

## What drives you, drives us.

Technology from Bosch is used in practically every vehicle in the world. For us, the focus is on people and helping them to stay mobile.

We have been dedicated to people for more than 125 years with our pioneering spirit, research, production and expertise.

Our dedication is an unwavering commitment to providing them with a unique combination of parts, diagnostics, workshop equipment and services:

- ▶ state-of-the-art solutions for efficient vehicle repairs
- ▶ innovative workshop equipment and software – also available on favorable lease terms
- ▶ the world's largest range of new and remanufactured spare parts
- ▶ fast, reliable delivery service
- ▶ expert customer care via our hotline
- ▶ extensive range of training courses
- ▶ specific sales and marketing support
- ▶ plus many other services



### Bosch products and services

- ▶ Diagnostics
- ▶ Diesel systems
- ▶ Gasoline systems
- ▶ Brake systems
- ▶ Spark plugs
- ▶ Energy systems
- ▶ Batteries
- ▶ Filters
- ▶ Wiper systems
- ▶ Light technology
- ▶ Comfort electronics
- ▶ Hybrid/e-mobility
- ▶ Technical hotline
- ▶ Knowledge database
- ▶ Service training
- ▶ Workshop concepts

Subject to technical changes and software changes



You can get original Bosch quality here:

### The new Bosch packaging design

- ▶ Sales-boosting, appealing design
- ▶ Multi-line concept for different specifications for a targeted customer approach
- ▶ Unmistakable hallmark of premium Bosch quality, worldwide
- ▶ Perfectly aligned with the corporate identity of Bosch

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## A real boost for your business: Batteries from Bosch



For more information visit:  
[www.bosch.com](http://www.bosch.com)

# Perfect energy on the go: Overview of Bosch batteries

Whether for passenger cars, commercial vehicles, mobile applications such as mobile homes or motorboats, off-highway vehicles or motorcycles, Bosch offers precisely the right battery for every requirement. In this regard, innovative technologies cover even extreme energy requirements.



## Full power for passenger cars

### S5 A with AGM technology and PowerFrame®

Peak power for cars with start/stop system and regenerative braking system (recuperation).

### S4 E with EFB technology, PowerFrame® and labyrinth lid

Reliable performance for vehicles with start/stop system and numerous electrical consumers.

### S5 with PowerFrame® technology and labyrinth lid

Powerhouse for vehicles of more recent model years or high-end vehicles with many electrical consumers.

### S4 with PowerFrame® technology and labyrinth lid

For a powerful start in all vehicle classes – also for asian models.

### S3 with PowerFrame® technology and labyrinth lid

The economical solution for many older cars with few electrical consumers.

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## Energy giants for commercial vehicles

### TE with EFB technology, PowerFrame® and labyrinth lid

For extremely high starting power and a reliable supply of a large number of applications under tough and straining conditions.

### T5 with PowerFrame® technology and labyrinth lid

Maximum performance and cycle stability, especially for high energy demand and frequent discharge cycles.

### T4 with PowerFrame® technology and labyrinth lid

Reliable supply of all running applications with normal energy demands – even with the engine switched off or in case of frequent discharge.

### T3 with PowerFrame® and hybrid technology

Provides uncompromising starting power – ideal for vehicles with low energy demand.

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## Mobile performance for leisure and off-highway

### L5 with PowerFrame® technology, labyrinth lid and Deep-Cycle

For mobile applications with many electrical consumers that must be supplied over a long period of time.

### L4 with PowerFrame® technology and labyrinth lid

For mobile applications with supply over a long period of time and the advantage of short charging times.

### L5 G

For applications that require energy over a longer period of time and that must be fully recharged quickly. Specially designed for golf carts.

### M4

Reliable starting power for mobile applications.

### OPTIMA® BlueTop®/YellowTop®/RedTop® with SpiralCell® technology and AGM technology

Extreme vibration resistance and reliable, especially for maritime applications.

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## Powerhouses for motorcycles

### M Li-ion with lithium-ion technology

For many consumers and high energy requirements, as well as for extremely straining conditions. (very low weight)

### M6 with AGM technology

For many consumers and extreme loads.

### M4

Suitable for almost all motorcycles.

