



03

How to Choose a Plug

Various circumstances such as engine conditions and driving conditions are rough measures for choosing a plug. For example, if strenuous driving is continued for a long time using normal plugs, the plug will overheat. This is why the idea of a regular plug for a regular car doesn't work. What's important is to inspect the condition of your current plugs, and then choose a plug accordingly.

Heat Range	Application
31	To prevent plug overheat
27	Standard Plugs
24	
22	
20	To prevent carbon fouling/ oil fouling

Low ← → High
Level of Tuning

The heat range will change with the seasons.

When the air temperature is high, as in the summer, the inlet air temperature becomes higher, increasing the load on the engine. In times like this, it's better to choose a plug with a higher heat range.

The more horsepower is increased, the higher the required heat range.

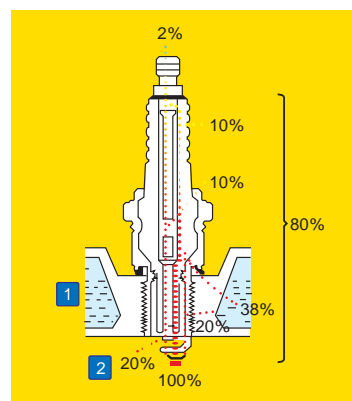
If the horsepower has been increased through tuning, the increase in explosive power leads to an increase in combustion chamber temperature, making pre-ignition more likely; in such cases it is necessary to choose a plug with a higher heat range and a higher level of heat resistance.

Glossary of spark plug terms

What is a spark plug's heat range ?

Spark plug heat dispersal

The degree to which a spark plug disperses the heat it receives is called its "heat range". Spark plugs with a high degree of heat dispersal are called high heat range (cold type) and those with a low degree of heat dispersal are called low heat range (hot type).

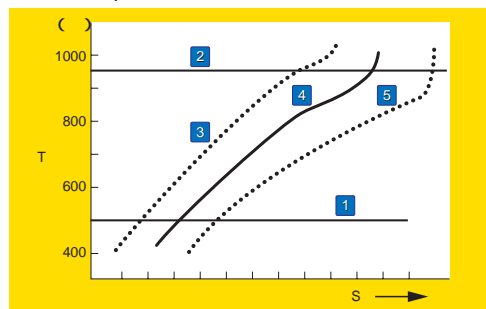


This is largely determined by the temperature of the gas inside the combustion chamber and the spark plug design.

- 1 Water
- 2 Cooled by intake air-fuel mixture

The relationship between the spark plug temperature and vehicle speed and heat range

There are restrictions on the temperatures at which spark plugs can be used: the lower limit is the self-cleaning temperature and the upper limit is the pre-ignition temperature. A spark plug only functions completely when its center electrode temperature is between these temperatures of about 500°C and 950°C.



- 1 Self-cleaning temperature
 - 2 Pre-ignition temperature
 - 3 Low heat range (hot type) spark plugs
 - 4 Standard spark plugs
 - 5 High heat range (cold type) spark plugs
- S: Vehicle speed T: Spark plug temperature (°C)

Low heat range and high heat range

Low heat range plugs have long insulator leg sections and the surface area affected by the flame and the gas pocket capacity are large. Also, since the heat release path from the insulator leg section to the housing is long, heat dispersal is low and the temperature of the center electrode rises easily. On the other hand, high heat range plugs have short insulator legs and the surface area affected by the flame and the gas pocket capacity are small. Also since the heat release path from the insulator leg section to the housing is short, heat dispersal is high and the temperature of the center electrode does not rise easily.

