Taking mobility to the next level

Solutions for urban traffic and the industry: Smart, efficient, and electrically mobile
Talk to us today – about tomorrow

SEW-EURODRIVE has always been at least one step ahead for more than 80 years. Because future-oriented movement is our business. Our innovative drive solutions move almost anything that has an electric motor: From conveyor belts to bottling plants, from stadium roofs to solar panels, from escalators to electrified monorail systems, from automated guided vehicles to entire processes in the chemical industry.

If you want to move others, you cannot stand still yourself

Each day, about 550 researchers and developers at SEW are shaping the future of drive automation. About 14,000 employees worldwide support our customers to ensure tomorrow’s success in their markets. This future-oriented thinking and acting has made SEW-EURODRIVE one of the leading manufacturers of drive technology.

Whatever movement you need, we develop the right solution for it – or we already have it. The basis for this is a comprehensive modular system that includes gearmotors, drive electronics, control technology, software, and accessories. Future-proof products of uncompromising quality, developed and produced in-house.
How innovations for plants and machines become innovations for the road

A perfect example is MAXOLUTION®: system solutions for all areas of plant and machine automation. An inherent part of this system: contactless energy transfer by means of induction. Proven in practice for years. Now we are applying the basic idea of MAXOLUTION® to the road. With a groundbreaking concept for electric mobility.

Discover the fascinating potential of an idea that is market-ready even now. Electric mobility "made by SEW-EURODRIVE".

Brose and SEW-EURODRIVE:
Together for the future of electric mobility

Brose Fahrzeugteile GmbH & Co KG and SEW-EURODRIVE GmbH & Co KG combined their expertise and founded a joint venture: The Brose-SEW-EURODRIVE-Elektromobilitäts GmbH & Co KG. Its goal is a breakthrough in the field of electric vehicles. In other words: It’s about the future of mobility, for a new era without fossil fuels. The joint venture of the two market leaders will produce drive and charging systems for electric and hybrid vehicles in the future. The eco-friendly and sustainable solutions cover the performance classes from 0.25 to 150 kW for individual passenger transportation and freight traffic in public areas. The product portfolio will include electric traction motors as well as power electronics and contactless charging technology.
A great idea does not need a great battery: Market-ready electric mobility
The earth’s fossil resources are limited. However, the desire for mobility is as strong as ever. The drive of the future will rely on wind, hydro and solar power. So far, vehicles with electric drives are still a niche product. The reason for this is installed in the vehicle; it is too large, too heavy, and too expensive: the battery. While experts all over the world are trying to make batteries more efficient and compact, SEW-EURODRIVE already has a market-ready solution.

Mobility in urban areas does not need extended range in the form of over-dimensioned batteries. Vehicles for the city and the surrounding area need flexibility and independence from few charging station. The implementation of our concept could solve the problems of electric mobility quickly and efficiently.

**Induction for the future**

The small batteries of electric vehicles are re-charged in portions. By means of induction. Without cables, plugs, or long waiting times. Wherever an electric vehicle stops, it is re-charged. In company parking lots, in parking garages, public service stations, park & ride facilities, and even at traffic lights: When the vehicle stops above an induction plate that is embedded in the road surface or a charging pad installed on the road surface, the battery is charged without contact. Each stop provides new energy for mobility.

**Today’s induction solutions for industrial automation will move urban traffic tomorrow**

For decades, we have convinced our industry customers with innovative mobile solutions. This expertise is the basis for future-oriented solutions that will provide sustainable urban mobility. Our induction solutions, originally developed for industrial automation, are the key for the future use of electric mobility in urban areas. In the future? Right now, if you want!

