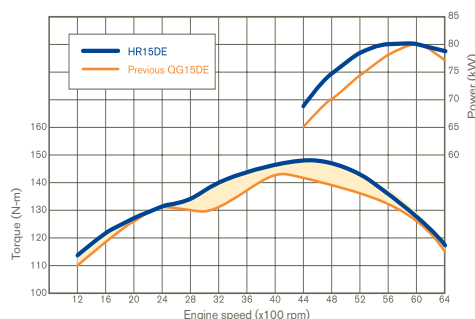
Sharing many new technologies, the HR15DE engine and the MR20DE engine are designed to provide excellent fuel economy and improved acceleration under the conditions most commonly encountered in everyday driving. Application of the HR15DE engine began with the Tiida and the MR20DE engine was first used on the Lafesta.

Features

1. Best-in-class torque at low to medium speeds and high efficiency

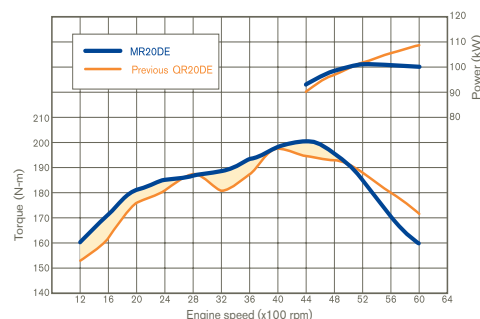
Fundamental engine attributes were thoroughly enhanced to achieve class-leading torque at low to medium speeds, low friction and high thermal efficiency.

2. Compact, lightest-in-class design



The HR15DE engine delivers powerful low-end torque and pleasing acceleration at medium to high speeds to achieve enjoyable driving performance and low fuel consumption under real-world driving conditions in combination with a continuously variable transmission (CVT).

- (1) Large torque at low speed
- (2) A linearly increasing torque curve at medium to high speeds



The 2.0-liter MR20DE engine provides the low-end torque of a 2.2-liter engine and a broad, flat torque curve. In combination with a CVT, this results in highly enjoyable driving performance and excellent fuel economy under real-world driving conditions.

- (1) 90% of maximum torque available from 2000 rpm
- (2) A broad, flat torque curve that increases linearly without faltering

Examples of applied technologies

Friction reduction technologies

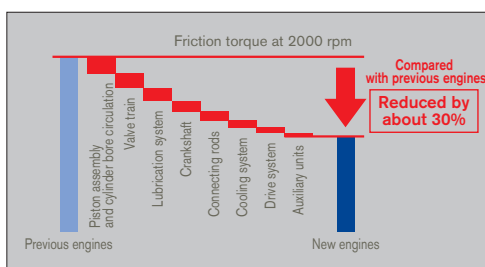
The accumulation of advanced technologies has reduced friction by about 30% compared with the previous engines.

(1) Bore circularity machining

The technology used to machine the exceptionally round cylinder bores of racing engines has now been applied to mass-produced engines intended for global use.

(2) Mirror-like finish

A mirror-like finishing technique is applied to the surfaces of the crankshaft pin/journal and cam lobe/journal, polishing them to near mirror smoothness. This mirror-like finish markedly reduces the friction of sliding surfaces.



Class-leading thermal efficiency

Combustion speed and other characteristics have been improved to achieve best-in-class thermal efficiency.

Acoustically equal-length intake manifold branches

The length of the four intake manifold branches was equalized acoustically to emphasize only the fundamental order components that produce a pleasant, clear sound and to reduce substantially the half-order components that cause an unclear sound. In addition, the sound pressure is designed to rise together with an increase in engine speed to create a pleasing feeling of acceleration.