Bosch: Industrial, energy, and building solutions for the automotive industry
Cutting-edge technologies from a global provider

All building complexes have to meet especially demanding security, safety, communication, HVAC, and energy criteria.

When you choose Bosch as a supplier of products and solutions for theaters, you can be assured of cutting-edge technologies from a global provider. True to our company slogan “Invented for life,” our products and solutions are designed with our customers in mind. As a leading global supplier of technology and services, Bosch understands that professionals need to be able to rely on their industry partners for technical expertise and innovative thinking.

The Bosch Group at a glance

The Bosch Group is a leading global supplier of technology and services. In 2013, its roughly 281,000 associates generated sales of 46.1 billion euros. Its operations are divided into four business sectors: Automotive Technology, Industrial Technology, Consumer Goods, and Energy and Building Technology. The Bosch Group comprises Robert Bosch GmbH and its more than 360 subsidiaries and regional companies in some 50 countries. If its sales and service partners are included, then Bosch is represented in roughly 150 countries. This worldwide development, manufacturing, and sales network is the foundation for further growth.

In 2013, the Bosch Group invested some 4.5 billion euros in research and development and applied for some 5,000 patents. This is an average of 20 patents per day. The Bosch Group’s products and services are designed to fascinate, and to improve the quality of life by providing solutions which are both innovative and beneficial. In this way, the company offers technology worldwide that is “Invented for life.”

The company was set up in Stuttgart in 1886 by Robert Bosch (1861-1942) as “Workshop for Precision Mechanics and Electrical Engineering.” The special ownership structure of
Robert Bosch GmbH guarantees the entrepreneurial freedom of the Bosch Group, making it possible for the company to plan over the long term and to undertake significant up-front investments in the safeguarding of its future. Ninety-two percent of the share capital of Robert Bosch GmbH is held by Robert Bosch Stiftung GmbH, a charitable foundation. The majority of voting rights are held by Robert Bosch Industrietreuhand KG, an industrial trust. The entrepreneurial ownership functions are carried out by the trust. The remaining shares are held by the Bosch family and by Robert Bosch GmbH.


A leading global supplier of technology and solutions

Bosch provides a comprehensive range of products and industrial, energy, and building solutions for the automotive industry across the world. Bosch has a choice of products that are commonplace across automotive projects, whether the project requires energy-efficient heating and hot water systems from respected brands, innovative and intuitive video surveillance systems, or the hard-wearing power tools needed for professional installation work.

Bosch products and solutions

Bosch offers a wide range of products and solutions for effective facility management, production processes and global automotive dealer network.

- All areas and activities can be efficiently monitored, allowing emergencies, fires, and threats to be detected immediately
- The building can be evacuated fast, and in a controlled manner
- All safety, security, and communications solutions can be integrated in one facility management system
- Energy consumption can be monitored effectively, and energy costs decreased
- Heating solutions can be provided in many different areas, including guest and conference rooms, as well as hot water for showers or pools
- Special service tools, storage solutions, diagnostics and workshop equipment ensure dealer workshops can “fix it right the first time”.
Full circle with Bosch solutions

1. Solar thermal heating systems

2. Process heat and electricity

3. Fire and voice evacuation systems, conference systems

4. Access control and video surveillance systems

5. Intrusion systems

6. Building management system

Bosch: Industrial, energy, and building solutions for the automotive industry
1. Automotive service solutions
2. eCall service
3. Professional power tools
4. Drive and control technology
5. Energy and building solutions

Bosch: Industrial, energy, and building solutions for the automotive industry
Drive and control technology
Factory automation

Many years of experience in the industry allow Bosch Rexroth to optimally adapt products to meet changing market needs. We also work together with our customers to devise new solutions. One example of this is our range of products specially designed for the automotive industry.

Multi-disciplinary know-how is the basis for innovative solutions that are used as components or customized systems. Because Bosch Rexroth offers a complete range of drives and controls, advice to customers is free of technological bias, resulting in the most appropriate solution for the task at hand.

You can achieve maximum production rates when all of your control and drive technologies work together at their highest potential and as efficiently as possible. All this can be achieved with intelligent controls combined with electromechanical, hydraulic, and pneumatic drives by Bosch Rexroth. What’s more, they are easy to use and program. In this way, non-productive and idle times in production processes are considerably shortened, and productivity increased.

