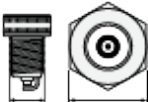

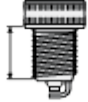
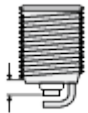
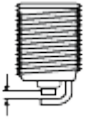






SPARK PLUG PART NUMBERING

S		Type of precious metal	<p>F Center: 0.55 mm diameter iridium. Ground electrode: 0.7 mm diameter platinum</p> <p>P Platinum plug</p> <p>S 0.7 mm diameter iridium</p> <p>SV 0.4 mm diameter iridium</p> <p>Z 0.55 mm diameter iridium</p>
W K		Thread Diameter and Hex Size	<p>C 12x14.0</p> <p>L 18x22.2 (Reach: 12 mm)</p> <p>M 18x25.4 (Reach: 12 mm)</p> <p>MA 18x20.6 (Tapered seat, Reach: 12 mm)</p> <p>MW 18x20.6 (Reach: 12 mm)</p> <p>J 14x20.6 (Projected plug)</p> <p>K 14x16.0 (ISO Small Hex plug)</p> <p>KJ 14x16.0 (ISO Projected Small Hex plug)</p> <p>LP 14x20.6 (Plug for LPG applications)</p> <p>N 10x 16.0</p> <p>Q 14x16.0 (Small Hex plug)</p> <p>QJ 14x16.0 (Projected Small Hex plug)</p> <p>QL 14x20.6 (Small Hex long housing plug)</p> <p>S 14x20.6 (Surface gap or Rotary)</p> <p>T 14x16.0 (Tapered seat)</p> <p>TR 14x20.6 (For marine applications)</p> <p>W 14x20.6, 14x19.0 (Compact type)</p> <p>X 12x18.0</p> <p>XE 12x14.0</p> <p>XU 12x16.0</p> <p>U 10x16.0</p> <p>Y 8x13.0</p> <p>Z 1/2PFx23.8;</p>

16 20		Heat Range	Denso	NGK	Champion	Bosch
			9 14 16 20 22 24 27 29 31 32 34 35	2 4 5 6 7 8 9 9.5 10 10.5 11 11.5	18 16, 14 12, 11 10, 9 8, 7 6, 63, 61 4, 59 57 55 53	10 9 8 7, 6 5 4 3 2
E		Reach	A 19.0 mm (Electrode Position: 7 mm) 21.5mm B 19.0 mm (Electrode Position: 9.5 mm) C 19.0 mm (Electrode Position: 5.0 mm) D 19.0 mm (Shroud 2) E (With Gasket) 19.0 mm 20.0 mm E (Tapered Seat) 19.0 mm F 12.7 mm FE 19.0 mm (Half thread) G 19.0 mm (Shroud 2.8) 19.0 mm (Shroud 3.0) H 19.0 mm (Electrode position: 8.5 mm) 26.5 mm L 11.2 mm M 8.6 mm N (Taper seat, Half thread) 17.5 mm V (Tapered seat) 25.0 mm None 9.5 mm 11.2 mm 19.0 mm 21.5 mm None (Tapered seat) 8.3 mm 11.2 mm			
			XR PR		Shape (Type)	A Double ground electrodes A Sland G.E. (For racing) AY <u>Double ground electrodes with bent shape</u> (special) B Triple ground electrodes BG Triple G.E. (shrouded) D Quadruple G.E. Projected (2.0 mm projection) Projected (1.5 mm projection, spark position 3.5 mm) E Shroud: 25 K Projected(1 mm projection) LM Compact type (Hex Size: 20.6 mm) M Shortened insulator head length M Compact type (Hex Size 19.0 mm) P Projected (1.5 mm projection) R With resistor

