BOSCH OXYGEN SENSORS

Euro MotoElectrics

Original Equipment
Oxygen Sensors

for exact replacement for all fuel injected BMW motorcycles !

- **The O2 Sensor is the critical component for today's complete modern Tune Up**
- **Restore and maintain your BMW engine's high performance by installing a new BOSCH oxygen sensor at regular intervals.**
- **See "Special Offer" details in the Browse / Search Catalog Section for discounts of BOSCH spark plugs when you order an oxygen sensor.**
  - **Purchase 1 BOSCH oxygen sensor and you get 50% off your BOSCH Spark Plug purchase !**

BMW Motorcycle Oxygen Sensor Application Chart				
Model	**Year**	**BMW Reference #**	***Euro MotoElectrics* Part #**	***Euro MotoElectrics* Price**
R	1993-2001	11 78 1 464 492	**O2-492**	***See* "Browse / Search Catalog" for pricing and more application info.**
	2000-2003	11 78 1 671 756	**O2-022**	
K	1989-1997	11 78 1 464 492	**O2-492**	
	2002-2003	11 78 1 671 756	**O2-022**	
F	ALL	11 78 1 247 406	**O2-406**	

Easy to do and worth the time and money !

Best-in-class performance

Even though oxygen sensors have been standard equipment on most passenger cars since 1980, most people don't know much about them. Bosch does. Bosch invented the automotive oxygen sensor and Bosch sensors are the number one choice of vehicle manufacturers around the world. Replacing a worn-out oxygen sensor will do more than improve your vehicle's performance and reduce harmful exhaust emissions; it can save you up to 10% a year in gasoline costs.

- **Installing a new properly functioning oxygen sensor will have a noticeable improvement of the performance of your engine !**
- **Replacing a worn-out oxygen sensor will save you money.**
- **Modern COMPLETE Tune-Up of modern technology fuel injected vehicles.**

Properly functioning oxygen sensors are important when it comes to your vehicle's fuel economy and exhaust emissions. That's why checking for, and possibly replacing, a worn-out oxygen sensor is an important part of every routine tune-up. And routine maintenance is more than just routine when you use Bosch Oxygen Sensors, part of a Bosch Premium Tune-Up. Plus, properly functioning oxygen sensors are good for the environment, and can save you hundreds of dollars in gasoline costs over the life of the sensor.

For more info see
http://www.boschusa.com/AutoParts/OxygenSensors/PremiumOxygenSensors/

OE Fit / OE Function

Euro MotoElectrics **supplies only the exact Original Equipment replacement for your motorcycle ! Even the Universal Oxygen Sensor (see below) is the exact same sensor, except for the lack of a wire harness connector.**

Universal Oxygen Sensor (Part # O2-BMW/U)

Save money by using your old original wire harness connector and replace only the oxygen sensor…

Available for BMW R models.
(Part # O2-BMW/U)

Bosch Universal Heated Oxygen Sensors provide the closest match to original equipment manufacturers' sensor performance. By replacing only the sensor, you can enjoy substantial savings over the complete assembly by re-using the original old wire harness connector

Features	Benefits
Revolutionary patented submersible connection system	Protects against water and contamination and withstands the effects of extreme temperatures and engine vibration
Special heat-resistant Posi-Lock® connectors	Easy installation - Unlike butt connectors, special heat-resistant Posi-Lock® connectors can be unscrewed and re-connected
User-friendly instructions	Eliminates the need to call a hotline for assistance

For more information see http://www.boschusa.com/AutoParts/OxygenSensors/HeatedSensors/

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Oxygen Sensor FAQ

Q. What does an oxygen sensor do?

A. The oxygen sensor sends a signal to the engine computer based on the amount of oxygen in the exhaust gas. This signal is used by the engine ECU to fine-tune the mixture to the optimum level for maximum catalyst efficiency and longevity. A worn-out oxygen sensor can cause excessive gasoline consumption, elevated exhaust emissions, accelerated catalytic converter damage failures and cause engine performance problems such as surging and hesitating.

Q. Except for the connector assembly, aren't all oxygen sensors basically the same?

A. **NO**. There are five fundamentally different types of oxygen sensors: unheated thimble, heated thimble, planar, wide-band and titania. Within each sensor type, sensors vary in the design of the ceramic element, heater element and protection tube design, all of which affect sensor operation.