Solutions for the automotive industry
Whether it is matter of ultra-high precision, absolute process reliability, maximum flexibility, or optimum user-friendliness, Bosch Rexroth is familiar with the requirements of every production stage and offers a comprehensive portfolio of components and automation solutions for every process step in the production sequence.

Bosch Rexroth supports automakers around the world by supplying innovative components, modules, and systems and services designed to enhance production efficiency.

Bosch Rexroth products always incorporate state-of-the-art technology that consistently adheres to international hardware and software standards.
Press shop
- Broad range of perfectly compatible components and system solutions
- Drive and control technology for quick retooling with consistent repeatability
- Intuitive products with excellent user-friendliness

Body shop
- Reliable and flexible resistance welding systems for correct welding of different material combinations
- Rexroth tightening systems document the safety-relevant connections and ensure the quality of the tightened connection
- Robust, compact, and intelligent: Bosch Rexroth pneumatic equipment satisfies an extensive range of demands
- Scalable PLC and intelligent drive systems for flexible tasks

Paint shop
- ATEX-certified assemblies and components for explosive environments
- Bosch Rexroth drive and control solutions for ultimate precision

Powertrain machining
- Maximum flexibility thanks to scalable standard components, and open-system solutions for optimum productivity
- Systems with open-interfaced and consistent uniform look and feel for quick exchangeability

Powertrain assembly
- All required drive and control technologies from one supplier
- Universal drive and control concepts for flexible realization of complex tasks
- Reliable tightening technology with seamless documentation to ensure safety and functionality

Final assembly
- Broad range of components and systems solutions for any drive and control technology
- Easy conversion to new processes and procedures thanks to open-interfaced PLC solutions in modular design
- Tightening technology with flexible connection to superior control systems is the perfect solution for applications that require high accuracy and reliability

www.boschrexroth.com/automotive
Security systems
Safety and reliability for the future

BIS effectively integrates all applications
The Bosch building integration system (BIS) provides a single web-based control point for monitoring all security, safety, and facility management systems. This includes alarm management, fast alarm identification via location maps, and follow-up procedures. It seamlessly integrates fire and intrusion alarms, evacuation, access control, video surveillance, and building automation systems into a single platform. The BIS enables a single operator to monitor and control all security systems, as well as to respond faster to emergencies and achieve greater overall effectiveness.

For security and safety, as well as for communications products, solutions, and services, Bosch Security Systems is the perfect partner. The Security Systems division has the capacity to offer integrated systems tailored to the specific requirements of each application.

Personalized access rights and reliable visitor management
Bosch access control systems guarantee reliable access management both indoors and outdoors, such as access to production or R&D facilities. State-of-the-art readers and controllers restrict access to non-public areas (such as equipment and locker rooms). This ensures that only authorized individuals get in. Video cameras located in the vicinity monitor and observe any unauthorized access attempts.
Early detection of fire for fast evacuation
Bosch systems quickly and accurately locate a fire and trigger evacuation. At the same time, they minimize the occurrence of false alarms. The public address system allows the operator to guide employees to safety, avoiding danger areas. Surveillance cameras can monitor evacuation proceedings and help the authorities coordinate rescue operations. All these systems incorporate high levels of redundancy and can be integrated centrally using the building integration system to ensure seamless operation under any contingency.

Secured premises and production facilities
Hostile acts or vandalism on the manufacturing premises or in the factory can have severe consequences. Our systems enable early detection of suspicious behavior and help to confirm and validate alarms. In combination with intelligent video analysis (IVA), Bosch cameras establish a “virtual perimeter fence” that, if crossed, alerts a security operator. Cameras can then be used to check on the situation at any time of the day or night and initiate the appropriate action.

Supervision of production, warehouse, and logistics processes
Bosch cameras with intelligent video analysis (IVA) provide leading technology to supervise production processes. Continuous real-time image analysis allows unplanned or critical events to be detected. An alarm then alerts the operator, who initiates and executes immediate action plans. Intelligent video analysis also offers forensic search options. This can be used to track quality deviations in the production process: for example, dirt can be identified. Forensic search can also be used to support the tracking of product deliveries by live video recording and transmission of scan data. Our IP video management system can easily be integrated into existing ERP systems and enables ex-post retrieval of video footage via forensic search.

