



BOSCH

Invented for life

**Bosch batteries –
constant performance
for high demands**

Batteries

Overview

Modern cars are equipped with more and more components that run on electric energy. They need to be supplied by reliable, high-performance sources of power. Featuring the latest technology, Bosch batteries provide different types of vehicles with the energy they need – over long periods.

Battery experts since 1922

Back in 1922, Bosch began pioneering motorcycle batteries. The company went on to launch its first battery for cars in 1927.

Increased vehicle energy demands

The energy demand of modern vehicles is high. Vehicles in nearly all segments are equipped with numerous convenience and comfort functions. The powerful Bosch batteries PA Power Start/Stop with AGM technology and PE Power Start/Stop with EFB technology are particularly well-suited for modern vehicles.

Battery performance and quality testing

Bosch batteries are subject to stringent performance and reliability tests.

Spare parts, diagnostics and services






Bosch provides workshops and retailers with full support for their battery business – from a single source. This includes a complete battery range, efficient diagnosis and reliable services.



PA Power Start/Stop AGM Battery

Product range



PA Power Start/Stop	
	<p>The high-performance Bosch premium battery with AGM technology is developed for the highest demands of modern vehicles with start/stop systems and numerous electrical consumers. Thanks to its outstanding charge acceptance in combination with high deep-cycle resistance, it is suitable for vehicles with brake energy recovery (recuperation).</p>
Technology	 <p>AGM: Absorbent Glass Mat ⁽¹⁾</p>
Scope of application	    <p>Recent vehicle models and premium models with start/stop systems and regenerative braking (recuperation) with multiple electrical consumers</p>
Service life	● ● ●
Cold starting performance	● ● ●
Deep-cycle resistance	● ● ●
Number of electrical consumers	● ● ●
Suitability for short distances	● ● ●
Maintenance	Absolutely maintenance-free
Installation inside the vehicle	Yes ⁽²⁾





(1) AGM (Absorbent Glass Mat): acid absorbed by micro-fiberglass mats for longer service life and higher deep-cycle resistance

(2) According to the specifications of the vehicle manufacturers

PE Power Start/Stop EFB Battery

Product range



	PE Power Start/Stop The powerful Bosch battery with EFB technology is designed for the requirements of vehicles with start/stop systems and multiple electrical consumers. Its high deep-cycle resistance ensures reliable starting, even in applications with frequently lower state of charge.
Technology	 EFB: Enhanced Flooded Battery ⁽¹⁾
Scope of application	   Recent vehicle models and premium models with start/stop systems and numerous electrical consumers
Service life	● ● ● ●
Cold starting performance	● ●
Deep-cycle resistance	● ● ●
Number of electrical consumers	● ●
Suitability for short distances	● ● ●
Maintenance and water consumption	Absolutely maintenance-free
Installation inside the vehicle	Yes ⁽²⁾




(1) EFB (Enhanced Flooded Battery): positive plate is equipped with a poly-inlay, which provides additional support to the active material

(2) According to the specifications of the vehicle manufacturers

Power Plus and Power SLI Batteries

Product range



	Power Plus	Power
	<p>High-energy Bosch starter battery with SLI technology ensures reliable starting and high performance for a wide range of vehicles without start/stop systems. It provides enhanced performance thanks to its high capacity, cold-starting power and improved charge acceptance – even after extended stationary periods.</p>	<p>The reliable Bosch starter battery with SLI technology ensures safe starting for a wide range of vehicles without start/stop systems – also for older vehicles and small cars.</p>
Technology	 <p>Lead-acid SLI: Starting-lighting-ignition/starter battery</p>	
Scope of application	 <p>Recent vehicle models and premium models with multiple electrical consumers</p>	 <p>For a wide range of vehicles including older models with fewer electrical consumers.</p>
Service life	● ● ●	● ● ●
Cold starting performance	● ● ●	● ●
Deep-cycle resistance	● ●	● ●
Number of electrical consumers	● ●	●
Suitability for short distances	● ●	●
Maintenance and water consumption	Absolutely maintenance-free	Absolutely maintenance-free
Installation inside the vehicle	Yes ⁽¹⁾	Yes ⁽¹⁾

(1) According to the specifications of the vehicle manufacturers

PA Power Start/Stop AGM Battery

Product details

The high-performance Bosch premium battery with AGM technology is developed for the highest demands of modern vehicles with start/stop systems and numerous electrical consumers. Thanks to its outstanding charge acceptance in combination with high deep-cycle resistance, it is suitable for vehicles with brake energy recovery (recuperation).



