

# Ignition Coils



**BOSCH**

Invented for life

# Bosch ignition coils



Bosch is the only global supplier providing its partners with a complete range of ignition components from a single source. It's no coincidence that Bosch stands for high quality, comprehensive expertise, state-of-the-art technology and pioneering developments.

## The cornerstone of Bosch competence

In the early days of automobile history, ignition was “the problem of problems,” as Carl Benz, who played a key role in the development of the gasoline engine, stated at that time. That is, until Bosch patented a groundbreaking ignition system, the Bosch high-voltage magneto, in 1902. And with the simultaneous development of the Bosch spark plug, it paved the way for over 116 years of ignition-system expertise – which Bosch continues to broaden and deepen today.

## Advantages:

- ▶ Comprehensive product range
- ▶ Original Equipment (OE) parts
- ▶ 100% self-developed by Bosch
- ▶ Geared to vehicle manufacturers' specifications for improved engine performance
- ▶ Ignition voltage as required
- ▶ Long spark duration
- ▶ High dielectric strength
- ▶ High temperature and vibration resistance
- ▶ Reduced fuel consumption and less harmful emissions
- ▶ Long service life



**Bosch ignition coils offer improved driving dynamics and environmental sustainability.**



# Customer satisfaction

Innovative technology and OE quality



## New sales potential:

- ▶ **Comprehensive coverage:** the right ignition coil for any application
- ▶ **Availability guarantee:** ignition coils for vehicles of different ages
- ▶ Superior performance, functionality and quality
- ▶ High reliability and long service life
- ▶ Good cold-start performance
- ▶ Corrosion-resistant connections
- ▶ Top-quality manufacturing
- ▶ **Well-matched system components from a single source:** from ignition coils to ignition leads and spark plugs – including ignition distributors for older vehicles and ignition modules

## Simply efficient:

- ▶ Supplies the spark plug electrodes with the required ignition voltage
- ▶ Transforms the battery voltage (12 volts) to a voltage reaching from 15,000 to more than 30,000 volts
- ▶ Keeps the spark until the air/fuel mixture ignites

## How coils work:

- ▶ Opening the ignition coil's primary circuit, a high-voltage pulse generates at the secondary circuit
- ▶ This high voltage transfers to the spark plug – either directly or by means of ignition leads
- ▶ A spark produces between the spark plug electrodes, igniting the air/fuel mixture
- ▶ This explosion moves down the piston and starts the engine



# From classic to state-of-the-art

## Ignition coils for any application

### Direct and safe – Single-spark ignition coils:

- ▶ One coil for each spark plug
- ▶ Independent high-voltage source for each cylinder
- ▶ No ignition leads required, since the ignition coil is mounted directly onto the spark plugs
- ▶ **Advantage:** the lack of high-voltage cables (ignition leads) reduces the potential for engine misfire

There are two types of single-spark ignition coils:

- ▶ **Compact ignition coils** – the high-voltage transformer is in the coil head
- ▶ **Pencil ignition coils** – the high-voltage transformer is in the cylindrical coil body

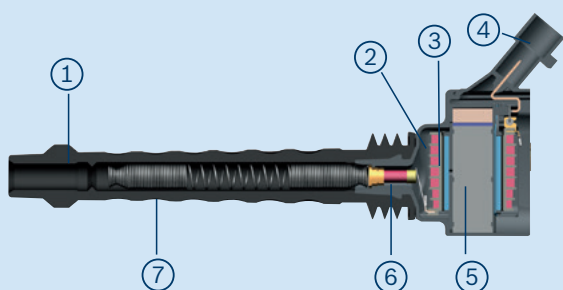
### Compact Coil



### Pencil Coil

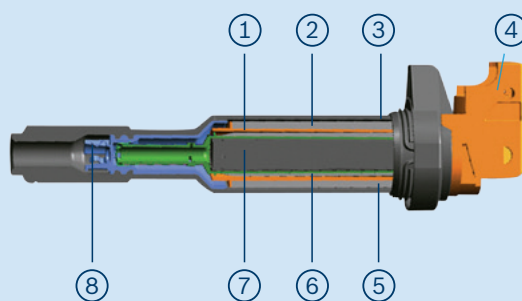


#### Components



- ① Spark plug cap (silicone rubber)
- ② Secondary winding
- ③ Primary winding
- ④ Plug
- ⑤ Core
- ⑥ Interference-suppression resistor
- ⑦ Spark plug contact (spring)