Outstanding equipment for your meeting rooms
The flagship digital congress network system enables the smooth conduct of even the most demanding meetings. The system ensures a fast and flexible set-up with a choice of wired and wireless configurations; IR transmitters ensure that simultaneous interpretation is distributed solely to the participants for whom it is intended.
Designed and built for challenging projects: our custom solutions for automakers provide precisely the energy you need for your facilities – and they are energy-efficient and eco-friendly at the same time.

**Bosch Thermotechnology**
Partner for efficient thermal solutions

The planning and provision of energy solutions for complex buildings presents particular challenges for all involved. We at Bosch Thermotechnology are ideally prepared for such demanding tasks.

All our projects are planned from start to finish using an integrated, systematic approach – an excellent way to guarantee that the thermal systems will be energy-efficient and effective when they are completed. Thanks to our modular and extremely comprehensive product portfolio, we can find the optimum solution to meet the precise requirements of any building complex. In this, our decades of experience and expertise are as decisive as our extensive professional competence. Automakers can trust custom solutions from Europe’s market leader.

We offer a broad portfolio that covers almost all solutions for heating, cooling and ventilation, and energy recovery systems:
- Steam boiler systems
- Hot-water boiler systems
- Combined heat and power plants
- Waste-heat recovery systems
- Heat pumps
- Buffer and hot-water tanks
- Ventilation and air-conditioning systems
- Large solar thermal plants
- All systems and system combinations with a complete range of intelligent controls and accessories
Heating and hot water with the generous support of the sun
Reliable heat supply for the whole industrial building complex. Large solar thermal plants are combined with efficient peak-load heating boilers. Buffer tanks decouple the heat loading and unloading processes.

Generally, large solar thermal plants are used for the hotwater and heating supply. In addition, process heat generation can often be supported: for example, by heating up the water used for industrial cleaning processes (CIP).

Highly efficient cogeneration of heat and power
Customer generation of electricity using highly efficient cogeneration offers big chances. The combined heat and power plant generates electrical power. A downstream steam boiler system uses the waste heat for the efficient generation of process heat used for example in the automated coating line.

Global service
Bosch is there for its customers – worldwide – to guarantee the success of their projects. From in-depth consultation to emergency call-out work, a Bosch company or one of our partners is always available and able to provide support with a comprehensive range of services.

Competence in every phase – depend on it
From small- to large-scale projects, the all-important factor is optimum harmonization of all technologies employed. We provide professional support in every phase of an industrial project – from consultancy to comprehensive services that guarantee sustainably efficient and safe operation of the system installed. Customers can rest assured that Bosch Thermotechnology solutions live up to their promise.
Energy and building solutions
Efficient energy services for your premises

We are an experienced energy-efficiency partner for the automotive industry—and as an energy services provider, we keep energy costs low while increasing supply security and comfort.

Energy services – tailored to any building
Our integrated partnership model provides you with an unrivaled range of energy services. We can manage the energy and utilities supply of a single building or an entire real estate portfolio—reliably, safely, and efficiently, offering planning, implementation, and operational services from a single source to help customers achieve long-term reductions in the energy used for heating, cooling, ventilation, and lighting. In partnering with us, they benefit from our strength and experience, individual energy solutions, and maximum energy efficiency.

The amount of energy required always depends on the current state of the building and the technical facilities in place. Our tailor-made energy concepts are designed to meet any requirements, regardless of how diverse they may be. Efficiency is not ready-made. Rather, it comes from experienced engineers who take even the smallest details into account.

Climate technology – greater efficiency and comfort with air conditioning and ventilation
Modern air-conditioning and ventilation systems play a key role in the automotive industry. These systems make sure that the indoor climate is comfortable all year round, while also contributing to a building’s energy efficiency. With a conventional control system that generates directed airflows, both objectives are difficult to achieve. Continuous flows do not mix the air in the room in the most effective way, resulting in temperature layering, cold pockets, and drafts. In addition, these systems...
require higher volumes of fresh air — cooled in the summer and heated in the winter — to be supplied to the room. This requirement not only increases the complexity of a site’s systems, but also generates high energy costs.