			<p>S Non-projected (0mm projection)Single iridium</p> <p>T Double ground electrodes</p> <p>TM Double ground electrodes</p> <p>TN Double ground electrodes</p> <p>V Slant ground electrodes</p> <p>X Full projected(2.5 mm Projection)</p>
-U -A		Shape (Type)	<p>-A Specialty Specification</p> <p>-B Specialty Specification</p> <p>-C Cut-back G.E</p> <p>-E Specialty Specification</p> <p>-F Specialty Specification</p> <p>-G Grease applied on to threads, for CNG applications</p> <p>-GL Platinum C.E.</p> <p>-L Heat resistant G.E. Thin center electrode 3.5 mm projected insulator for motorcycles Retracted insulator formotorcycles</p> <p>-M Larger G.E.</p> <p>-N For Yamaha and Kawasaki</p> <p>-P A double layer of platinum G.E. Single platinum</p> <p>-R 10K ohm resister plug</p> <p>-S Semi-surface gap discharge type</p> <p>-S Stainless gasket</p> <p>-TP Taper-cut, single platinum plug</p> <p>-U U-Groove G.E</p> <p>-US Star-shaped C.E</p> <p>-V 1.3 mm diameter, nickel C.E.</p> <p>-Z Taper cut</p> <p>-ZU ZU plug</p>
11 11		Reach	<p>A 19.0 mm (Electrode Position: 7 mm) 21.5mm</p> <p>B 19.0 mm (Electrode Position: 9.5 mm)</p> <p>C 19.0 mm (Electrode Position: 5.0 mm)</p> <p>D 19.0 mm (Shroud 2)</p> <p>E (With Gasket) 19.0 mm 20.0 mm</p> <p>E (Tapered Seat) 19.0 mm</p> <p>F 12.7 mm</p> <p>FE 19.0 mm (Half thread)</p> <p>G 19.0 mm (Shroud 2.8) 19.0 mm (Shroud 3.0)</p> <p>H 19.0 mm (Electrode position: 8.5 mm) 26.5 mm</p> <p>L 11.2 mm</p> <p>M 8.6 mm</p> <p>N (Taper seat, Half thread) 17.5 mm</p> <p>V (Tapered seat) 25.0 mm</p> <p>None 9.5 mm 11.2 mm 19.0 mm 21.5 mm</p> <p>None (Tapered seat) 8.3 mm 11.2 mm<</p>
			<p>A Double ground electrodes</p> <p>A Sland G.E. (For racing)</p>

I		Plug Type	<p>AY Double ground electrodes with bent shape (special) B Triple ground electrodes BG Triple G.E. (shrouded) D Quadruple G.E. Projected (2.0 mm projection) Projected (1.5 mm projection, spark position 3.5 mm) E Shroud: 25 K Projected (1 mm projection) LM Compact type (Hex Size: 20.6 mm) M Shortened insulator head length M Compact type (Hex Size 19.0 mm) P Projected (1.5 mm projection) R With resistor S Non-projected (0mm projection) Single iridium T Double ground electrodes TM Double ground electrodes TN Double ground electrodes V Slant ground electrodes X Full projected (2.5 mm Projection)</p>																							
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			<table border="1" data-bbox="724 1809 1543 2134"> <thead> <tr> <th data-bbox="724 1809 948 1962">Denso</th> <th data-bbox="948 1809 1145 1962">NGK</th> <th data-bbox="1145 1809 1356 1962">Champion</th> <th data-bbox="1356 1809 1543 1962">Bosch</th> </tr> </thead> <tbody> <tr> <td data-bbox="724 1962 948 2018">16</td> <td data-bbox="948 1962 1145 2018">5</td> <td data-bbox="1145 1962 1356 2018">12, 11</td> <td data-bbox="1356 1962 1543 2018">10</td> </tr> <tr> <td data-bbox="724 2018 948 2074">20</td> <td data-bbox="948 2018 1145 2074">6</td> <td data-bbox="1145 2018 1356 2074">10, 9</td> <td data-bbox="1356 2018 1543 2074">9</td> </tr> <tr> <td data-bbox="724 2074 948 2130">22</td> <td data-bbox="948 2074 1145 2130">7</td> <td data-bbox="1145 2074 1356 2130">8, 7</td> <td data-bbox="1356 2074 1543 2130">8</td> </tr> <tr> <td data-bbox="724 2130 948 2186">24</td> <td data-bbox="948 2130 1145 2186">8</td> <td data-bbox="1145 2130 1356 2186"></td> <td data-bbox="1356 2130 1543 2186"></td> </tr> </tbody> </table>	Denso	NGK	Champion	Bosch	16	5	12, 11	10	20	6	10, 9	9	22	7	8, 7	8	24	8					
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22	7	8, 7	8																							
24	8																									

27		Heat Range	27 29 31 32 34 35	9 9.5 10 10.5 11 11.5	6, 63, 61 4, 59 57 55 53	7, 6 5 4 3 2
A		Special Design	<p> A Slant electrode, No U-Groove, No taper cut B Projected insulator (1.5mm) C No U-Groove D No U-Groove, Inconel ground electrode ES Stainless steel gasket F Special G Stainless steel gasket J Spark position: 5 mm K Spark position: 4 mm L Spark position: 5 mm M Spark position: 4 mm, for LPG applications T For LPG applications Y 0.8 mm gap Z Taper cut TT Twin-Tip </p>			



Home

SPARK PLUG ELECTRODE CONFIGURATION IDENTIFICATION



Iridium Power

Example: IK16

- With an Ultra-fine Iridium Alloy Center Electrode Employing a high melting point iridium alloy for the center electrode tip, a fine diameter of 0.4mm has been realized. This fine electrode has led to a lower spark voltage and a large increase in ignitability, which draws even more output and accelerator response from the engine. (Melting Point: Iridium: 2454° C, Platinum: 1769° C).



