



BOSCH

Invented for life

Solutions for entertainment facilities

[bosch.com/entertainment](https://www.bosch.com/entertainment)

Flexible. Safe. Enjoyable.



Bosch solutions for entertainment facilities



When you choose Bosch as a supplier of products and solutions for entertainment facilities, 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.

Bosch provides a comprehensive range of products and solutions for entertainment facilities across the world, has a choice of products that are commonplace across the industry requirements, whether it is energy-efficient heating and hot-water systems, building and parking solutions or a comprehensive security system.

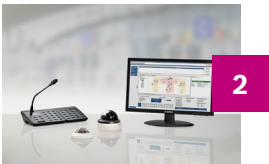
All solutions for entertainment facilities

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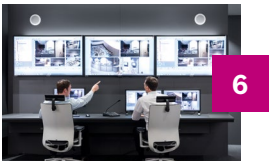
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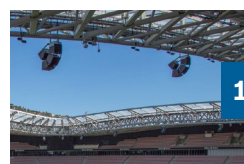


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Security and life safety

The safety requirements for infrastructures and buildings are increasing worldwide. The goal: People and values are protected as much as possible. Trust the Bosch long-standing expertise in consulting, planning, implementing and operating your individual security and life safety solution.

Benefits

- + Minimize risks, maximize security: no matter what your security task looks like, Bosch offers the best solution for every building.
- + Bosch offers comprehensive services and consultancy for monitoring, maintenance, modernization, and operation as well as attractive and flexible rental and operator models.
- + Bosch assists in all project phases and finds therefore the best solution for you: Planning, realization and operation complement each other perfectly, creating maximum security.

Bosch implements special requirements for a safe, economic, and comfortable building and offers a broad spectrum of services for it: from video surveillance, access control, fire-, evacuation-, and speech-alarm systems, robbery and break-in notification systems via networked time and building management systems, up to energy solutions. As an installer, service provider and consultant, Bosch supports in multifaceted challenges and provides customers with networked and intelligent overall solutions for safety and security from a single source. The Bosch experts have specific industry expertise and create individual solutions with future-oriented products and services that always focuses on the customers needs and requirements.



