Champion Spark Plugs
for Proven Performance

Edelbrock has joined with **Champion** to bring you the correct and best performing spark plugs for your application. These plugs add to our Total Power Package for ignition reliability and maximum performance. Use the information on these pages to help you select the right plug for your vehicle or use the Power Package Guide for typical street applications.

Whether for racing, off-road, or daily driving, Edelbrock and Champion have the parts you need for the performance you want. ***Note that Edelbrock aluminum heads require different plugs than stock iron heads.***

Three Steps To Selecting a High Performance Plug

When using this guide, understand that high performance spark plugs are usually of a much colder heat range than standard automotive or street plugs. Colder heat ranges must be used in engines with increased cylinder pressures and temps and higher brake-specific power output. Racing engines are stressed to extreme limits and require a specially constructed spark plug to operate in that environment. The first area to investigate will be the type of shell needed. In order to gather this information you must know the thread diameter, length and seat type required by your cylinder head. Do not use a removed spark plug as a guide for determining proper shell dimensions. Failure to get accurate information in this area can result in decreased performance and damaged engines. The second step is to select a gap style that will maximize your performance based on your operating environment. Champion makes numerous electrode and gap configurations to meet the needs of all racing applications. The third step is to select the heat range that corresponds with the required shell and gap style. We recommend that you start your selection of heat range on the cold side of the available plugs and work your way up to a hotter design by reading the plug. Once a plug has been selected, it should be installed and run during practice with the motor "cut clean" to allow proper reading of the plugs. Remember, make only one change at a time. Do not make spark plug changes along with injection/carburetion or timing changes as this can result in misleading or inaccurate conclusions.

Step 1: One-Shell Design and Selection

Physical inspection of the cylinder head is required to determine the thread diameter, thread length or reach, and the type of seat design used by the cylinder head. The thread diameter can be 10, 12 or 14mm. The length of the threaded portion of the spark plug, as measured from the end of the threaded area to the seat, varies from .375" to .750". Either a gasket type or a tapered seat type of seat design is used by the cylinder head. Failure to determine the right type of seat can result in inconsistent heat range and potential engine damage (refer to the chart below).

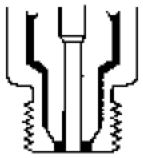
Series	Diameter	Reach	Hex	Type
G	10mm	.750"	5/8"	Gasket
A	12mm	.750"	18mm	Gasket

J	14mm	.375"	13/16"	Gasket
V	14mm	.460"	5/8"	Tapered
L	14mm	.500"	13/16"	Gasket
S	14mm	.708"	5/8"	Tapered
C	14mm	.750"	5/8"	Gasket
N	14mm	.750"	13/16"	Gasket

Step 2: Selecting Electrode & Gap Designs

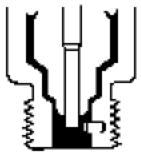
Generally speaking, the more the spark gap is exposed to the air/fuel mixture, the easier it is to initiate combustion. This translates into improved throttle response and more efficiency.

Surface Gap "V" Gap



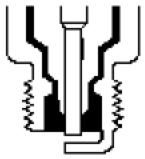
A surface gap plug provides exactly what its name describes... a gap at the surface of the combustion chamber. The gap is a .050" annular configuration. The center electrode and insulator tip operate extremely cold (no heat range rating) and are, therefore, nearly impervious to pre-ignition. However, fouling deposits are always present and cannot burn away. These types have limited use in racing. A special ignition system with very high energy and a very fast rise time (CD) is required to fire the gap when fouling deposits are present. The insulator tip does not operate hot enough to allow reading of the spark plug during engine tuning. The exceptions are the G52V and G54V which have surface air gaps with sufficient insulator nose length to give some heat range. These are used in Formula 1 engines. C53VC, C55VC, and C57VC are of similar design and use a 14mm thread diameter. These are designed for small-block Ford and Chevy engines used in Winston Cup type racing. There are also "S" type plugs available in this design with identical heat ranges.

Retracted "R" Gap



A retracted gap spark plug effectively places the spark out of the mainstream of the air/fuel flow making it difficult to initiate a good flame front. This design is necessary when valve or piston clearance is not sufficient for conventional plugs, or where boost pressures or fuel type can cause excessive combustion temperatures (i.e., turbocharged Indy engines).

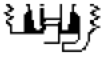
Regular Gap



This gap style positions the spark approximately 1/16" into the combustion chamber. Many of the coldest heat ranges have a modified (shortened) ground electrode. This helps expose the spark to the mixture and protects against pre-ignition from an overheated ground electrode.

Cut-Back Ground Electrode "JC4" Type

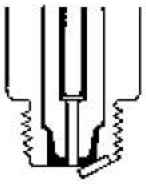
Retracted "R" Gap



The ground electrode is cut-back from the center electrode to provide a .040" gap. The face

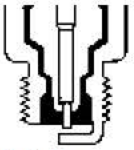
of the ground electrode is concave to provide a constant gap to the center electrode. This plug is designed for small-block Chevy and Ford engines used in Winston Cup and Trans Am type events.