**Electric mobility “made by SEW-EURODRIVE”:**

- Environmentally friendly, clean, and quiet
- Sustainable and cost-effective
- Mature, maintenance-free technology
- Easy-to-use and safe
- Rugged and vandalism-proof
- Can be used in all urban areas
The current concepts for charging electric vehicles require the drivers to stop at certain charging stations. There, they must handle power sockets, charging cables, and vehicle plugs. An alternative concept involves a battery swap at the service station. However, if you opt for our system of contactless energy transfer via induction instead, you get a market-proven basic technology for convenient, everyday electric mobility: Our fully developed charging concept gets electric vehicles going.

Everyone interested in advancing electric cars can gear up now
This is how it works:

Primary coils can be embedded in the ground wherever cars park and stop in urban areas. An AC current creates a magnetic field in these coils, which in turn induces an AC current in the secondary coil. This secondary coil is installed in the vehicle floor. When a vehicle stops in such an induction zone [1], an energy supply unit detects the charging status of the vehicle battery [2]. The battery is charged until it is full [3], or until the vehicle moves on [4]. This energy not only re-charges the battery, it is also available to the entire on-board electrical system. The coils are electromagnetically shielded. The magnetic field cannot enter the ground or the passenger compartment. Each time a vehicle stops above a primary coil, the battery is re-charged automatically.

The battery can be very small if the network of charging stations is dense enough in urban areas. Always clean, safe, and reliable: Our innovative solutions provide almost unlimited electric mobility. For cars, taxis, buses, urban transportation vehicles.

The advantages of our electric mobility solutions speak for themselves:

- High charging power: 3 kW
- Grid-compatible connection: 1x 230 Volt/16 A, socket with ground contact
- Higher charging power possible with a three-phase supply system
- High efficiency: > 90%
- Very user-friendly: just park the vehicle
- Safe electromagnetic fields in line with VDE-AR-E 2122-4-2
- Automatic vehicle identification, automatic charging start, stand-by mode
- Vandalism-proof technology with safely covered transmitter coil, no cable or plug
- Suitable for both retrofitting and new systems
- Invisible installation below the asphalt surface, no change of the townscape
- Cost-effective installation, no complex foundation work
- No power sockets at the parking space, no charging column
A little push for city bikers

The advantages of our pedelec solution speak for themselves:

- High charging power: 80 W
- Power supply connection: 1x 230 Volt/16 A, socket with ground contact
- High efficiency: > 90%
- Very user-friendly: just park your bike
- Automatic charging start, stand-by mode
- Vandalism-proof technology with safely covered transmitter coil, no cable or plug
- Suitable for both retrofitting and new systems
- Invisible installation below the asphalt surface, no change of the townscape
- Inconspicuous receiver coil in the kickstand of the pedelec
- Cost-effective installation, no complex foundation work
Rental bikes are en vogue: Many European cities already offer bikes for rent. For half an hour, for one day, or longer. Metropolises such as Berlin, Hamburg, Munich, Paris, Vienna, Stockholm, Rome, London, Barcelona, and Copenhagen can breathe again: People who cycle help to reduce emissions, particulate matter, and noise. A city bike with built-in electric mobility from SEW-EURODRIVE combines eco-friendliness with convenience.

Bicycles with electric motor support extend your range and save your energy. In the city, they are an alternative to the traditional car with internal combustion engine to be reckoned with.

The new effortlessness of mobility is represented by the “pedelec”. The “pedal-electric cycle” is a city bike with a motor that supports the cyclist and reduces the effort necessary for pedaling. At SEW-EURODRIVE, the pedelec battery is charged without contact via the bicycle kickstand. A charging pad embedded in the floor generates the necessary energy field. It can be installed at rent-a-bike stations, train stations, company parking lots, or in bicycle parking garages. Safe and reliable.
An innovation with three distinctive advantages: TripleSolution

Electric mobility is eco-friendly when the required power is generated from renewable energy sources, which makes it independent of fossil fuels. This poses two challenges: Regenerative energy is not always available, and it needs to be buffered. Our solution is an innovation with three distinctive advantages: TripleSolution.