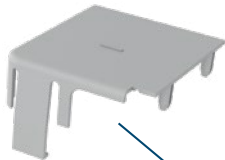
AGM (Absorbent Glass Mat): acid absorbed by micro-fiberglass mats for longer service life and higher deep-cycle resistance

Advantages at a glance

- ▶ **Longer service life and up to 4 times higher deep-cycle resistance compared to conventional starter batteries** – also provides consistently reliable starting performance even with frequent short-distance trips, slow-moving traffic with many stop phases or high energy consumption in stationary mode: in AGM technology, separators made of special micro-fiberglass mats bind the battery acid between the plates and the active mass is mechanically stabilized by the compact design
- ▶ **Safe start-up and reliable performance even during longer stationary periods:** acid absorbed by micro-fiberglass mats significantly reduces the risk of failure due to acid stratification
- ▶ **Outstanding starting power and long service life:** thanks to a current-flow optimized grid design as well as reduced corrosion due to a modern grid alloy
- ▶ **Absolutely maintenance-free:** the AGM technology results in extremely low water consumption – the hydrogen and oxygen formed during the charging process recombine to water and the modern grid alloy also contributes to preserve water

PA Power Start/Stop AGM Battery Technology

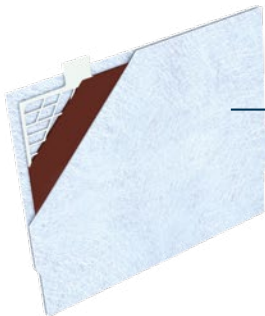
Terminal covers with more secure fit on both poles
Ergonomic handles protect against short circuits and facilitate carrying and installation.



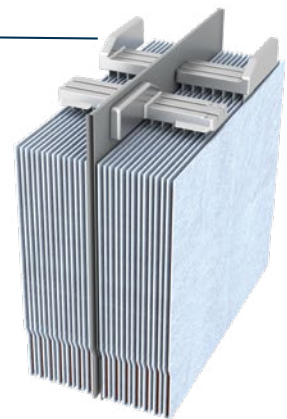
Sealed lid and very low water consumption
The AGM technology results in extremely low water consumption. This is because the hydrogen and oxygen formed during the charging process recombines to water. The improved grid alloy also plays a role.



AGM (Absorbent Glass Mat) – acid absorbed by micro-fiberglass mats
In AGM technology, special micro-fiberglass mats are pressed between the lead plates and absorb the battery acid. The high contact pressure stabilizes the active material.



Set of plates with robust connection
The central arrangement of the connectors between positive and negative plates brings additional stability.



Current-flow optimized grid design
for increased cold start power, particularly good charge acceptance, and reduced corrosion.

Preventing battery-related breakdowns

Defective batteries are one of the most common causes of breakdowns. Multiple electrical consumers, numerous short trips, and extended stationary periods stress the battery and can lead to deep discharge. Especially if the battery is older or exposed to extreme temperatures, this can lead to battery-related breakdowns.

To prevent this, the battery's state of charge can be checked regularly with a Bosch battery charger for home use and the battery can be charged – right at home.



PE Power Start/Stop EFB Battery

Product details

The powerful Bosch battery with EFB technology is designed for the requirements of vehicles with start/stop systems and multiple electrical consumers. Its high deep-cycle resistance ensures reliable starting, even in applications with frequently lower state of charge.