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# Full power: Car batteries



Innovative batteries make a crucial contribution to the first-class quality and high performance capacity of Bosch batteries. Bosch developed these technologies specifically for the different requirement profiles of the various vehicle types. This guarantees maximum safety and reliability.

## S5 A/S4 E: Cutting-edge technologies for vehicles with start/stop system

AGM (Absorbent Glass Mat) is among the latest cutting-edge technologies for batteries. The Bosch S5 A battery with AGM technology provides top performance for passenger cars with start/stop system and regenerative braking (recuperation). A powerful alternative is the S4 E with EFB (Enhanced Flooded Battery) technology. It provides a reliable supply of energy for vehicles with start/stop system and several electrical consumers.

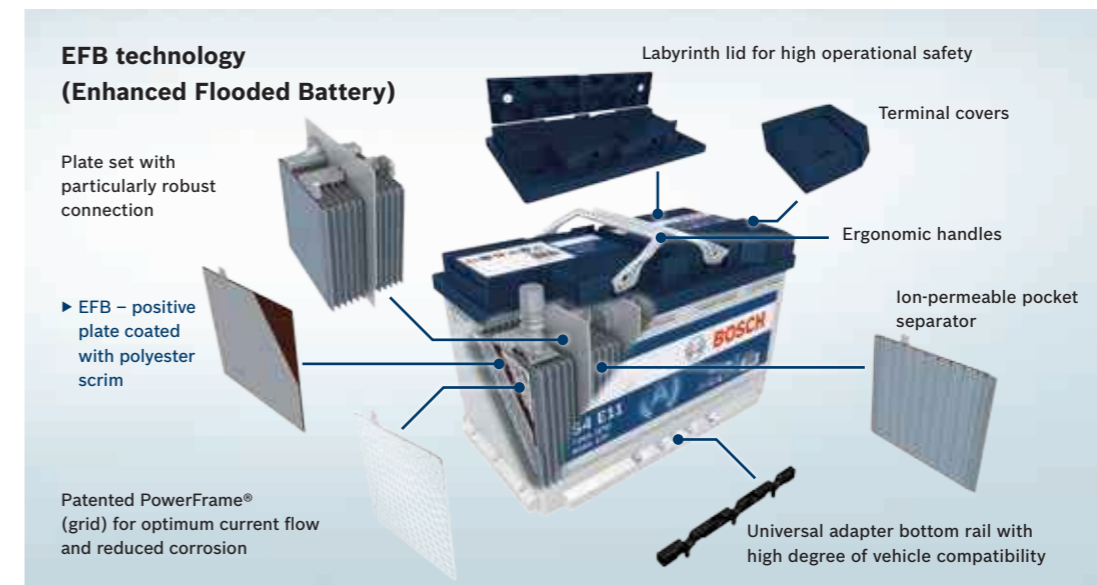
## S5/S4/S3: Optimum starting power for every car

The Bosch S5, S4 and S3 batteries offer first-class Bosch quality for a wide range of requirements and vehicle types. They stand out for a longer service life and their excellent cold starting power. S5 is the powerhouse for recent car models with several electrical consumers. S4 ensures a powerful start for all types of vehicles. S3 is the economical solution for many older cars.