#### Components



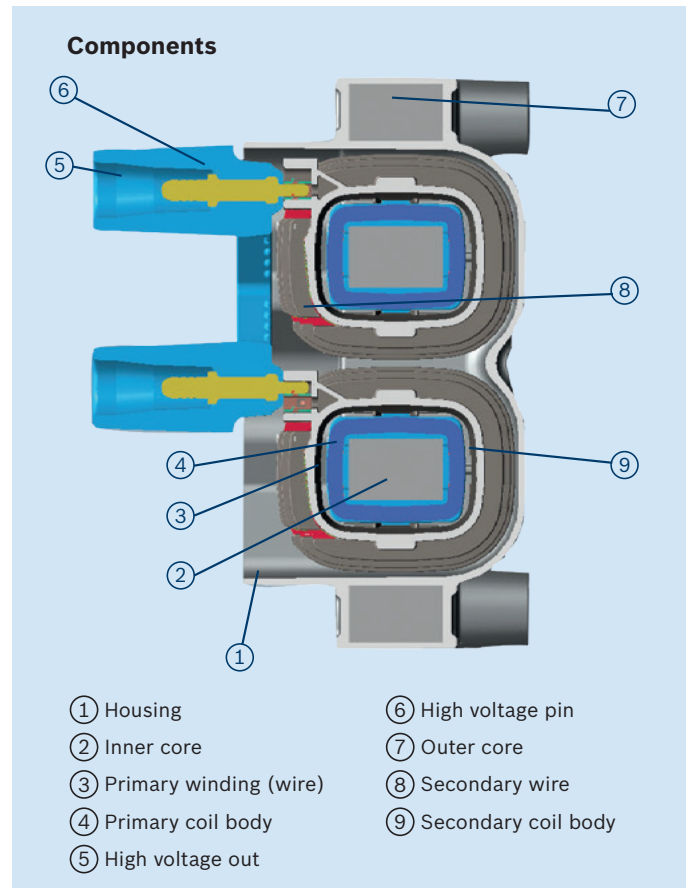
- ① Primary coil body
- ② Primary winding
- ③ Silicone housing
- ④ Plug
- ⑤ Secondary winding
- ⑥ Secondary coil body
- ⑦ Core
- ⑧ Spark-plug contact

## Multi-spark Coil



### One for all – Multi-spark ignition coil:

- ▶ Supplies ignition voltage to multiple spark plugs
- ▶ Voltage is distributed to the spark plugs through the ignition wires
- ▶ Robust and reliable design



## Cassette Coil



### All-inclusive – Cassette ignition coil:

- ▶ One ignition coil for several spark plugs
- ▶ Some models include integrated ignition module
- ▶ No ignition wires required; the ignition coil is mounted directly onto the spark plugs
- ▶ **Advantages:** reduced risk of failure or defects; easy to replace, if required

## Asphalt Coil



### Still going strong – Asphalt ignition coil:

- ▶ Contact-controlled single-spark ignition coil
- ▶ Current flowing through the coil is switched on and off by a contact in the distributor
- ▶ The right spare part for classic vehicles with well-known Bosch quality

# The right choice: Bosch original equipment

## Counterfeits can be hazardous

### High-quality Bosch ignition coils provide:

- ▶ Ample ignition voltage at all times
- ▶ Top-quality manufacturing
- ▶ Good cold-start performance
- ▶ High-quality insulation materials
- ▶ High dielectric strength
- ▶ Precise, corrosion-resistant connections
- ▶ Long service life
- ▶ Reliability and freedom from defects
- ▶ Compliance with all legal requirements and safety standards
- ▶ Environmental compatibility



## Counterfeits

### Pose dire consequences

Unfortunately, pirates exist in today's market. They threaten not only honest companies, but also safety. Cheap copies can have dire consequences. From the outside, they are often very hard to distinguish from originals, but a look inside will reveal serious defects.