EFB (Enhanced Flooded Battery): positive plate is equipped with a poly-inlay, which provides additional support to the active material

Advantages at a glance

- ▶ **Longer service life and up to 3 times higher deep-cycle resistance compared to conventional starter batteries:** in EFB technology, the positive plate is equipped with a poly-inlay, which provides additional support to the active material and reduces mass erosion, thus increasing cycle life
- ▶ **Reliable starting when powering multiple electrical consumers or after longer stationary periods:** thanks to a special active material on the plates that reduces internal resistance and due to the stabilizing effect of the poly-inlay
- ▶ **Outstanding starting power and long service life:** thanks to a special grid design as well as reduced corrosion due to a modern grid alloy
- ▶ **Absolutely maintenance-free:** due to very low water consumption as a result of a modern grid alloy as well as a double lid in labyrinth design, which returns condensed vapor into the battery

PE Power Start/Stop EFB Battery Technology

Terminal covers with more secure fit on both poles
Ergonomic handles protect against short circuits and facilitate carrying and installation.

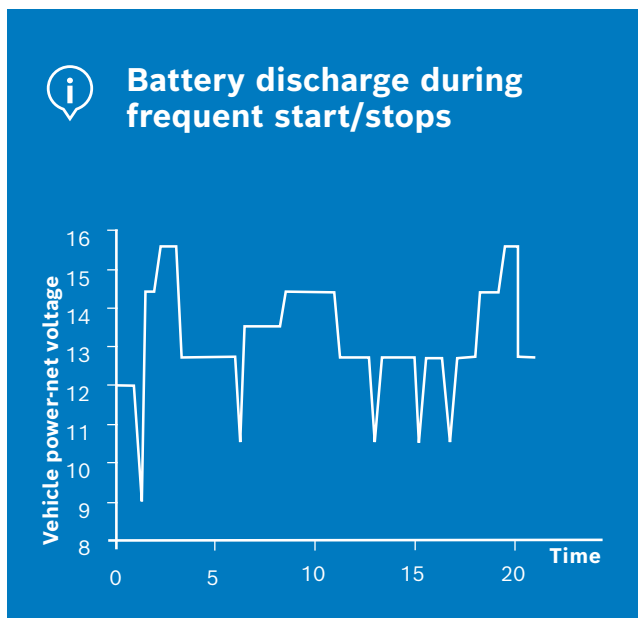
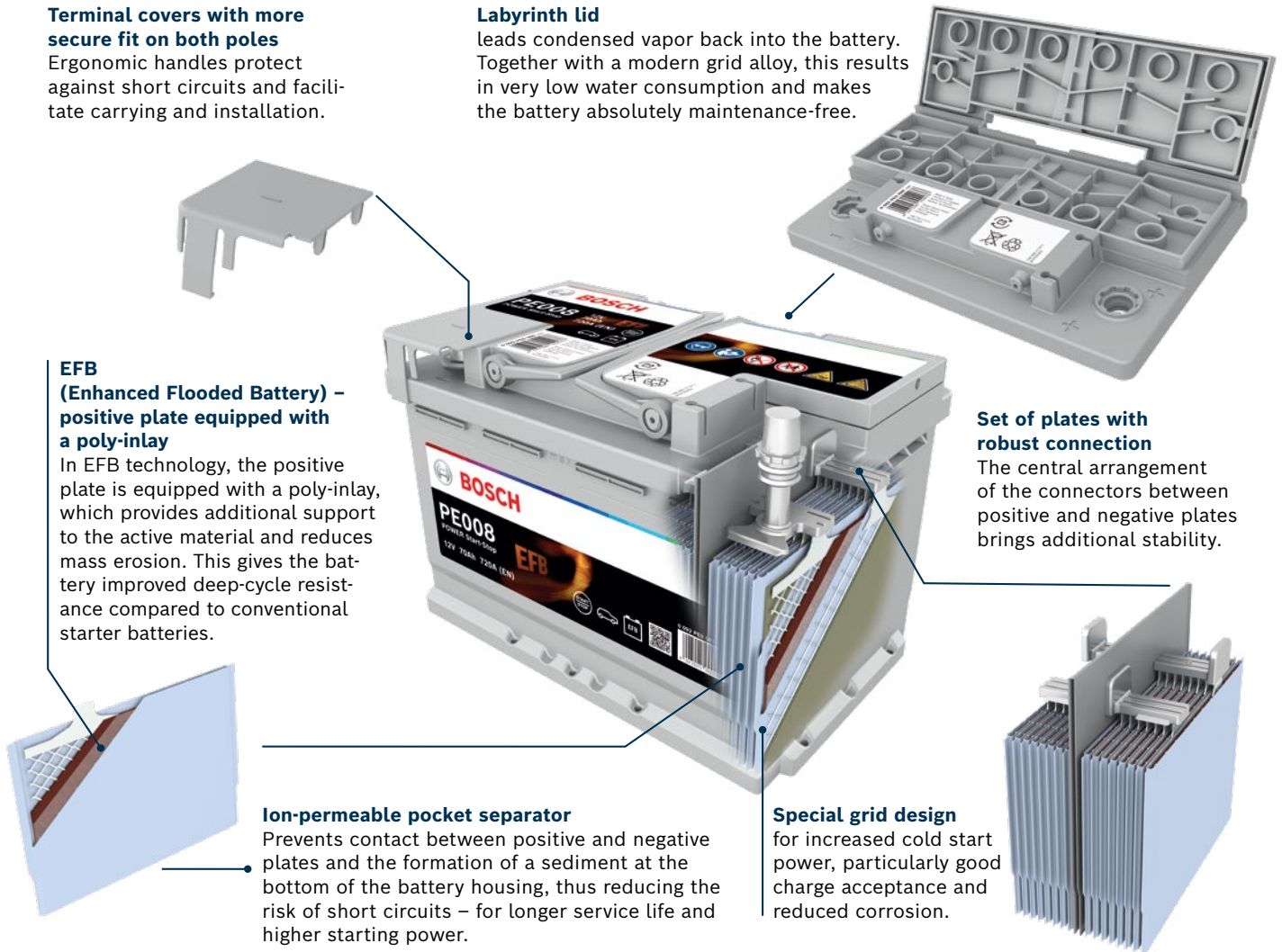
Labyrinth lid
leads condensed vapor back into the battery. Together with a modern grid alloy, this results in very low water consumption and makes the battery absolutely maintenance-free.