Iridium Long Life

Example: SK16R-P11, SK20R11, FK20HR11

- Developing the world's pioneering 0.7mm dia. Ultra-fine Iridium alloy, ignitability and lifetime are improved dramatically.



U-Groove

Example: W16EX-U

- With a U-Groove ground electrode, large ignition energy can be obtained, easily igniting even lean mixtures.
- Because it is fully projected (2.5mm insulator projection), carbon fouling is reduced, and smooth starting and acceleration performance are realized.



Iridium TT

Example: 1W16TT

- Iridium TT Twin-Tip Technology was developed from the Original Equipment Specification Super Ignition Plug (SIP) design, fusing our patented 0.4mm diameter Iridium-Rhodium alloy Center Electrode with an OE style 0.7mm Platinum Tip Ground Electrode.
- Combines the power and torque of a high performance plug with the endurance of a long life original equipment spark plug over 100,000 miles.

Platinum TT

Example: PW16TT

- Platinum TT Twin-Tip Technology enables faster flame propagation for more complete combustion.
- 1.1mm PT Center Electrode with a Titanium-Enhanced Tip Ground Electrode.
- Improved Fuel Economy, better acceleration and faster starts.

Double Platinum

Example: PK20R11

- Platinum is used in both the center electrode and the ground electrode.
 - By making the center electrode (1.1mm dia) and by using a platinum tip, fuel consumption, drivability, and durability have been increased.



Extended Platinum

Example: PKJ20CR-L11

- By extending the spark position into the combustion chamber, the combustion efficiency is increased and fuel consumption and drivability are improved.



Dual Electrode Platinum Example: PK20TR11

- The parts of the center electrode facing the ground electrodes have been platinum tipped.
- The dual electrode construction results in a lower required voltage during the plus (+) discharge.



Single Platinum

Example: Q20PR-P11, K16PR-TP11

- Only the center electrode is platinum tipped (1.1mm dia) which increases fuel consumption, drivability, and durability
- K16PR-TP11 has had the ground electrode taper cut, further increasing ignitability.



Semi-Surface Gap for Rotary Engines

Example: J16AR-U11

- Employing a semi-surface gap discharge, ignitability, fouling resistance, and durability have been



Extended

Example: KJ20CR11, KJ20CR-U11

- Using a U-grooved ground electrode, a large ignition performance is obtained, allowing even lean mixtures to be ignited



Extended

Example: KJ20CR-L11

- For Mazda and Mitsubishi Vehicles.
- KJ20CR11 has no U-groove. KJ20CR-U11 has a U-groove.

increased.

- Reduced voltage loss using a 7-rib design.

easily.

- The spark position is extended into the ignition chamber, improving combustion efficiency, fuel consumption, and drivability.



**Iridium Long Life SIP
(Super Ignition Plug)**

Example: FK20HR11, FXE20HR11

- Revolutionary DENSO Needle-to-Needle OE Technology
- Fine wire 0.55mm Iridium Alloy center electrode
- 0.7mm Platinum needle tipped ground electrode
- For exceptional performance and durability



Semi-Surface Gap

Example: W20EKR-S11, W20EPR-S11

- Using a semi-surface discharge, ignitability and fouling resistance are increased.
- W20EKR-S11 are for Honda vehicles, while W20EPR-S11 are for Mitsubishi vehicles.



Semi-Surface Double Electrode

Example: W20ETR-S11

- A double ground electrode with a 1mm gap is used and fouling resistance is improved.
- Using a short opposed-type dual ground electrode, excellent durability is obtained.
- Improved ignitability due to full projection.
- Used for Toyota and Daihatsu.



**Shrouded Semi-Surface Gap
Double Electrode**

Example: K20DTR-S11, W20DTR-S11

- In addition to a semi-surface gap construction, the end of the threaded portion has been extended into the combustion chamber, and a shroud has been attached to improve fouling resistance.
- Used for Daihatsu and Subaru.



Triple Electrode

Example: K22PB, W20EPB

- Durability is increased with triple ground electrodes.
- For Audi, VW, Citroen, Fiat, Mercedes-Benz, Renault.



Double Platinum for D.I.

Example: PK20R-P11

- To prevent wear during plus (+) discharge, the size of the platinum has been increased on the ground electrode.