Angled "A" Gap



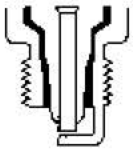
The angled ground wire is designed for V8 and V6 engines used in Winston Cup, Busch, and Trans Am type cars. The fine center electrode reduces required voltage. The angled ground electrode is shorter and provides a more exposed gap. This design may offer greater durability in some applications.

Fine Wire Electrodes



Spark plugs with small diameter center electrodes (.050") were originally designed to improve starting and anti-fouling characteristics in small two-stroke engines such as snowmobiles, chain saws, and dirt bikes. The small fine wire center electrode reduces the voltage required to ionize the gap. These characteristics are important with low cranking speeds and borderline ignition output. The same characteristics can "band-aid" poor performance where fuel mixtures are either too rich or too lean. In addition, this design can aid in low speed performance in magneto or total loss ignition systems. This electrode design is available in selected plugs both in regular and projected "Y" gaps and can often provide that extra competitive edge.

Projected Nose "Y" Gap



This gap style projects the spark an additional .060" into the combustion chamber for a total projection of .210", and providing there is sufficient clearance to valves and pistons, provides the ultimate in performance. Initiating the flame front closer to the center of the combustion chamber has a similar effect to advancing the timing. Therefore, maximum timing may be reduced which helps reduce the chance of detonation and provides superior part throttle response. A second valuable feature of this style is a "broader" heat range. The core nose is longer, providing a "hotter" plug at low speed which helps prevent fouling. As engine speed increases, the incoming air/fuel mixture flows across the tip of the core nose, providing charge cooling which effectively reduces heat range at higher engine speeds for increased pre-ignition and detonation protection.

Step 3: Heat Range Selection

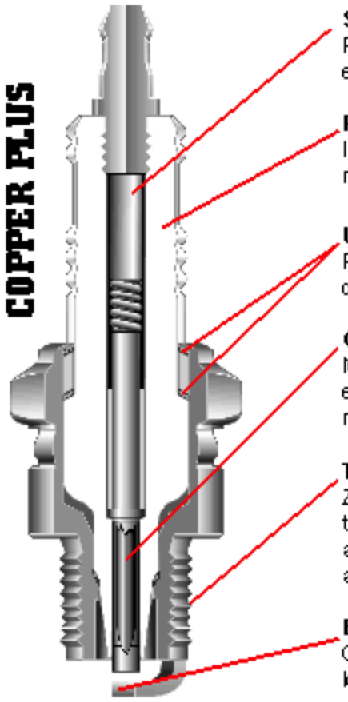
The term "heat range" refers to the relative temperature of the core nose of a spark plug. The words "hot" or "cold," when used in referencing spark plugs, are often a source of confusion and misunderstanding, since normally a hot spark plug is used in a cold engine (low horsepower) and a cold plug in a hot engine (high horsepower). The terms actually refer to the heat rating or thermal characteristics of the plug; more specifically, the plug's ability to dissipate heat from its firing end into the engine cooling system. A cold plug transfers heat rapidly away from its firing end into the cooling system and is used to avoid core nose heat saturation where combustion chamber or cylinder head temperatures are relatively high. A hot spark plug has a much slower rate of heat transfer and is used to avoid fouling where combustion chamber or cylinder head temperatures are relatively low. The primary means of adjusting heat range are by varying the length of the core nose and the alloy material used in the electrodes. Hot plugs have a relatively long insulator nose with a long heat transfer path. Cold plugs have a much shorter insulator nose and thus, transfer heat more rapidly (see illustration; hot to cold - left to right). The heat range of a plug does not affect the power output of an engine. Rather, it allows the plug to function as designed for the duration of the racing event. In other words, once the correct heat range is found that prevents fouling and does not contribute to the pre-ignition or detonation, a change to a hotter or colder plug will not have a positive effect on engine performance.

Champion Spark Plug Cross Reference Chart

Copper Plus		
Stock No.	**Plug Type**	**Edelbrock Part No.**
10	J12YC	4968
14	RJ12YC	4901
18	RV15YC4	4902
21	RF14YC	4903
25	RV17YC	4904
38	N12YC	4969
71	RC12YC	4905
101	RN13LYC	4971
344	RC9YC	4956
404	RN12YC	4908
415	RN9YC	4909
587	H8C	4965
809	RA6HC	4957
810	RA8HC	4966
813	N7YC	4964
814	RL82YC	4972
930	RV92YC	4954
Premium Gold		
Stock No.	**Plug Type**	**Edelbrock Part No.**
2018	2018	4912
2021	2021	4913
2025	2025	4914
2071	2071	4915
2095	2095	4916
2405	2405	4917
2406	2406	4918
2415	2415	4919
Truck Plugs		
Stock No.	**Plug Type**	**Edelbrock Part No.**
4011	4011	4920
4018	4018	4921
4019	4019	4922
4025	4025	4923
4071	4071	4924