EFB (Enhanced Flooded Battery) – positive plate equipped with a poly-inlay
In EFB technology, the positive plate is equipped with a poly-inlay, which provides additional support to the active material and reduces mass erosion. This gives the battery improved deep-cycle resistance compared to conventional starter batteries.

Set of plates with robust connection
The central arrangement of the connectors between positive and negative plates brings additional stability.

Ion-permeable pocket separator
Prevents contact between positive and negative plates and the formation of a sediment at the bottom of the battery housing, thus reducing the risk of short circuits – for longer service life and higher starting power.

Special grid design
for increased cold start power, particularly good charge acceptance and reduced corrosion.



ESI[tronic] 2.0 Online software for diagnosis and servicing

By means of ESI[tronic] 2.0 Online software, Bosch offers workshops an appropriate solution for effective and efficient vehicle diagnosis for repair or servicing.

Advantages

- ▶ Easy operation
- ▶ Standardized system
- ▶ Comprehensive vehicle coverage

Power Plus SLI Battery

Product details

High-energy Bosch starter battery with SLI technology ensures reliable starting and high performance for a wide range of vehicles without start/stop systems. It provides enhanced performance thanks to its high capacity, cold-starting power and improved charge acceptance – even after extended stationary periods.



Advantages at a glance

- ▶ **Outstanding starting power and long service life:** thanks to a special grid design as well as reduced corrosion due to a modern grid alloy
- ▶ **Absolutely maintenance-free:** due to very low water consumption as a result of a modern grid alloy as well as a double lid in labyrinth design, which returns condensed vapor into the battery
- ▶ **High safety:** ensured by double backfire protection and integrated central degassing (depending on type)

Power SLI Battery

Product details

The reliable Bosch starter battery with SLI technology ensures safe starting for a wide range of vehicles without start/stop systems – also for older vehicles and small cars.