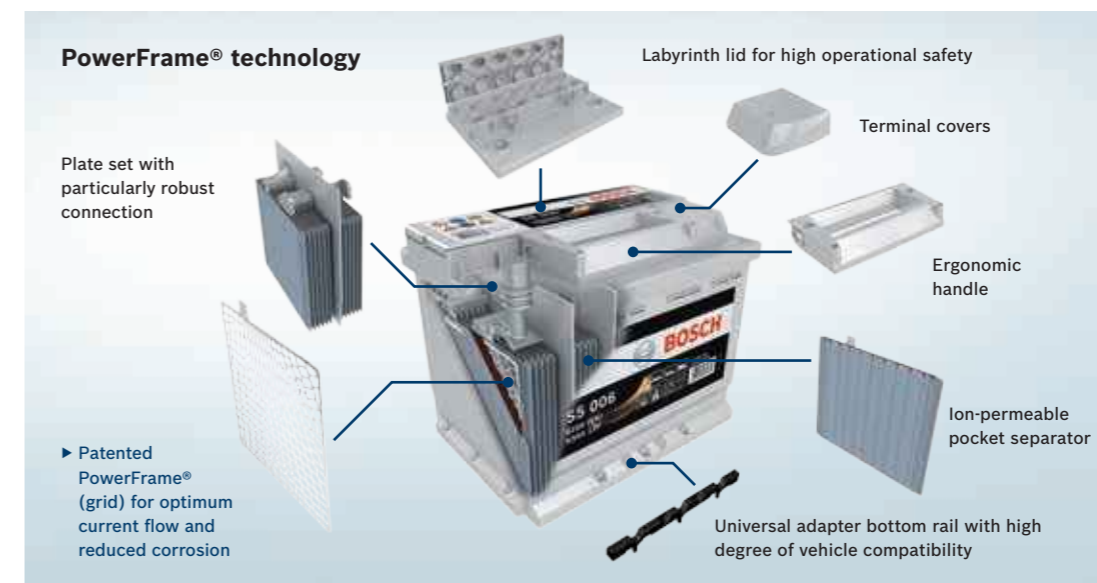
## S5 A with AGM technology

- ▶ AGM (Absorbent Glass Mat) technology: acid absorbed by micro-fiberglass mat allows more energy to pass through
- ▶ Longer service life and up to 4 times higher deep-cycle resistance than conventional starter batteries
- ▶ Excellent charge acceptance and starting power with several electrical consumers
- ▶ Absolutely maintenance-free and leak-proof



## S4 E with EFB technology

- ▶ EFB (Enhanced Flooded Battery) technology: positive plate coated with polyester scrim ensures additional retention of the active material
- ▶ Longer service life and doubled deep-cycle resistance compared to conventional starter batteries
- ▶ Excellent charge acceptance and high short-distance stability
- ▶ Absolutely maintenance-free, leak-proof and vibration-resistant



## S5/S4/S3 with PowerFrame® technology

- ▶ PowerFrame®: flow-optimized grid design for optimum current flow, reduced corrosion and a long service life
- ▶ Maximum safety through double backfire protection
- ▶ No leakage of the acid thanks to the sealed design of the battery lid
- ▶ Absolutely maintenance-free

# The perfect source of power for every car: Bosch battery overview

Modern cars use increasing number of components that require electrical power. Bosch batteries provide a power supply that ensures the necessary high performance, safety and correct power for any task.

## S5 A

Peak power for cars with start/stop system and regenerative braking.

## S4 E

Reliable performance for vehicles with start/stop systems and numerous electrical consumers.

## S5

Suitable for recent car models with several electrical consumers.

## S4

S4 ensures a powerful start for all types of vehicles.

## S3

The economical solution for many older car models.



Line	AGM <sup>(1)</sup>	EFB <sup>(2)</sup>	SLI <sup>(3)</sup>		
Battery	S5 A	S4 E	S5	S4	S3
Technology	AGM (Absorbent Glass Mat) <sup>(1)</sup> PowerFrame® <sup>(4)</sup>	EFB (Enhanced Flooded Battery) <sup>(2)</sup> PowerFrame® <sup>(4)</sup> Labyrinth lid <sup>(5)</sup>	PowerFrame® <sup>(4)</sup> Labyrinth lid <sup>(5)</sup>	PowerFrame® <sup>(4)</sup> Labyrinth lid <sup>(5)</sup>	PowerFrame® <sup>(4)</sup> Labyrinth lid <sup>(5)</sup>
Application characteristics	Recent vehicle models and upmarket models with start/stop systems and regenerative braking 	Recent vehicle models and upmarket models with start/stop systems and several electrical consumers 	Recent vehicle models and upmarket models 	All vehicles, even Asian models 	Older vehicles with fewer electrical consumers 
Maintenance	Absolutely maintenance-free	Absolutely maintenance-free	Absolutely maintenance-free	Absolutely maintenance-free	Absolutely maintenance-free
Installation inside the vehicle	Yes	Yes	Yes	Yes	Yes
Cold start performance	● ● ●	● ●	● ● ●	● ●	●
Number of electronic consumers	● ● ●	● ●	● ●	●	●
Deep-cycle resistance	● ● ●	● ● ●	● ●	● ●	●
Suitability for short distances	● ● ●	● ● ●	● ●	●	●
Installation angle	up to 90°	0°	0°	0°	0°

