

IGNITION TECH Q&A



# Q&A about Tuning Cars

Q.1

I have a 4AG engine NA tuned, with a Solex 44 dia. carburetor installed, giving a 200PS output. Which plug is good for a car such as this?

**A** DENSO has **IRIDIUMPOWER** and **IRIDIUM RACING** to meet the needs of tuned and racing engines. For the engine described in the question, the right plug should be around **IRIDIUMPOWER** IK (IQ) 22, 24, or 27. Here is an introduction to using the different types of the Iridium Series on racing engines.

**IRIDIUMPOWER**: NA Tuned (Short distance racing), Turbo tuned where a regular turbine has been tuned to increase the boost.

**IRIDIUM RACING (01 Type)**: The 01 Type is usually called the slant ground electrode type. If your car is turbo tuned where the turbine has been replaced and the boost pressure is above 1.2 to 1.3 kg/cm<sup>2</sup>, an **IRIDIUM RACING** 01 type is needed. Also, if a NA tuned engine with comparatively high vibration (4 cylinders) is to be raced over long distances, switching to this type can increase the reliability of the ground electrodes.

**IRIDIUM RACING (02 Type)**: The 02 type (flat ground type) is appropriate for higher output engines than the 01 type, but because the spark position is withdrawn compared to the 01 type, only consider this plug for racing applications.

Q.2

I drive a GT-R tuned to 850HP. Would it be okay to install 0.4 mm dia. Iridium Power series plugs?

**A** The DENSO Iridium Series have the world's thinnest 0.4 mm iridium center electrodes, but because the durability of the iridium alloy developed by DENSO is higher than even platinum, which has in the past been said to be the most durable, it can be said that it's the best plug for tuned engines. Specifically, it has the following advantages:

[1] Iridium alloy has a melting point and hardness above that of platinum, even turbo, with its high combustion temperature, can be used with confidence. Also, even when used with powerful ignition systems such as MSD and MDI, these plugs are even more reliable than platinum racing plugs.

[2] The issue for high boost engines is that misfiring that occurs at high revolutions. The fine electrodes of the Iridium series require a lower voltage, allowing the energy generated by the coil to be sparked without losses. It can be said the 0.4 mm dia. DENSO **IRIDIUMPOWER** series are a strong ally of tuned high-boost turbo systems.



Q.3

What is the optimum heat range for a tuned up Golf4 GTI 1.8L Turbo? (Tuning: Turbine Changed, High Volume Injector Installed, and ROM Adjusted to give an output of 200PS from 150PS.)

**A** It's difficult to give a heat range based on going from 150PS to 200PS alone, and it's best if you judge the condition of your current plugs and judge for yourself, but as a general rule, for boost pressures between 1.0 and 1.2 kg/cm<sup>2</sup>, an IK24 should be sufficient. During the winter, IK22 should improve starting and low speed feel. The heat range is different depending on how the engine has been tuned and how it's used; using an increase in heat range of 1 or 2 as a starting point, decide on a heat range, always looking at the condition of your current plugs.

Q.4

Can an **IRIDIUMPOWER** be installed on an RX-7 (SA22C Turbo Model)?

**A** In the rotary engines in some old Mazda's on the T (Trailing) side there is a plug, the terminal nut for which must be removed. In others, the removal of the T side plug terminal nut is necessary as in the Cosmo (HB22S). DENSO has **IRIDIUM RACING** for rotary engines, with a variety of heat ranges from #27 to #35. **IRIDIUM RACING** for Rotary Engines come standard with terminal nuts.

Q.5

The plugs of racing karts are susceptible to carbon fouling, but how does **IRIDIUMPOWER** do in this case?

**A** We frequently hear that **IRIDIUMPOWER** is resistant to carbon fouling compared to plugs from other companies. However, there is no way that they are a 100% solution, and it's good to know these techniques to prevent carbon fouling.

[1] When rolling in the race, close the carburetor's low needle or pinch the fuel pipe with your hand to prevent excess fuel from entering the engine.

[2] By pumping the accelerator during rolling, a rich fuel air mixture goes into the engine, making it easier for carbon fouling to occur. Operate the accelerator gently.

[3] If carbon fouling happens while running with the throttle fully open, this could mean that the heat range is too low or that the fuel mix is too rich. Consult with a kart shop to find the optimum setting.

Q.6

Please advise us about selecting a plug for upgraded turbo engine vehicles.

**A** The following suggestions are only guidelines. First, regarding thermal value, if the boost pressure is 1.4 or lower, please choose No. 24. For thermal values of 1.5 or above, we recommend using No. 27. Thermal value may vary depending on the engine type and tuning, so please decide after checking the burned condition of the plugs.

Next, regarding the type of plug, if the boost pressure is 1.7 or lower, either **IRIDIUMPOWER** or **IRIDIUM RACING** can be used. As a guideline, if you often drive with lower speeds or in town, **IRIDIUMPOWER** is recommended since it is resistant to carbon fouling. If you are racing in 400-meter runs or often drive at high speeds, we recommend **IRIDIUM RACING**. When the boost pressure exceeds 1.7, it causes misfiring at high rpm. In such cases, it is necessary to use **IRIDIUM RACING**.