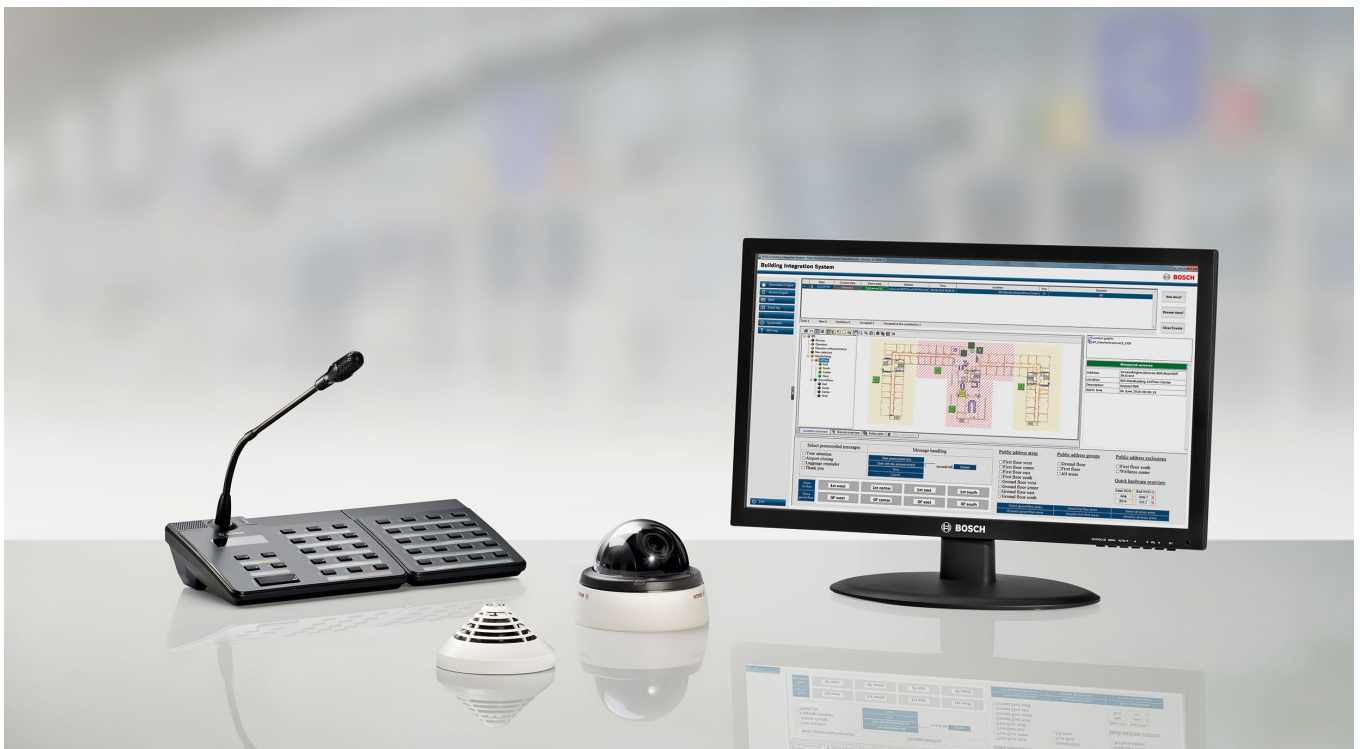
Fire alarm and voice evacuation systems

The Bosch portfolio covers the most reliable systems that include fire sensors, voice evacuation and control software to quickly locate, detect, verify and to contain fires. The systems are comprehensive, tailor-made solutions for almost any project. They fulfill and even exceed aesthetic standards and market requirements.

Fire breaking out within or near a stadium is a major threat. It is vital to quickly detect, locate, and verify a fire in order to contain it and protect people and property. In the event of a fire or other emergency, it is vital to maximize safety by evacuating the stadium. Clear announcements support coordinated evacuation to keep everything under control. The Bosch modular public address and voice evacuation systems facilitate this. Announcements can be heard in certain zones only or everywhere at once.

Benefits

- + Superior fire protection with intelligent solutions
- + Advanced public address and voice evacuation systems
- + Earliest and accurate fire detection for enhanced safety



Video systems

Stadiums are often places with lots of people closely together, making it a challenge to ensure safety and security. That's why Bosch offers video security solutions that are built to suit your needs, allowing visitors to have a carefree time while their safety is ensured.



With the video security portfolio, Bosch enables early detection of suspicious behavior and other threats. These cameras offer a wide variety of both fixed and moving cameras, different form factors and excellent image quality. Moreover, all cameras as of the IP 4000 series have video analytics at the edge built-in as a standard. This ensures that you are alerted when needed, if potential hazards are identified in critical areas of the stadium. It even goes beyond security, as it can deliver business intelligence. For example, it can count the amount of people going through the entrance during a certain time period giving information on how to manage the flow of people.

Benefits

- + Video analytics built-in as standard as of the IP 4000 cameras
- + Reduce bitrate up to 80% and save storage costs without compromising video quality
- + Integrated hardware and software measures to keep video data secure, such as a built in trusted platform module

Intrusion alarm systems

From single applications to extensive projects, Bosch provides solutions that are fully integrated and meet the highest security standards. The Bosch detectors and panels offer a finely-tuned balance between quick response to real security breaches and ignoring costly false alarm triggers.



To enhance security outside operating hours, Bosch offers a complete range of intrusion alarm systems and detectors for all types of applications. In combination with Bosch video surveillance systems, advanced video verification is possible in the event that an intrusion alarm is triggered.