Advantages at a glance

- ▶ **Very good starting power and long service life:** thanks to a special grid design as well as reduced corrosion due to a modern grid alloy
- ▶ **Absolutely maintenance-free:** due to very low water consumption as a result of a modern grid alloy as well as a double lid in labyrinth design, which returns condensed vapor into the battery
- ▶ **High safety:** ensured by double backfire protection and integrated central degassing (depending on type)

Power Plus and Power SLI Batteries Technology

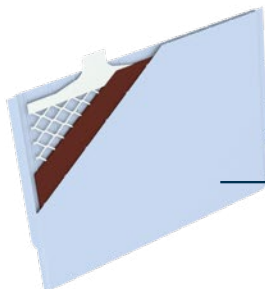
Terminal covers with more secure fit on both poles
Ergonomic handles protect against short circuits and facilitate carrying and installation.



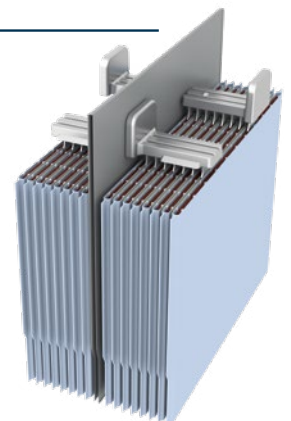
Labyrinth Lid
leads evaporated vapor back into the battery. Together with a modern grid alloy, this results in very low water consumption and makes the battery absolutely maintenance-free.



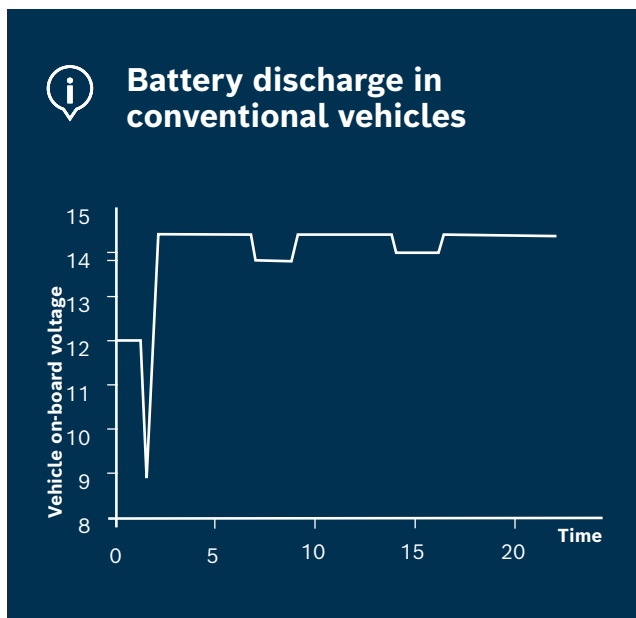
Ion-permeable pocket separator
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Set of plates with robust connection
The central arrangement of the connectors between positive and negative plates brings additional stability.



Special grid design
for increased cold start power, particularly good charge acceptance and reduced corrosion.



Did you know?

Battery expert since 1922

The first Bosch battery was produced in 1922 in Stuttgart-Feuerbach.



Increasing demands placed on batteries

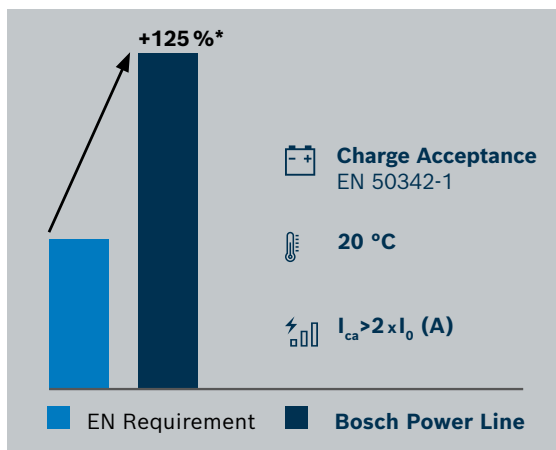
Trends in mobility behavior

Changing mobility behavior and the growing number of onboard electrical consumers mean that car batteries have to meet ever higher demands.