- **Euro MotoElectrics supplies only the exact Original Equipment replacement for your motorcycle !**

Q. How do I know if my oxygen sensor may be damaged?

A. Unfortunately, the symptoms of a slow or even a dead sensor are not always obvious to the vehicle owner unless the vehicle fails an emissions test, a decline in fuel economy is noticed, or if driveability problems occur. Over time, exhaust contaminants accumulate on the sensing element reducing the sensor's ability to respond quickly to changes in air/fuel mixture and slowly the sensor becomes inoperable. Some symptoms of failed oxygen sensors are:

- Failed emissions test (high CO and/or HC typically)
- Damaged catalytic converter (caused by an over rich fuel mixture)
- Poor fuel mileage (caused by an over rich fuel mixture)
- Engine runs rough
- Sluggish performance

If the “check engine” light comes on while driving, check your oxygen sensor, and if necessary replace it with a new premium Bosch Oxygen Sensor.

Q. What will damage my oxygen sensor?

A. An oxygen sensor can fail prematurely if it becomes contaminated with phosphorus from excessive oil consumption, silicone from internal coolant leaks, using silicone sealant in the engine, and some over-the-counter fuel additives. Even a small amount of poorly refined gasoline can kill an oxygen sensor. Environmental factors such as road splash, salt, oil, and dirt can also cause a sensor to fail, as can thermal shock, mechanical stress, or mishandling. However as required by vehicle manufacturers, Bosch sensors are designed and tested with these extremes in mind. Click here to review damaged oxygen sensors.

Q. How can I test my oxygen sensor?

A. Unfortunately, the symptoms of a slow or even a dead sensor are not always obvious unless the vehicle fails an emissions test, a decline in fuel economy is noticed, or if driveability problems occur. Furthermore, while a dead sensor can be detected with a relatively inexpensive digital volt-ohmmeter, a slow sensor can only be diagnosed by a more expensive oscilloscope or scope meter.

Q. Where are oxygen sensors located and do they have different purposes?

A. Oxygen sensors have been standard equipment on almost all passenger cars and light trucks with gasoline engines since 1980-1981. Most vehicles built before the mid-90's have one or two oxygen sensors (two were used on selected V6 and V8 engines starting in the late 1980s). Oxygen sensors are normally located in the exhaust system before the catalytic converter to measure exhaust emissions as they come from the engine combustion chambers. **The BMW motorcycle application only has 1 oxygen sensor located before the catalytic convertor.** In 1996 with the federal mandated use of on-board-diagnostic systems (OBDII), vehicles also require additional oxygen sensors after the catalytic converter, to ensure that the converter is operating properly. **BMW motorcycles do NOT have a second, post-catalytic convertor oxygen sensor.** Click here to see charts showing how the emissions change based on the air/fuel ratio with and without a catalytic converter.

Q. I have a Bosch original equipment 4-wire sensor. What do the wire colors mean?

A. All Bosch 4-wire sensors have a black wire for the signal, a gray wire for ground and 2 white wires for the heater. Note: the wire colors and functions on non-Bosch sensors are not necessarily the same as on Bosch sensors.

Q. How do you install a Bosch Universal Heated Sensor?

A. Refer back for more information

Q. Does Bosch test all oxygen sensors manufactured to ensure their quality?

A. Yes! Bosch tests all oxygen sensors it manufactures by subjecting each of them to a 1,000 degree Celsius functional test and a leak test to ensure environmental and functional robustness. The 1,000 degree Celsius test darkens the outer protection tube, but ensures 100% functional sensor performance.

Q. What is a universal heated oxygen sensor?

A. Bosch has created an aftermarket universal heated oxygen sensor program. These sensors meet OEM operating requirements and have a patented connector system easing installation. This connector system has been proven to be watertight, protect against contamination, and withstand the effects of extreme temperatures and engine vibration. Currently Bosch offers 12 different 4 wire sensors and 2 different 3 wire sensors to provide the closest match to OEM sensor performance. Refer Back for more information regarding how to use the Posi-Lock Connector System.

Q. Why should I change a damaged Oxygen Sensor?

A. According to a study conducted by Sierra Research Inc. in 1996, worn-out oxygen sensors are the “single greatest source of excessive emissions for fuel-injected vehicles” and the second most significant cause of high emissions in carburetor engines. The U.S. Environmental Protection Agency (EPA) and the California Air Resources Board (CARB) have found that oxygen sensor replacement was required on 42%-58% of all vehicles that were subjected to an emissions check and found to be emitting high levels of hydrocarbons or carbon monoxide. Testing the oxygen sensors according to the vehicle manufacturer’s service procedures and replacing a sluggish or worn-out oxygen sensor can improve fuel economy from 10% to 15% (on pre-OBDII vehicles) and pay for itself in a year in fuel savings alone, while restoring your vehicle’s emissions to proper levels. And it can reduce the chance of an overly rich fuel mixture damaging the vehicle’s catalytic converter.

Above information courtesy of BOSCH