**Shrouded Semi-Surface Gap
Double Electrode**

Example: K20DTR-S11, W20DTR-S11

- In addition to a semi-surface gap construction, the end of the threaded portion has been extended into the combustion chamber, and a shroud has been attached to improve fouling resistance.
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AFTERMARKET PERFORMANCE CYLINDER HEAD APPLICATION CHART

CYLINDER HEAD MANUFACTURER	SPECIFICATION SHEET RECOMMENDATION	DENSO IRIIDIUM POWER EQUIVALENT
AFR AIR FLOW RESEARCH		
205cc LS1, Mongoose Street Head	AC 41-974 Platinum	IT16
225cc LS1 Mongoose Strip Head	AC 41-974 Platinum	IT16
180cc SBC Street Head	AC FR3LS	IK16
180cc LT1 Street Head	AC FR3LS	IK16
195cc SBC Street Head	AC FR3LS	IK16
195cc LT4 Street Head	AC FR3LS	IK16
305/315/325/335/345/357cc Magnum BBC	CH C59C, Autolite 3932	IK27
165/185cc SBF Outlaw Street Heads	Autolite 3924	IK16
205/224cc SBF Outlaw Race Heads	Autolite 3922	IK22
165/185cc SBF Street/Strip Outlaw Heads	Autolite 3924	IK16
BRODIX		
BBC, Big Brodie series C.A.R.B. legal Heads	NGK B9ES Ch14YC or AL3924	IW24 gas, IW27 alcohol IK16
DART		
Big Chief, ALL Big M - Head	.750" reach, gasket, Ch C57C/C57YC .750" reach, gasket, Ch C59C /C59YC Street RC12YC	IK31, IK01-31 IK27, Street app IK16
FORD 20 Degree Iron Eagle, 308cc & 345 cc BBC	.750" reach, gasket, Ch C59C/C59YC .750" reach, gasket, Ch C59C /C59YC Street RC12YC	IK27 IK27, Street app IK16

<p>Iron Eagle, 23 Degree, 180, 200, 215, 230cc SBC Iron Eagle S/S</p> <p>Little Chief, 11degree SBC head Pro 1, 23 Degree SBC & BBC all cc's Race Series, 220cc SBC Head Race Series, 18 Degree BBC head</p>	<p>Angle or straight, .460 reach, tapered seat, Ch V59C / V59YC</p> <p>Straight, .460" reach tapered seat Ch RV12YC / AC R44TS Ch C57C / C57YC Ch C59C / C59YC Ch C59C / C59YC Ch C57C / C57YC</p>	<p>ITF27</p> <p>ITF16</p> <p>IK31, IK01-31 IK27, IK01-27 IK27, IK01-27 IK31, IK01-31</p>
EDELBROCK		
<p>All except flathead</p>		<p>IK16</p>
FORD RACING PERFORMANCE PARTS		
<p>GT-40 "Turbo-Swirl" Alum. Cyl. Heads GT-40X "Turbo-Swirl" Alum Cyl. Heads "Sportsman" Short Track Cast Iron Cyl. Heads "Z" Aluminum Head Robert Yates Alum. Cyl. Heads "High Port" Yates Head High Port Head for all out Performance Super Cobra Jet Cylinder Heads</p>		<p>IK20 IK20 ITF20</p> <p>IQ16 IW SERIES IW SERIES IW SERIES IK20</p>
PRO TOPLINE		
<p>Iron Lightning, Pro Lightning Other</p>	<p>Ch V55C, V57C CH C55C, C57C</p>	<p>ITF24 IK31</p>
TRICK FLOW		
<p>Track Heat Alum. Cyl, heads for SB Ford 18 Degree Alum. Heads for SB Chevy 23 Degree Alum. Heads for SB Chevy</p> <p>R-Series cyl. Head for BB Chevy</p>	<p>AC-FR3LS, Autolite- 3924, NGK 7373 Ch C57C, AL 3932, NGK R5671A-10 AC-FR3LS, Autolite- 324, NGK FR5, Ch -RC Autolite-3922</p>	<p>IK16 IK31 IK16, IK20</p> <p>IK22</p>
WORLD		
<p>Windsor Jr Windsor Jr. Lite Windsor Sr. Lite</p>		<p>ITF20, ITF22 IK16, IK20 IK16, IK20</p>

Roush 200 Cast Iron Torquer 440, Aluminum Sportsman II Lite S/R S/R Torquer Sportsman II MOTOWN 205/220 MOTOWN 220 Lite MERLIN II OVAL & RECT. PORT 320cc & 345cc MERLIN		ITF20, ITF22 IK24, IK31 IK16, IK20 ITF16, ITF20 ITF16, ITF20 ITF16, ITF20 ITF16, ITF20 ITF16, ITF20 IK16, IK20 ITF16, ITF20 IK16, IK20
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Home

THE INTERNATIONAL STANDARDS ORGANIZATION (ISO)

Through the International Standards Organization (ISO), automobile-manufacturing countries such as the U.S., Japan, Germany and Italy established certain standards in the manufacturing process of automobiles and spare parts, including spark plugs.

DENSO's K, KJ and PF (the first and second letter of the part number) spark plugs meet the ISO standard.