High demands require powerful batteries

In an era of increased remote working, longer stationary periods and more short-distance trips have an effect on the battery. Less regular commuting and fewer business trips mean that cars are being used less. At the same time, the number of electrical consumers in modern cars is putting even more strain on batteries. To ensure reliable starting and performance, a powerful battery with good charge acceptance is essential.



High charge acceptance, even for short distance trips

The batteries of the Bosch Power Line are well suited for the requirements of changing mobility behaviour.

Thanks to their high charge acceptance and increased capacity, they ensure reliable engine starts even after longer stationary periods or when the vehicle is mainly used for short trips.

*Charge acceptance test:

the Bosch Powerline exceeds the requirements of the EN 50342-1 up to 125 %



Trends in mobility behavior demand a lot from the battery



Remote work and increased vehicle standstill



Increased risk of sulfating & battery failure



High demands require powerful batteries

Longer stationary periods put a strain on the battery. In addition, the battery cannot be sufficiently charged by short trips. If many electrical consumers are in operation, additional energy is drawn from the battery.

The consequence is the risk of a low state of charge and thus sulfation. This can lead to the failure of a weakened battery.

The high charge acceptance of Bosch Power Line batteries make them fit for meeting the demands of modern mobility trends.

Requirements of Bosch batteries

Quality and performance tests

As a battery expert, Bosch carries out stringent quality and performance tests for all batteries in its range, ensuring consistently high quality. After all, there can be no compromises when it comes to the safety and reliability of Bosch batteries.

Electrical performance tests

Capacity tests **+++**

These tests check the capacity of the battery to ensure that it reaches the specified performance.

Cold start tests **+++**

This test checks the power of the battery at particularly low temperatures. This is very important in winter and in colder regions, as reliable starting is essential in these situations.

Charge conservation test **++**

This test is relevant for batteries in vehicles that are rarely moved, e.g. vintage cars, or vehicles that are often stationary for long periods, for instance due to remote working.

Vibration-resistance test **+**

This test is relevant for vehicles that are frequently used on poor surfaces. The vibration resistance of the battery is tested.



Safety tests

Electrolyte retention test **+++**

In conventional batteries, the liquid inside the battery moves while the vehicle is in motion – for instance when braking or accelerating. For safety reasons, the battery must be sealed to the extent that no acid can leak out. The electrolyte retention test checks the tightness of the battery.



Relevance for consumers (Bosch internal expert evaluation)

+++ = very high

++ = high

+ = moderate

Requirements of Bosch batteries

Quality and performance tests

Lifetime tests

Deep-cycle resistance test +++

A deep-cycle resistant battery is particularly important in city traffic with numerous start/stops or for vehicles that have many electrical consumers or are mainly used for short-distance trips. High deep-cycle resistance is a prerequisite for a long battery life.

Charge acceptance test ++

Even under heavy loads, it must be possible to charge the battery quickly while driving – this prevents the risk of failure due to deep discharge. This is relevant for longer stationary periods, as in times of remote working.

Corrosion tests ++

These tests check the battery's resistance to internal corrosion at high temperatures. This is because internal corrosion leads to loss of battery power.

Water consumption tests ++

Low water consumption ensures total freedom from maintenance and longer battery life.



The EN standard

All function and performance tests are carried out on the basis of the high technical standards of the respective markets. In Europe this is the

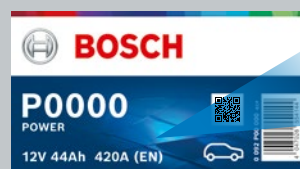
EN 50342-1.

These tests are very demanding and simulate the extreme demands to which batteries can be exposed.



Did you know?