Our special control algorithm allows the smart control of existing systems. This allows energy savings of between 30% and 70% energy to be achieved in new and existing buildings. By mixing the supply air with room air in the most effective way, the temperature is kept consistent across the room, and drafts are prevented — increasing comfort for users throughout the building. We can achieve additional savings by combining this control algorithm with our innovative duct system.

**Energy platform – greater transparency, reduced costs**

Energy costs are a major factor in the automotive industry. Our energy platform provides a full breakdown of energy consumption and costs. The concept is as simple as it is effective: we first measure the precise consumption in all locations within a building where energy is converted or required. These values are then transferred via a secure connection to the energy platform, where they are analyzed. They are then converted into useful data that can be accessed and used online.

The energy platform comprises four different modules that can be tailored to specific requirements and used to manage systems and energy consumption efficiently.
Professional power tools
For trade and industry

Bosch professional power tools are engineered for excellence, meeting the highest standards in speed, precision, and robustness for consistent, professional work results. Bosch also has a long history of making high-quality accessories for a wide range of applications. So whatever the job, tradespeople can rely on Bosch original accessories.

As one of the world’s leading manufacturers of power tools and accessories, Bosch offers professional tradespeople practically every tool they could ever need, from state-of-the-art lithium-ion cordless (battery-powered) to class-leading corded (mains-powered) products.

Construction industry professionals have come to expect the Bosch brand to deliver continuous innovation, high manufacturing standards, and high performance, not to mention reliable support services.

Definite advantages for professionals
As Bosch knows how important it is for professionals to be able to rely on their tools, we offer services for all
professional power tools and measuring tools beyond the legal warranty period.

**After-sales service**
Bosch offers top-quality after-sales services, from online information to a dedicated team of trained customer service personnel. Our partners’ authorized service centers ensure excellent availability of spare parts and a fast turnaround time for both warranty and chargeable repairs.

**For professionals, from professionals**
Bosch understands that a lot is expected of construction industry professionals: speed, reliability, competence, mobility, and endurance. We believe it is only fair that they should demand the same of their power tools. When developing new power tools, Bosch works very closely with tradespeople who use power tools as part of their everyday work.

Bosch professional power tools are tested in extreme work environments, under the harshest conditions. A power tool which passes our exhaustive tests is guaranteed to reliably fulfill the highest expectations. Bosch tools really are for professionals, from professionals.
The Bosch Automotive Aftermarket division is one of the world’s leading aftermarket and workshop suppliers. It offers a complete range of special service tools, diagnostics, and workshop equipment as well as an extensive portfolio of components – from new and exchange parts to repair solutions – for passenger cars, commercial vehicles, construction equipment, and special-purpose vehicles. More than 15,000 associates in 140 countries, as well as a global logistics network, ensure that some 450,000 different spare parts reach customers quickly and on time. Its comprehensive range of services includes the reliable maintenance and repair of all types of systems and components, and even entire vehicles.

**Parts**

As the importance of optimized power-weight ratio, fuel savings, and reduced emissions continues to increase, vehicle manufacturers are setting higher standards for components. With their compact design, reliability, and long service lives, Bosch parts live up to manufacturers’ stringent requirements, making Bosch a leading supplier of automotive systems and spare parts.

The wide range of high-quality Bosch products is suitable for passenger cars, commercial vehicles, construction equipment, and special-purpose vehicles.

**Diagnostics**

In all types of vehicles, technical systems are becoming increasingly diverse and complex. Customers are more demanding, and want solutions for their problems as quickly as possible. Bosch has responded with a wide range of state-of-the-art diagnostics and workshop equipment which includes control-unit diagnosis, chassis analysis, emission analysis, battery and A/C servicing, and vehicle-system analysis that allows systematic testing of components and systems without having to remove them from the vehicle.

The software that goes with this equipment also features
technical information, circuit diagrams, service and repair instructions, system information, and spare-part catalogs. This product range is rounded out by lift platforms for LCVs, tire-balancing and assembly systems, and brake testers for vehicles of all kinds, including heavy trucks.

**Services**

Bosch provides a wide range of services, including training programs, a technical hotline, and workshop networks. Bosch offers specialist training in the 43 Bosch Car Service training centers worldwide. The specialists working on the Bosch technical hotline can help workshop staff with any automotive technology-related questions.