Benefits

- + Portfolio covers panels, detectors, communicators and accessories
- + Scalable intrusion solutions for various needs
- + Reliable intrusion detection with decades of experience

boschsecurity.com

Solution provided by: Bosch Building Technologies

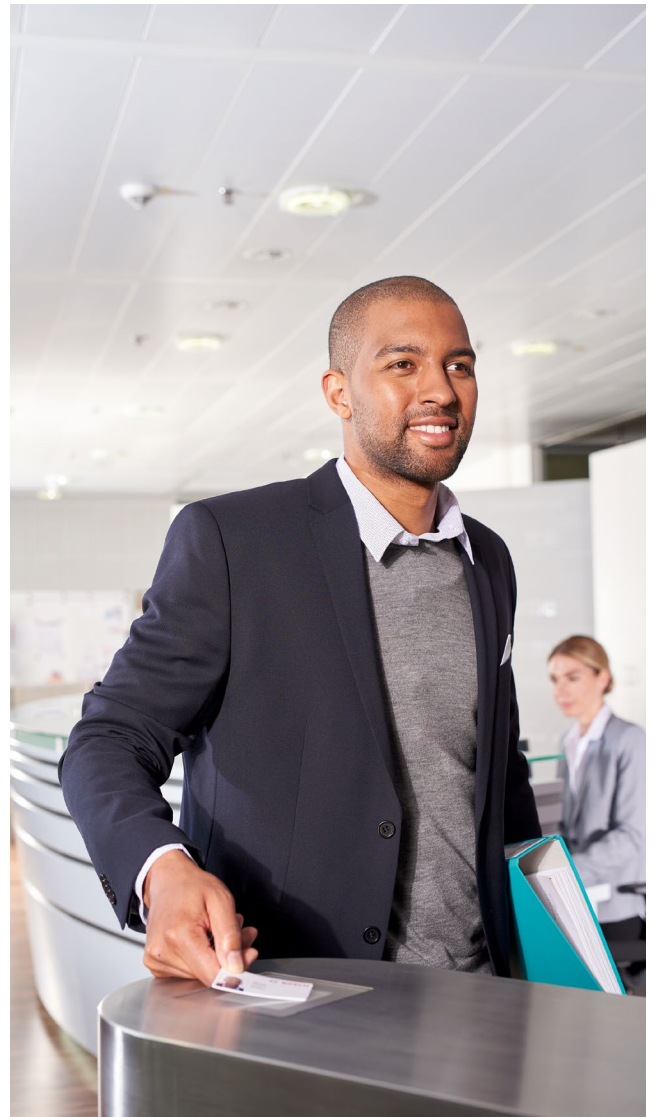
Access control systems

Flexible access control systems allow workers to get on with their jobs, while protecting staff from uninvited guests and public buildings from property and information theft. Bosch offers integrated systems for many different applications.

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.

Benefits

- + Complete Bosch access control solution covering software, controllers and a variety of readers and credentials
- + Comprehensive system with many features and possible integration with third-party devices
- + Easy to install and maintain thanks to its modular concept



boschsecurity.com

Solution provided by: Bosch Building Technologies

Management software

Bosch management software is specialized in complex enterprise solutions. The management software portfolio covers video and alarm management such as the building integration system or the Bosch video management system. The Bosch building integration system offers a tool box to allow integration with third party applications via open standards (OPC, ONVIF, OSDP) and software development kits.



The building integration system 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 building integration system enables a single operator to monitor and control all security systems, as well as to respond faster to emergencies and achieve greater overall effectiveness. The Bosch video management system provides seamless management of digital video, audio and data across an IP network.

Benefits

- + Seamless integration of all Bosch safety and security subsystems as well as third party applications via SDK and open interfaces
- + Easy to operate, increasing operator efficiency, and allowing for a faster emergency response
- + One complete solution to enhance security, including a fully embedded access control

boschsecurity.com

Solution provided by: Bosch Building Technologies

Energy services

Global energy consumption is continuously increasing and buildings are the number one consumer of energy. Bosch's energy services contribute to enhance energy efficiency, saving operating costs and reducing the carbon footprint.

With a combination of customized system solutions, services and modern technology, Bosch provides a comprehensive portfolio on energy services. All measures are always perfectly matched in order to save energy and operating costs. The Bosch range of services comprises energy analysis, planning and implementation of supply solutions and efficient long-term operation of energy systems.

Benefits

- + Increasing energy efficiency, reducing operating costs – Bosch develops tailor-made and future-proof energy solutions for buildings.
- + An attractive business model ensures that Bosch is a reliable long-term energy partner.
- + Bosch assists in all project phases and can therefore find the best solution for the customer: Analysis, planning, installation and operation complement each other perfectly, creating maximum efficiency.