(1) AGM (Absorbent Glass Mat): acid absorbed by micro-fiberglass mat allows more energy to pass through  
 (2) EFB (Enhanced Flooded Battery): positive plate coated with polyester scrim ensures additional retention of the active material and a high deep-cycle resistance  
 (3) SLI: Starting-Lighting-Ignition battery with PowerFrame®  
 (4) PowerFrame®: patented stamping process for optimum current flow, reduced corrosion and long service life  
 (5) Labyrinth lid: returns condensed water to the battery; integrated central degassing, backfire protection and an additional sealing ring ensure high operational safety



# Energy giants: Commercial-vehicle batteries



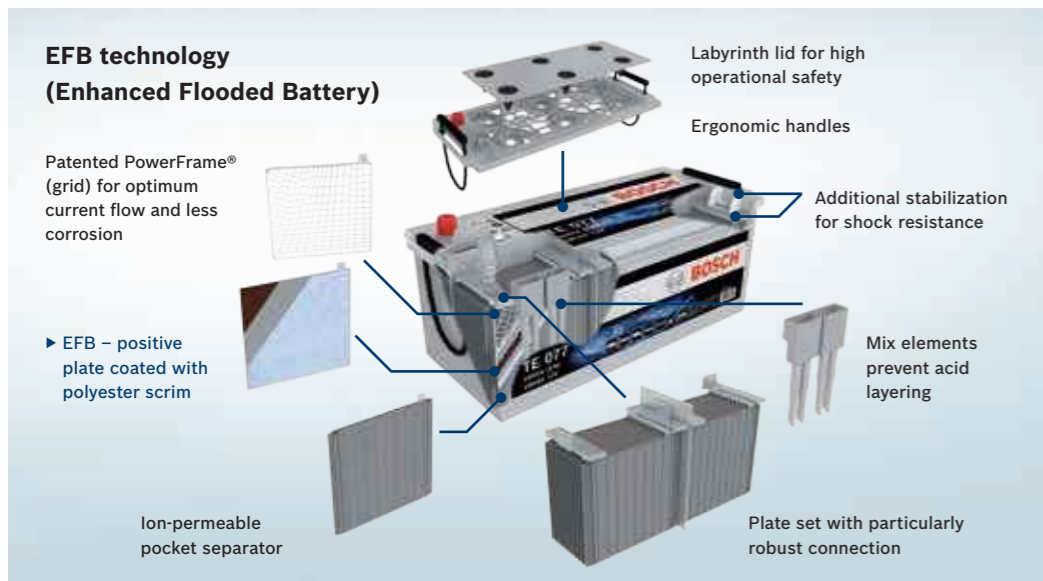
At Bosch, fleet operators find the optimum battery for every commercial vehicle. Thanks to pioneering technologies Bosch batteries are maintenance-free and have a long service life – saving both money and time.

### TE: Innovation that gives trucks more power

The Bosch TE battery with EFB (Enhanced Flooded Battery) technology is designed for particularly high performance demands. It reliably covers extreme energy requirements and ensures safe supply of a large number of applications even under tough conditions e.g. if numerous hotel functions are operated in the long-haul truck.

