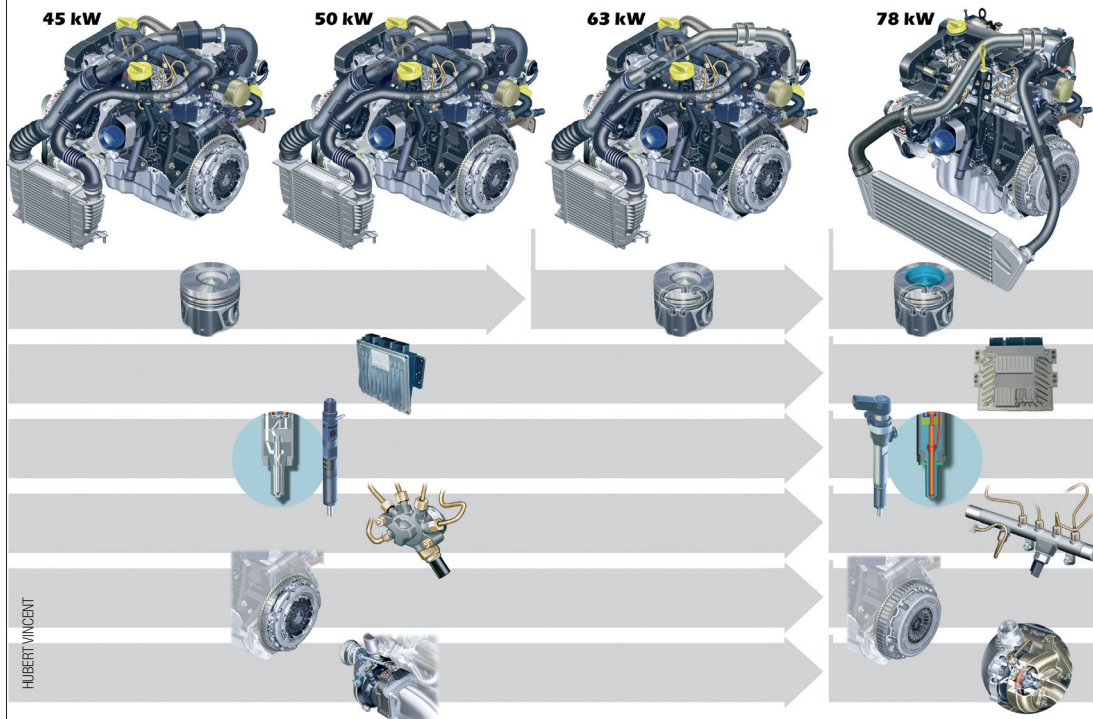


POWER UNITS

At the heart of the car, **the engine alone is the subject of intense research.** Reliability, performance, driving pleasure, acoustics, consumption, respect for the environment, among other factors, are required of it.



▸ Safety

▸ Environment

▸ **Life on board**

▸ Mobility

▸ Competitiveness

BASIC FACTS

Long gone are the days

when the choice of an engine was limited to the petrol or diesel alternative. The engine is not a component like any other: it establishes the personality of the vehicle. Not forgetting that when a user changes vehicle,

he expects an engine of identical capacity to his previous vehicle to offer better performance thanks to technological advances.

An engine is not a single piece

but a relatively modular collection of components, some of which can be modified without necessarily

having to conduct long studies into their development from the start. Renault has gambled on this "flexibility" to develop the "K" family of engines. It enables numerous variations of the engine to be developed from a common base, both in petrol and diesel.

IN SHORT

WHETHER A PETROL OR A DIESEL UNIT, THE ENGINE ESTABLISHES THE TEMPERAMENT OF A VEHICLE. RENAULT HAS DEVELOPED THE NOTION OF ENGINE FAMILIES, WHICH, BY ADAPTING ENGINE "FLEXIBILITY", ENABLES SEVERAL VERSIONS OF THE SAME BASIC ENGINE TO BE OFFERED, NOT ONLY IN TERMS OF FUEL (PETROL OR DIESEL) BUT ALSO WITH DIFFERENT CAPACITIES AND CHARACTERISTICS.

HOW DOES IT WORK?

A family of engines

is not defined by its capacity nor by the type of fuel used (petrol or diesel), but by a dimension: the centreline distance. The centreline distance is the distance that separates the centre of two cylinders. This separation conditions many engine parameters, such as its overall dimensions, the thickness of the "jackets" (walls separating each cylinder) and, above all, the equipment required to produce it.

To manufacture an engine, the centreline distance determines the characteristics of the production line. In particular, it fixes

the specifications of the tools required to machine the jackets. A production line is extremely costly.

Another solution exists to modify the capacity and temperament of an engine without changing the centreline distance. This consists of changing the piston stroke: the greater the stroke, the higher the capacity. It is this solution that was chosen by Renault to produce its "K" family. In this case, production modifications are limited to the crankshaft and the length of the connecting rods. For the petrol series, two different strokes, 70 mm and 80.5 mm,

means that 1.4 L and 1.6 L versions can be proposed using the same engine base. In the diesel version, a single stroke of 80.5 mm was retained; the modifications are limited to increasing the height of the cylinder casing, essential to house a piston head with integrated combustion chamber larger than on petrol versions.

Finally, numerous "peripherals", such as the turbocharger or camshaft angle variator (see sheets) offer other possibilities for modifying engine performance. Engines in the "K" series are thus available on many Renault models.