Energy-efficient heating, domestic hot water solutions and cogeneration

Bosch's modular and comprehensive product portfolio provides the optimum solution meeting the specific requirements of stadiums and other large entertainment complexes. Bosch large thermal systems also comprise district heating solutions to provide heating and hot water for adjoining housings and hotels. Key benefits of Bosch systems are outstanding efficiency, reliability and innovative control systems.

Benefits

- + Maximum reliability of heating and hot water supply by using different energy sources. Integration of renewable energies for a carbon footprint that sets an example in ecological terms.
- + Intelligent controls balance the different energy sources in the most cost and energy effective way. Secure remote access allows the personnel to monitor the plant anywhere and anytime to make use of the remote support of a Bosch service engineer if required.
- + Bosch's modular product portfolio enables quick installation, low cost of ownership and high reliability. Experienced Bosch experts support along the whole product life cycle – from planning, to commissioning to 24/7 support and remote connectivity.

Modern building complexes comprehend decentral power generation with CHP's. This can save up to 76% on electricity bills and reduces the building's carbon footprint significantly. CHP isolated solutions provide electricity also during power blackouts, e.g. for critical systems, servers, lighting, and ventilation. Surplus heat from the cogeneration is used for heating and domestic hot water. Efficient heating boilers cover peak loads with up to 110% efficiency and are supported by solar thermal systems.



bosch-industrial.com
Solution provided by: Bosch Thermotechnology

Energy and building solutions

As a reliable partner, Bosch provides connected and integrated solutions which make buildings safer, more comfortable and more efficient. The Bosch experts support as consultants, installers and service providers. They have an extensive expertise and integrated solutions based on the latest technologies. Bosch offers integrated solutions for building security, building automation and energy services. All of Bosch's services are provided from a single source: from consulting and planning across implementation to operation. This enables Bosch to comprehensively meet the customers' needs. Bosch is active at more than 60 locations in Europe, the U.S. and Asia Pacific, and more than 100,000 customers benefit from experts' know-how.



Benefits

- + Due to Bosch's long-standing competence, buildings will be made fit for the future with a targeted approach and experienced staff.
- + Short distances, competent teams and local contacts ensure professional consultation, optimal project implementation and long-term on-site support.
- + Bosch offers integrated overall solutions and attractive financing and operating models, are optimally tailored to every individual requirement.

Scarce resources, climate change, urbanization, demographic shifts, digitalization, and demands for greater quality of life – the mega-issues of our time require major changes in the infrastructures and commercial buildings. The need for security, efficiency, and comfort is rising, as well as the demand for connected overall solutions. The Internet of Things is opening up many new possibilities and opportunities. Connectivity is bringing scores of new developments! One of it is that key areas of building services will be closely interconnected in the future. Leveraging and applying all the synergies in a sustainable way requires an integrated approach and course of action. Bosch has the essential areas of expertise needed to integrate all key aspects into a single solution. Bosch is focused on a clear vision – to be the number-one choice for the technologies and services that make buildings more secure, more comfortable and more efficient.

[boschbuildingsolutions.com](https://www.boschbuildingsolutions.com)

Solution provided by: Bosch Building Technologies

Professional power tools for trade and industry

A craftsman puts his heart and soul into his projects. Expectations are high: client requirements, appointments and construction challenges. That's what drives a professional to maintain high standards, deliver the best possible result and work with uncompromising efficiency. For that, skills and robust tools are needed. Bosch Professional offers the best support with innovative technologies and smart solutions. From planning and organizing to successful completion, Bosch provides an intelligent range of products and services with the quality to rely on.

Bosch professional power tools are engineered for excellence, meeting the highest standards in speed, precision and robustness for consistent, professional results. Therefore, Bosch Professional Power Tools is a competent partner for all craftsmen.



Bosch power tools is consistently expanding its expertise in connected measuring and power tools for professionals: from 2017 onwards the new tools are available for trades-people, from laser measures with integrated Bluetooth modules to angle grinders, lights and drill drivers.