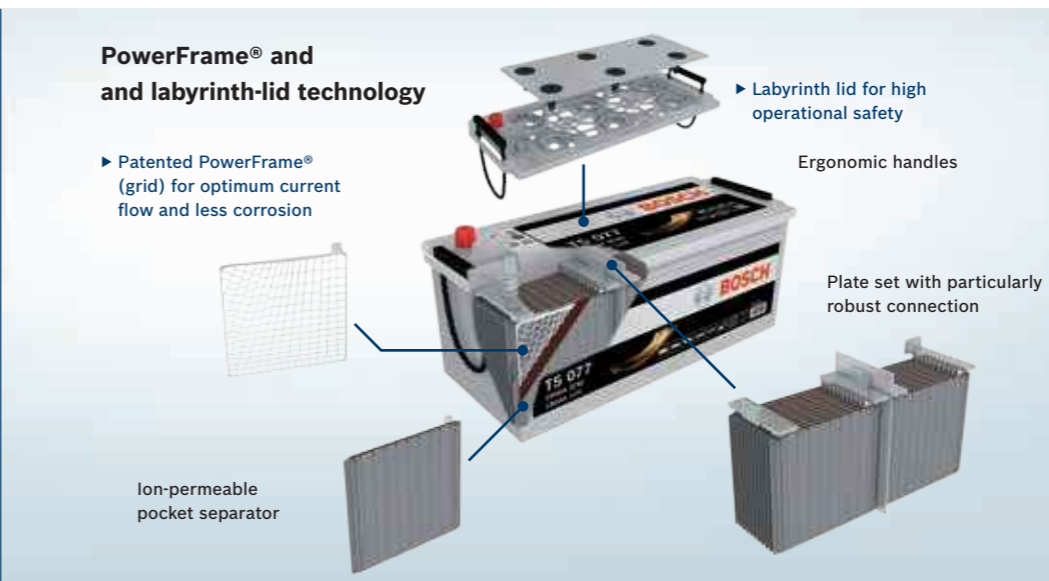
### T5/T4/T3: Reliability from start to arrival

The Bosch T5 and T4 batteries are equipped with the PowerFrame® technology – for high battery performance and high reliability. T5 convinces through maximum performance and deep-cycle resistance. It was especially developed for high energy requirements and frequent discharges. T4 reliably supplies all running applications with normal energy requirements – even with the engine switched off or in case of frequent discharge. The Bosch T3 battery provides uncompromising starting power and is ideal for vehicles with low energy demand. It is maintenance-free and topping up with water is possible.



### TE with EFB technology and labyrinth lid

- ▶ EFB (Enhanced Flooded Battery) technology: positive plate coated with polyester scrim ensures additional retention of the active material
- ▶ Very long service life and doubled deep-cycle resistance compared to conventional batteries
- ▶ Meets deep-cycle resistance standard V3 or better
- ▶ Very low water consumption due to labyrinth-lid technology
- ▶ Absolutely maintenance-free



### PowerFrame® and labyrinth-lid technology

- ▶ Patented PowerFrame® (grid) for optimum current flow and less corrosion

### T5/T4 with PowerFrame® technology and labyrinth lid

- ▶ PowerFrame®: Flow-optimized grid design for optimum current flow, high starting power, reduced corrosion and a long service life
- ▶ Labyrinth lid: returns condensed water to the battery; integrated central degassing, backfire protection and an additional sealing ring ensure high operational safety
- ▶ Absolutely maintenance-free

# Perfect power for all commercial vehicles: Bosch battery overview

A large number of electrical consumers, long idle times and often also extreme temperature conditions push commercial-vehicle batteries to the limit. Bosch batteries ensure reliable power supply at all times. Thanks to advanced technologies, they are absolutely maintenance-free and feature a long service life – saving fleet operators both time and money.

## TE

The TE battery with EFB technology for extremely high starting power and a reliable supply of a large number of applications under tough and straining conditions.



## T5

The T5 battery provides maximum performance and cycle stability, especially for vehicles with a high energy demand and frequent discharge cycles.



## T4





The T4 battery supplies all running applications in commercial-vehicle operations that require a normal level of energy – even with the engine shut off or in case of frequent discharge.



## T3

The T3 battery provides uncompromising starting power – ideal for vehicles with low energy demand.



Line	EFB <sup>(1)</sup>		SLI <sup>(2)</sup>	
Battery	TE	T5	T4	T3
Technology	EFB (Enhanced Flooded Battery) <sup>(1)</sup> PowerFrame® <sup>(3)</sup> , Labyrinth lid <sup>(4)</sup>	PowerFrame® <sup>(3)</sup> Labyrinth lid <sup>(4)</sup>	PowerFrame® <sup>(3)</sup> Labyrinth lid <sup>(4)</sup>	PowerFrame® <sup>(3)</sup> Hybrid technology <sup>(5)</sup>
Application characteristics	Long-haul trucks with sleeper cab, distribution traffic/trucks with tail lift, fire-fighting vehicles, construction machinery, off-road trucks, coaches and buses, municipal vehicles with a high rate of city traffic 	Long-haul trucks with sleeper cab, distribution traffic/trucks with tail lift, fire-fighting vehicles, coaches and buses, municipal vehicles with a high rate of city traffic 	Construction machines and off-road vehicles; applications requiring a high level of power for starting 	Small commercial vehicles, vans, tractors 
Maintenance	Absolutely maintenance-free – reduces fleet operating costs	Absolutely maintenance-free – reduces fleet operating costs	Absolutely maintenance-free – reduces fleet operating costs	Maintenance-free – topping up with water is possible
Installation inside the vehicle	Yes	Yes	Yes	No
Cold start performance	● ● ●	● ● ●	● ●	●
Number of electronic consumers	● ● ●	● ● ●	● ●	●
Deep-cycle resistance	● ● ●	● ●	● ●	●
Suitability for short distances	● ● ●	● ●	● ●	●
Deep-cycle resistance	● ● ●	● ● ●	● ●	●
Installation angle	0°	0°	0°	0°