4113	4113	4925
4130	4130	4926
4404	4404	4927
4405	4405	4928
4408	4408	4929
4415	4415	4958
4434	4434	4959
Race Plugs		
Stock No.	**Plug Type**	**Edelbrock Part No.**
264	J61	4955
251	C55VC	4960
258	S55VC	4961
259	S57VC	4962
261	S55A	4963
265	V63Y	4906
266	J63Y	4907
661	A57C	4930
662	A59C	4931
669	V57C	4932
670	V59C	4933
671	V57YC	4950
672	V59YC	4934
673	N59DR	4935
681	S55C	4936
682	S57C	4937
683	S59C	4938
686	C57	4939
687	C59	4940
688	C61	4941
692	C53	4942
693	C55	4943
697	S53C	4944
699	N61YD	4945
723	N57DR	4946
767	C55C	4947
769	C57C	4911
771	C59C	4948

785	C61C	4949
791	C57YC	4951
792	C59YC	4952
794	C61YC	4910
796	C63YC	4953



SAC 9 Suppressor
Patented semi-conductor suppressor reduces RFI and eliminates all spark plug interference with on-board electronics.

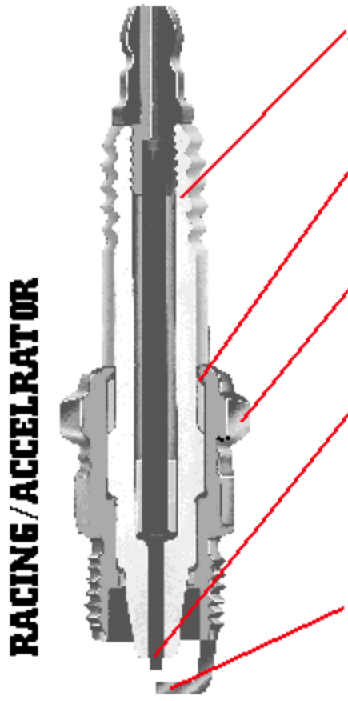
Patented Zirconia-Strengthened Insulator
Improved heat conductive alumina provides ideal heat range control and maximum dielectric strength.

Upper & Lower Locking Gaskets
Provides maximum strength and sealing capabilities for consistent heat range and optimum performance.

Copper Core Center Electrode
Maintains cooler center electrode temperatures for extended life and allows heat dissipation for ideal core nose length and design.

Triple Coated Shell
Zinc plating to provide the longest corrosion protection in the industry in addition to a patented process which acts as an anti-seize compound and further enhances the anti-corrosion capabilities of the spark plug.

Exclusive Chromium-Nickel Ground Electrode
Quickly dissipates heat to minimize erosion providing longer life and enhanced pre-ignition protection.



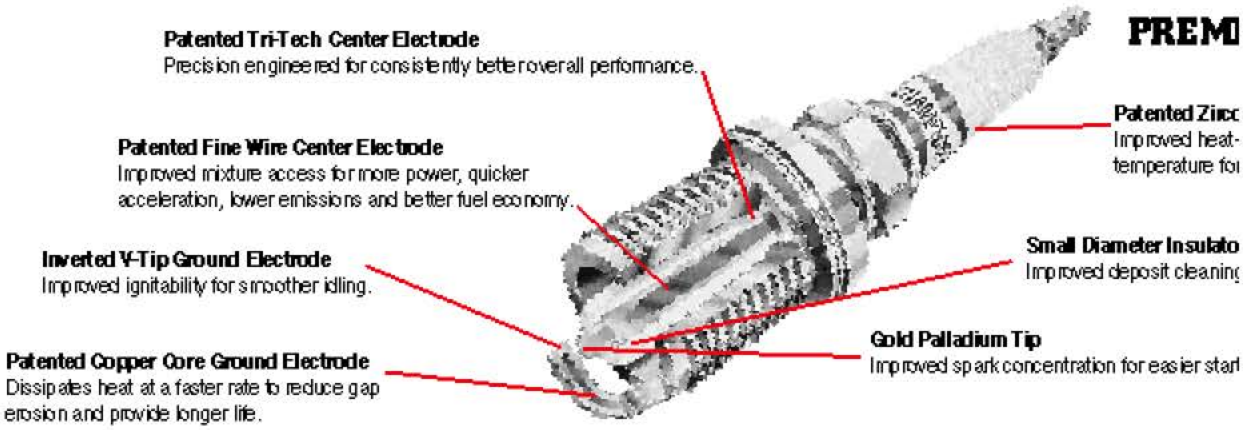
Patented Zirconia Enhanced Insulator
This dense ceramic allows for precision control of plug heat range and provides the highest levels of core nose and dielectric strength.

Top Locking Gasket
Race engineered design provides highest levels of assembly integrity.

Triple Coated Shell
Zinc plating combined with patented release agents provide the best anti-seize properties available.

Projected Core Nose Fine Wire Design
.052" diameter electrode reduces firing voltage requirements for improved throttle response. Projected core nose increases fouling protection and positions the spark deeper into the combustion chamber for more efficient combustion.

Fine Wire Ground Electrode
Electrode is cut back to expose more mixture to the spark. Fine wire design reduces required voltage and aids in flame propagation.



* Accelerator Series, + Wide Gap Version