With these tools, Bosch is driving the trend of digitization and is offering professionals a system, from products to inventory management, that optimizes processes and enables all tradespeople to work more efficient.



As one of the world's leading manufacturers of power tools and accessories, Bosch offers professionals virtually every tool they could ever need, from state-of-the-art lithium-ion cordless (battery-powered) to class-leading corded products. Bosch Professional Power Tools focuses on providing the trust a craftsman relies on when it comes to his tools and accessories.

Benefits

- + Bosch provides services and consulting for all professional power tools and measuring tools beyond the legal warranty period. From online information to a dedicated team of trained customer service personnel.
- + Bosch ensures an excellent availability of spare parts and a fast turnaround time for warranty and chargeable repairs.

bosch-professional.com

Solution provided by: Bosch Power Tools

Professional sound

Effective communication and professional sound are essential not only for dealing with security and safety issues, but also for creating a good atmosphere, as well as for other types of events such as concerts. The modular public address and emergency sound systems are ideal for live announcements and background music.

Benefits

- + Loudspeakers, amplifiers, digital signal processors, control and supervision software for excellent audio quality
- + Innovative sound solutions using state-of-the-art engineering and design
- + Solutions range from simple installations to highly complex applications

More and more stadiums are now multi-purpose venues that also host concerts and other events. Our electro-voice and Dynacord brands cover a full range of highly specialized equipment, including microphones, amplifiers, signal processors, and loudspeakers that are the industry standards for professional sound systems in sports arenas.



Automated valet parking

As a pioneer of automated mobility, Bosch has developed a driverless system that employs connected technology to save drivers not just the wearisome search for a parking space, but also the parking maneuver itself. Thanks to automated valet parking, every experience begins more convenient – whether it’s flying off on holiday or going to a concert. Therefore, the driver simply drops off the vehicle at the drop-off area. Then the vehicle will be navigated to a free parking space with the help of the intelligent sensor technology.



Automated valet parking is made possible by combining the intelligent sensor system supplied by Bosch with the automotive technology. The sensors, guiding the vehicle, are installed in the parking garage monitor, the driving corridor and its surroundings. Hereby, Bosch provides the system for both the parking provider and the car manufacturer.

The usage of the intelligent parking garage sensor systems automated driving. The intelligent infrastructure allows mixed traffic of automated and manual driving vehicles and passengers in the parking garage, hence, allowing an incremental implementation of automated valet parking vehicles.

Benefits

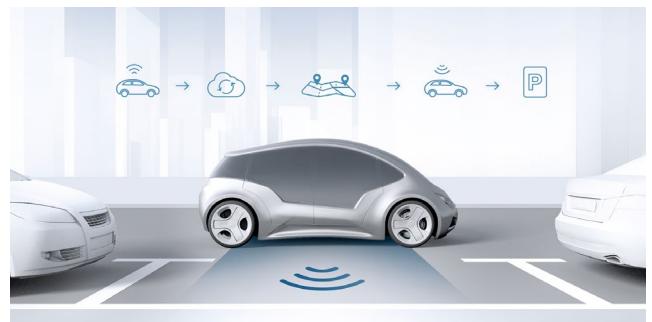
- + Automated valet parking offers the car driver comfort and saving of time, as the vehicle takes over the driverless parking maneuver itself. Meanwhile, the driver can already proceed to his destination. Getting in and out of the vehicles takes place in comfortable and safe transfer areas. In addition, precise automated guidance eliminates the risk of incidents and damages while parking.
- + Automated valet parking increases efficiency due to the optimization of the parking garage capacity. The premium service opens up a range of additional potential service offerings, like a car wash, which excites the customers. The infrastructure based approach allows mixed traffic in the parking garage.



Community-based parking

With community-based parking Bosch simplifies the search for free parking spaces in the cities. Thereby, car drivers will be navigated straight to the next free parking space. This happens with the help of the ultrasonic parking sensors of the cars which detect free parking spaces on the street. The received information will be processed in the cloud and provided to drivers seeking a parking space.