(1) EFB (Enhanced Flooded Battery): positive plate coated with polyester scrim ensures additional retention of the active material and a high deep-cycle resistance

(2) SLI: Starting-Lighting-Ignition battery with PowerFrame®

(3) PowerFrame®: patented stamping process for optimum current flow, reduced corrosion and long service life

(4) Labyrinth lid: returns condensed water to the battery; integrated central degassing, backfire protection and an additional sealing ring ensure high operational safety

(5) Hybrid technology: allows the topping-up with water, maintenance-free



# Mobile performance:

## Batteries for leisure and off-highway



Whereas campers, mobile homes and boats require comfort, power, and safety, off-highway vehicles must work reliably under the harshest operating conditions. Bosch batteries are optimally matched to these different requirement profiles. Thus the solutions for mobile applications are convincing through high capacity, deep-cycle resistance and operational safety. However the off-highway products are characterized through high starting power, low sensitivity to vibration and stability against tilting.



### L5

**With PowerFrame® technology (2), labyrinth lid (3), and Deep Cycle (4)**

For mobile applications with many electrical consumers that must be supplied over a long period of time, e.g. campers, mobile homes, electric boats and motorboats.

### L5 G

**Specially designed for golf carts**

Especially designed for golf carts and similar applications that require energy over a longer period of time and that must be fully recharged quickly.

### L4

**With PowerFrame® technology (2), Labyrinth cover (3), and Deep Cycle (4)**

For mobile applications with supply over a long period of time and fast charging times, e.g. boats, mobile homes and golf carts.

### M4

Reliable starting power for lawn mowers, motorcycles, ATV quads, snowmobiles, and jetskis.

### OPTIMA®

**With AGM technology (5) and SpiralCell® technology (6)**

For constant energy supply even over longer periods of time – extremely vibration-resistant, reliable and thus particularly well-suited for maritime applications.

**OPTIMA® BlueTop®**  
Handles longer operating times and many charge cycles, consequently perfect for boats and mobile homes with many electrical consumers.

**OPTIMA® YellowTop®**  
Suitable for frequent start applications and several electronic consumers in boats and mobile homes, for example.