The EN standard as a basis serves as a minimum requirement for Bosch batteries. This is regularly verified at Bosch by an independent and certified laboratory. Whether a battery meets the EN requirements can be easily seen on the label.



Bosch batteries since 1922

History

Inventive spirit with a century of history: Since 1922, Bosch has continuously developed and expanded its range of high-performance batteries. Today, in addition to conventional batteries, it also includes batteries with AGM and EFB technology for passenger cars, commercial vehicles, two-wheelers and recreational vehicles such as motor homes and campers.

100 Years

Batteries from Bosch
1922 – 2022

1960s

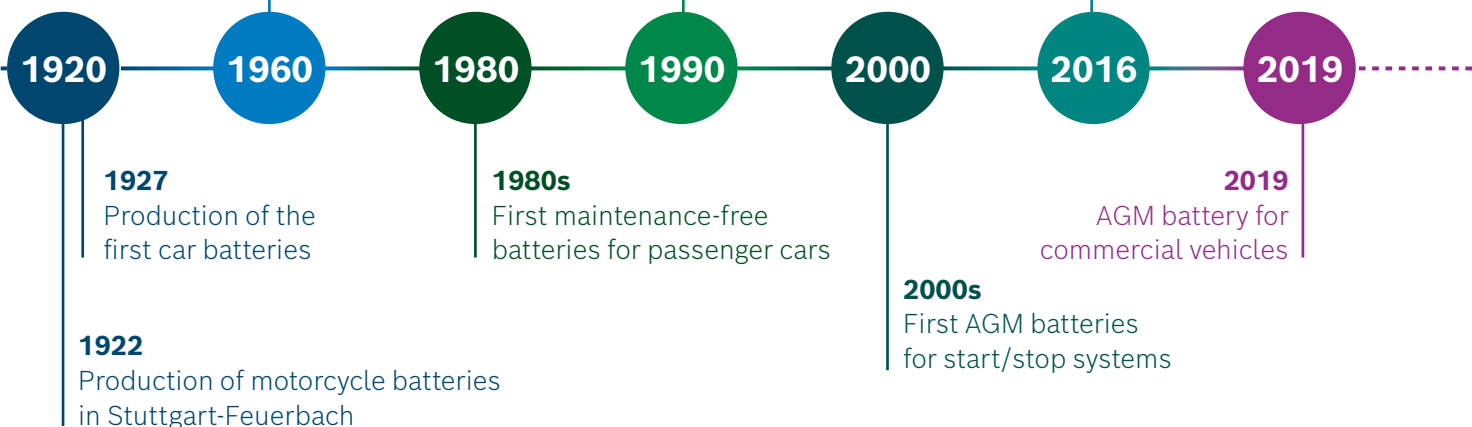
Batteries with plastic case and state of charge indicators

1990s

Grid with silver alloy for long life and high starting power

2016

Automechanika Innovation Award for the two-wheeler lithium-ion battery



Bosch batteries –

100 years of performance improvement

Bosch began producing motorcycle batteries in 1922. In 1927, the first Bosch battery for passenger cars was launched. Numerous further developments and innovations followed. Over the years, Bosch has expanded its range and continues to adapt it to changing market requirements and new technological possibilities.



Did you know?

For many classic cars, Bosch offers batteries in classic design, equipped with modern battery technology



What drives you, drives us

Bosch technologies are used in most vehicles worldwide. People, and assuring their mobility, is what we are focused on.

Therefore, we have dedicated over 130 years of pioneering spirit and expertise in research and manufacturing to achieving this.

We provide the aftermarket and workshops worldwide with modern diagnostic and workshop equipment and a wide range of spare parts for passenger cars and commercial vehicles:

- ▶ Solutions for efficient and effective vehicle repairs
- ▶ Innovative workshop equipment and software
- ▶ One of the world's most comprehensive ranges of new and exchange parts
- ▶ Large network of wholesale customers, for quick and reliable parts supply
- ▶ Competent technical support
- ▶ Comprehensive educational and training offers
- ▶ Targeted sales and marketing support

Find out more at:
boschaftermarket.com

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