Community-based parking includes drivers actively seeking a parking space, as well as those who are simply making their way around the city. The transmitter vehicle identifies empty parking spaces on the street as it drives past them. This data is anonymized and sent to the cloud. There, it is collected, aggregated, and processed further into digital parking maps. Based on the processed data, the receiving vehicle is given precise information on where free parking spaces are. The required connectivity hardware and the ultrasonic parking sensors of the car are already widely spread and facilitate a realization of community-based parking based on the latest technology.



Benefits

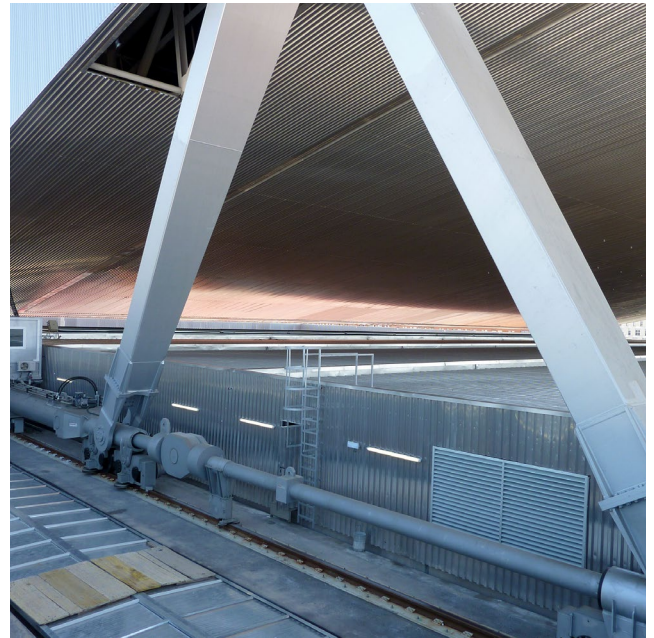
- + Community-based parking enables car drivers to drive directly and relaxed to a free parking space. Thereby, the drivers save time. Furthermore, the on-board instruments indicate specific parking spaces (e.g. E-charging stations or disabled parking spaces).
- + Thanks to community-based parking the traffic of searching for parking spaces decreases significantly. In addition, the environment benefits from the direct and shorter drive to a free parking space.
- + Car manufacturers can provide a service that takes the search for a parking lot out of the driver's hand. Therefore, they can increase their attractiveness and customer loyalty. New services and business models offer new sales potential. The provision and operation of the service will be done by Bosch. The application of a manufacturer comprehensive platform ensures real-time and purposeful parking information.

[bosch-mobility-solutions.com](https://www.bosch-mobility-solutions.com)

Solution provided by: Connected Mobility Solutions

Roof drive systems: Modern architecture is multi-functional

The seating capacity of the three tennis courts is able to hold 18,000 spectators. The up-to-date unique peculiarity: the movable roofs transform the closed competition places into open-air courts just by pressing a button.



Two specially designed hydraulic Rexroth cylinders shift the 103 x 73 meter big roof over the center court with 12.000 spectators. The roof itself has a weight of 1,800 tons – this corresponds to the weight of six 747 airplanes. Hydraulic cylinders lift the roofs, and hydraulic motors move the roofs including cylinders horizontally on rails.

Rexroth also took over the responsibility for the whole engineering and production process up to the assembly and commissioning of the whole drive system. State-of-the art simulation programs are used to ensure the performance of all customized large cylinders and motors including the overall control system.

Benefits

- + Innovative customized drive and control solutions
- + World class components:
Hydraulic-, electric drive & control systems
- + Professional project- and site management

boschrexroth.com

Solution provided by: Bosch Rexroth

Moving tiers: Reconfiguration for any purpose

The Arena “auf Schalke” (Germany) holds more than 60,000 spectators. What now ranks as one of the most modern multi-function sports location in Europe features a roll-out pitch, a sliding roof and a movable southern stand. The experience of structural steel engineering and crane technology, coupled with Rexroth’s expertise in drive and control technology, made it possible to provide solutions to these challenges.