**OPTIMA® RedTop®**  
Provides maximum ignition power for safe motor starts – in particular for boats.

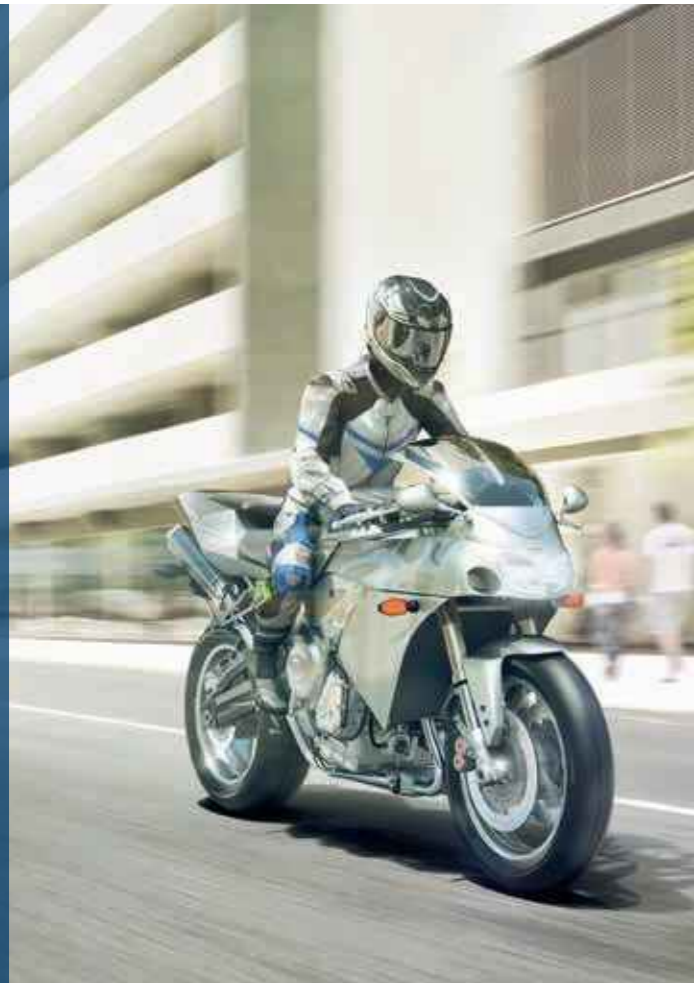


SLI (1)

SpiralCell® (6)

(1) SLI: Starting-Lighting-Ignition battery  
 (2) PowerFrame®: patented stamping process for optimum current flow, reduced corrosion and a long service life  
 (3) Labyrinth lid: returns condensed water to the battery; integrated central degassing, backfire protection and an additional sealing ring ensure high operational safety  
 (4) Deep Cycle: high deep-cycle resistance and power density  
 (5) AGM (Absorbent Glass Mat): acid absorbed by micro-fiberglass mat allows higher amounts of energy to pass through  
 (6) SpiralCell®: thanks to stable construction with spiral technology, extremely vibration-resistant and suitable for marine applications

# Powerhouses: Motorcycle batteries



Whether off-road or touring fun... Motorcycle batteries from Bosch offer reliable starting power for every demand. The ultra-light powerhouse – the M Li-ion battery – with innovative lithium-ion technology, for example offers up to 10x the deep-cycle resistance of a conventional lead-acid battery. With weight savings up to 2/3 and its extremely fast and reliable starts, it is particularly suitable for applications with high energy consumption. The balanced discharging and charging of all cells is ensured through the balancer (battery management system).

## M Li-ion With lithium-ion technology <sup>(1)</sup>

For many consumers and high energy requirements, as well as for extreme strains, such as long off-road journeys. (very low weight)

## M6 With AGM technology <sup>(2)</sup>

For many consumers and extreme strains, such as long off-road journeys.

## M4 Suitable for almost all motorcycles.

<sup>(1)</sup> Lithium-ion: without explosive gases, lead or acid; thus ultra-light, very powerful, long service life, can be installed in any position  
<sup>(2)</sup> AGM (Absorbent Glass Mat): acid absorbed by micro-fiberglass mat allows more energy to pass through  
<sup>(3)</sup> SLI: Starting-Lighting-Ignition battery



Lithium-ion <sup>(1)</sup>



AGM <sup>(2)</sup>



SLI <sup>(3)</sup>

# Parts, bytes and services from Bosch: Top performance from a single source

## Complete support for your battery business

Benefit from Bosch parts, bytes and services:

- ▶ Complete range of batteries
- ▶ Efficient diagnostic equipment
- ▶ Reliable services



## Parts



- ▶ Complete range of batteries for cars, commercial vehicles and two-wheelers, as well as leisure and off-highway applications
- ▶ Groundbreaking cutting-edge technologies
- ▶ First-class quality and reliability
- ▶ Extensive system expertise and wide range of products for start/stop systems

## Services



- ▶ Training sessions and workshops
- ▶ Training and product videos



- ▶ Bosch Battery Collection System for economical, safe and environmentally friendly battery recycling
- ▶ Total Cost of Ownership (TCO) model for CV batteries

## Bytes



- ▶ Professional battery chargers
- ▶ KTS diagnostic and BAT battery tester for changing batteries
- ▶ ESI[tronic] diagnostic software with detailed, vehicle-specific service and repair instructions, system information and spare-part catalogs for all vehicles