The Bosch Car Service workshop network comprises over 15,000 locations in 150 countries. It includes the Bosch Car Service full-service workshops as well as Bosch Diesel Centers and Bosch Diesel Service. Bosch Car Service partners can also provide on-site support on request.

Bosch Car Service partners provide vehicle owners with technically advanced and cost-effective workshop services – from bumper to bumper. With their extensive expertise and specialized workshop equipment, Bosch Diesel Centers and Bosch Diesel Services offer diagnosis, components testing, and repairs for even the latest diesel systems and components. Moreover, they are the only authorized partners for processing warranty claims for Bosch diesel components.

With parts, diagnostics, and services from a single source, Bosch Automotive Aftermarket is uniquely positioned to put its experience and expertise to work for automakers. With its worldwide reputation for innovation and quality as well as large production capacity, it offers the right products at the right price.

**Diagnostics and workshop equipment for all kinds of vehicles:**

- Control-unit diagnosis
- Vehicle-system analysis
- Chassis analysis
- Emission analysis
- Battery and A/C servicing
- Lift platforms
- Tire-balancing and assembly systems
- Brake testing, also for heavy trucks
- Special service tools
- Tool storage systems
The location of the car and the direction of travel are determined using GPS data. This information is especially crucial on the freeway.

**Mobility services**

**eCall service – crucial in the event of an emergency.**

eCall makes it possible to provide more accurate and effective support when help is needed.

After a car accident, every second counts for the victims. Thanks to the Bosch eCall Service, rescue forces can be notified more quickly, so that they can be on the scene sooner. In some cases, the time gained can make the difference between life and death. The European Commission estimates that eCall could save the lives of up to 2,500 people every year in the 27 EU member states. The reason for this is that emergency service response times are reduced by up to 50 percent in rural areas and up to 40 percent in urban areas. In addition, relevant and precise information is provided, adding to the efficiency of the rescue forces. For this reason, the European Commission wants to make eCall mandatory by 2015.

The emergency call system is activated by in-vehicle sensors (e.g. sensors for airbags). Once an eCall is triggered, accident-related data is transmitted to the Bosch emergency service center, including the exact location, time, type of vehicle, and direction of travel. A voice connection is also established with a Bosch associate, while the nearest rescue services are identified. One of the advantages of this solution is that the multilingual associates at Bosch Communication Center, a business unit of Security Systems, always use the relevant language to communicate both with the people involved in the accident and with the local authorities. Also, the additional information provided through the voice connection adds valuable details which are relevant for the emergency services.
Extensive Bosch expertise makes for an integrated solution

The main Bosch divisions contributing to the development of eCall solutions were Security Systems, Chassis Systems Control, and Car Multimedia, which each contributed their respective expertise.

To ensure eCall works smoothly, Bosch Communication Center has developed an innovative service and IT infrastructure and platform which runs globally at multiple sites. The in-vehicle systems are provided by Car Multimedia, one of the most experienced providers of navigation and infotainment systems. Chassis Systems Control provides a whole series of driver assistance systems such as ABS, ESP®, ACC adaptive cruise control, predictive emergency braking systems, and Night Vision, which allows drivers to see people or objects on or next to the road when visibility is bad.

Years of expertise in emergency call management

Bosch Communication Center’s eCall Service makes it possible to support emergency operations more precisely and effectively. Specially trained associates play a key role. As intermediaries, they provide the local emergency services with all the relevant facts in a professional and efficient manner. But there is more to it than that. They also play an important psychological role in staying in contact with the victims while help is on the way. In addition, Bosch Communication Center also filters out emergency calls that were triggered unintentionally, thus reducing the burden on local emergency control centers.

Set up in 1985 as a monitoring center offering communication services, today Bosch Communication Center is a provider of complex, technology-driven services. Combining the technical expertise of one of the world’s largest automotive suppliers, Bosch Communication Center also offers the whole range of connected mobility services. The comfort and safety solutions include breakdown, information, maintenance, tracking, and remote services.

A German driver involved in an accident in Spain can give the monitoring center associates important details about the nature of the accident and the people involved, without having to speak a foreign language. Based on the data transmitted and on the additional details provided, Bosch then alerts the local emergency services immediately.
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