The “movable stand section”, or lower stand, weighing around 700 tons, presented an extremely difficult engineering challenge. The lower stand steel structure, 85 meters wide, is subdivided into three segments. Each segment is moved up or down by means of hydraulic cylinders working in synchronization and electrohydraulic controlled. To ensure a link-up of the lower stand to the upper stand, the movable stand section is first of all moved into position with synchronization control using electromechanical travel drives running on rails. The travel drive is locked by two hydraulic cylinders and indexed so that it is exactly horizontal to the upper section. All further services from a single source – supplying perfect technology is not enough for us, however. We also offer comprehensive services such as consulting, concept development, training, and maintenance, which are tailored to your specific project.



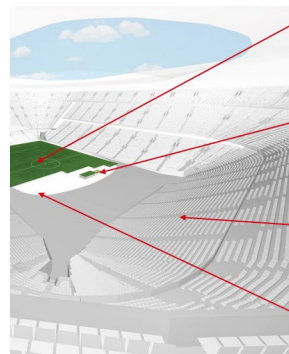
StadiaPitch: Boosting stadium potential

StadiaPitch – an automated pitch changeover system that reduces the changeover time between sports and concerts from weeks to hours, remaining the pitch in perfect condition for the next match. With this system, arenas are evolving from an expensive investment to an sustainable, profitable and multi-usable property.

The majority of current sports stadiums are empty without activity and income for more than 340 days a year. StadiaPitch can transform these empty days into income days with concerts, shows and events, maintaining the pitch at the highest playing quality at the same time.

The system was developed by a team of experts in the market. The idea originated from the Norwegian Nutcracker Solutions based on their experience of arena facility management, the vertical & horizontal logistic movement and control system is the expertise of Bosch Rexroth and all grass and pitch-related topics were developed and mastered by the English STRI Group, the world's leading sports turf research, design and consultancy institute.

How it works



Modular Pitch

- 192 segments (9x4,5 m)
- 20-25 tons each segment

Automated Movement System

- 6-8 Automated vehicles
- Removing and repositioning of trays on the field and in growth chamber

Pitch Module Storage House

- Below the grand stands or in extra (multi-level) building
- Maintaining the grass in supervised and optimal condition

Concrete Floor

- With position devices for accurate positioning of the segments

Benefits

- + Stadiums become more profitable multi-purpose arenas, without destroying the pitch.
- + Changeover time is reduced tremendously as it is almost fully automated.
- + Full control over turf quality with monitored growth chamber system



boschrexroth.com

Solution provided by: Bosch Rexroth

The Bosch Group












The Bosch Group is a leading global supplier of technology and services. Its operations are divided into four business sectors: Mobility solutions, industrial technology, consumer goods, and energy and building technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life". The Bosch Group comprises Robert Bosch GmbH and its roughly 440 subsidiaries and regional companies in some 60 countries. Including sales and service partners, Bosch's global manufacturing and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At 120 locations across the globe, Bosch employs a huge number of associates in research and development.

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.

More information is available online at
www.bosch.com
www.bosch-press.com



Bosch divisions for selected verticals

| |  Airport facilities |  Automotive industry |  Commercial buildings |  Entertainment facilities |  Food and confectionery industry |  Hotel facilities |  Mining |  Pharmaceutical industry |  Railways and train station facilities |  Residential buildings |  Theaters |
|-------------------------------|--|---|--|--|---|--|--|---|---|---|--|
| PROVIDER | | | | | | | | | | | |
| Building Technologies | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | ■ |
| Thermotechnology | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Power Tools | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Household Appliances | | | | | | | | | | ■ | |
| Service Solutions | | ■ | ■ | | ■ | | | ■ | ■ | ■ | |
| Connected Mobility | ■ | ■ | ■ | ■ | | ■ | | | ■ | ■ | ■ |
| Rexroth | | ■ | ■ | ■ | ■ | | ■ | ■ | ■ | | ■ |
| Automotive Aftermarket | ■ | ■ | | | | | ■ | | ■ | | |
| Packaging Technology | | | | | ■ | | | ■ | | | |
| Smart Home | | | | | | | | | | ■ | |
| Software Innovations | | | ■ | | | | | | | ■ | |
| Bosch Engineering | ■ | ■ | | | | | ■ | | ■ | | |
| Integrated Solutions | | | | | | | ■ | | | | |

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