### Often include design flaws

Counterfeits can run hot and can even catch fire. Cheap copies can also deliver excessive voltage to the engine control unit (ECU), ultimately destroying it.

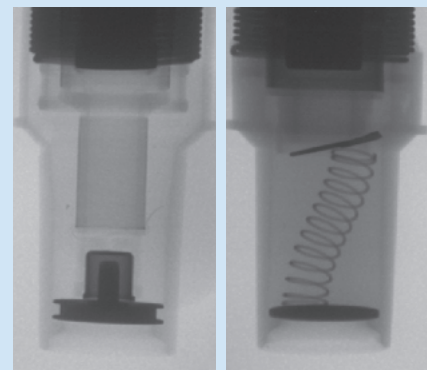
### Low-quality ignition coils can result in:

- ▶ Uneven or rough idle with misses and misfires
- ▶ Considerable drop in performance
- ▶ Increased fuel consumption
- ▶ Danger to the oxygen sensor and catalytic converter
- ▶ Excessive exhaust emissions
- ▶ Damage to the ECU

## Technology Comparison – Seeing is believing

### Interference-suppression

The Bosch Ignition Coil (shown on the left) provides high quality interference-suppression winding on the coil body. The counterfeit coil (shown on the right) displays contact problems.

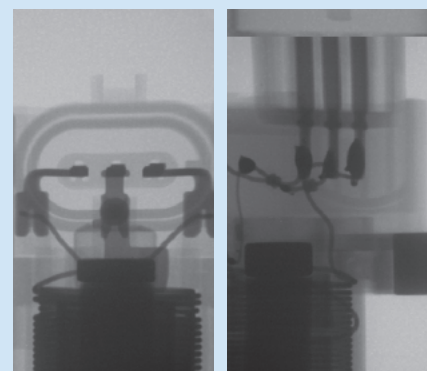


Bosch

Counterfeit

### Electrical contacts

The Bosch coil (shown on the left) exhibits clean and secure electrical contacts, whereas the contacts on the counterfeit coil (shown on the right) are poorly soldered and dangerous.



Bosch

Counterfeit



## Workshop professionals – Beware of counterfeits

Only genuine Bosch parts work properly and ensure optimum engine performance combined with low emission values – without any secondary failures affecting the catalytic converter, the oxygen sensor or the ECU.

# Full range of ignition components

## From a single source



### Innovative ignition coil technology

Bosch state-of-the-art plastic ignition coils feature both high dielectric strength and superior temperature and vibration resistance. Bosch continues to break new ground with ignition systems, including pencil ignition coils that feature primary-current control and diagnostic function.

### Bosch spark plugs – the driving force

The comprehensive range of Bosch spark plugs provides the right fit for practically any application – from lawn mowers to SUVs and even industrial applications.

### Why Bosch:

- ▶ Only supplier offering full range of ignition components
- ▶ Original equipment quality
- ▶ Comprehensive coverage
- ▶ Leading innovator of original equipment technology



## Bosch diagnostics for workshop professionals

The OTC Evolve, powered by Bosch, features more than 30 million repairs, diagnostic coverage and special tests for most OBD II and CAN vehicles. The wireless VCI allows technicians to walk around the vehicle cord-free to test, diagnose, confirm and repair vehicles. A new user interface makes finding information faster and easier, including full-system full-color wiring diagrams, direct access to Identifix and other repair databases.



## What drives you, drives us.

The Automotive Aftermarket division provides the aftermarket and repair shops worldwide with a complete range of diagnostic and repair shop equipment and a wide range of spare parts – from new and exchange parts to repair solutions – for passenger cars and commercial vehicles. Its product portfolio includes products made as Bosch original equipment, as well as aftermarket products and services developed and manufactured in-house.



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