

TECHNICAL INFORMATION SHEET



IGNITION
PARTS

SPARK PLUG OVERTIGHTENING

Inadvertent over tightening of a spark plug can lead to the most dangerous, potentially engine damaging, scenario from an installation problem.

It is worth stating that a spark plug itself **produces no heat**. The plug, in addition to its primary role of igniting the mixture, has to act as a conduit for removing heat from the firing tip, generated within the combustion chamber during the fuel burn cycle.

Over tightening of a spark plug can cause the metal shell to deform, fracture or break. Deformation can cause the insulator to crack (sometimes hidden from view) or to become loose within the metal body during vehicle use, due to loss of the special packing powder inside the product. Deformation can also cause internal distortion of the spark plug and **alter its ability to transfer heat away from the plug tip efficiently**.

The more common result of over tightening is fracture of the metal shell during installation. This results in either immediate breakage (at the top of the thread or just below the hexagon), or a fracture remains unnoticed, with final breakage occurring during engine operation or when the spark plug is next removed.

The following chart will assist with selecting the correct torque recommended for different plug types. Note there is a difference between cast iron and aluminium cylinder heads, also between flat seat (gasket type) and conical (taper) seat type spark plugs.

Spark Plug Type	Thread Diameter	Cast Iron Cylinder Head	Aluminium Cylinder Head
Flat Seat Type (with sealing gasket)	ø18mm	35~45Nm (25.3~32.5 lbs ft)	35~40Nm (25.3~28.9 lbs ft)
	ø14mm	25~35Nm (18.0~25.3 lbs ft)	25~30Nm (18.0~21.6 lbs ft)
	ø12mm	15~25Nm (10.8~18.0 lbs ft)	15~20Nm (10.8~14.5 lbs ft)
	ø10mm	10~15Nm (7.2~10.8 lbs ft)	10~12Nm (7.2~8.7 lbs ft)
	ø8mm	- -	8~10Nm (5.8~7.2 lbs ft)
Conical (taper) Seat Type (no sealing gasket)	ø18mm	20~30Nm (14.5~21.6 lbs ft)	20~30Nm (14.5~21.6 lbs ft)
	ø12 & 14mm	15~25Nm (10.0~18.0 lbs ft)	10~20Nm (7.2~14.5 lbs ft)

We do not recommend the application of lubricant to NGK spark plug threads as the resultant reduction of frictional forces at the thread faces will render the torque charts inaccurate and over tightening could occur.

Particular attention should be paid when fitting spark plugs into 'twin spark' heads (two spark plugs per cylinder). Sometimes the two plugs have different thread diameters.

If a torque wrench is unavailable, then refer to the vehicle manufacturers installation instructions or the tightening angle advice displayed on specific NGK spark plug packaging (excluding specialist race plugs).

Important: Note that this angle advice can differ between part numbers due to individual spark plug design (e.g. seating type, thread diameter and gasket material).

Re-used gasket type spark plugs require only 1/12 turn.

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