The basis of TripleSolution is a charging station equipped with photovoltaic cells or a wind turbine. The charging station generates energy for charging the battery without a connection to the public power grid. This allows for a quick and cost-effective installation and expansion of electric mobility – guaranteed CO₂-free.

TripleSolution means that the charging station can handle the energy distribution in three different ways. Let’s take a charging station with photovoltaic technology as an example:

<table>
<thead>
<tr>
<th>1. The sun is shining and a vehicle arrives at the station:</th>
<th>The generated energy is transferred directly to the vehicle.</th>
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<tbody>
<tr>
<td>2. The sun is shining and there is no vehicle at the station:</td>
<td>The generated energy is stored for future charging demand.</td>
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<tr>
<td>3. The sun is not shining and a vehicle arrives at the station:</td>
<td>The stored energy is transferred to the vehicle.</td>
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In the event that the energy buffer is empty and the sun is not shining when a vehicle arrives at the station, the charging station is supplied with energy from the public grid. If, on the other hand, more energy is generated than is used, the excess amount can be supplied to the public grid.

TripleSolution distributes the generated energy to three different receivers: energy buffer, electric vehicle, public power grid. During most of the time, TripleSolution is an isolated network, which reduces the strain on the public power grid.
The infrastructure of the future: Proven in everyday operations, available from the factory

The infrastructure of the future can be realized at every desired location in urban areas, without time-consuming changes to the streetscape. It is simple and can be used intuitively by every motorist and cyclist. Our components for such a future-proof infrastructure meet all these requirements. They have been tried and tested by many customers in everyday industrial operations. The individual components also comply with the requirements stipulated by VDE-AR-E 2122-4-2 for smooth interoperability of different vehicle types.

Stationary infrastructure components:

**Supply unit [1]**
The supply unit provides energy to the charging pad (primary coil) and establishes a communication link with the vehicle. This link transfers identification data, billing data, and information about the battery status.

**Charging pad [2]**
The charging pad (primary coil) is installed flush with the ground in newly constructed parking spaces. In existing parking spaces, the pad can simply be installed on the asphalt surface. The charging pad generates and concentrates the electromagnetic field for the energy transfer.

Mobile components for the vehicles:

**Pick-up [3]**
The pick-up (secondary coil) is installed at the vehicle floor. It can also be integrated in the vehicle floor as part of the car body. It picks up the energy of the electromagnetic field and supplies it to the on-board charging unit in the form of alternating current.

**Charging unit [4]**
The charging unit in the vehicle receives the energy from the pick-up. It is connected to the battery management system (BMS). The BMS controls the charging process and the current required at present from the charging unit.
MAXOLUTION® system solutions for every movement: Individual, inductive, innovative

Improved performance, reduced energy demand, increased flexibility, lower life cycle costs, more productivity, and fewer interfaces: Welcome to the world of plant and machine automation with MAXOLUTION®. MAXOLUTION® stands for innovative system solutions for individual applications in all areas of automation, especially those with inductive energy transfer.
MAXOLUTION® system solutions are always tailored to your requirements. We develop individual solutions for your plant based on single components: electromechanical drives, controllers, inductive energy transfer, and communication systems. We also offer order-specific system options and services on request. Today, our modular system is the basis for a variety of automation solutions for area gantries, transverse carriages, automated guided vehicle systems, electrified monorail systems, and push-skid systems.

Another key element of MAXOLUTION®: A team of experts is put together specifically for your project. It includes system specialists with a wealth of cross-sector expertise as well as specialists from the development, sales and service departments. We are convinced that in this way, we can provide the best support possible. From the first quotation to final acceptance. Competent and fast, straightforward and comprehensive.

These systems have proven successful for many years in sophisticated industrial applications. A special feature of inductive energy transfer in everyday applications is their ruggedness and reliability. This technology is therefore ideally suited for urban electric mobility applications.
Today, automated guided vehicle systems (AGV) are used for assembly lines and transport processes in many industry sectors. AGVs automate the in-house material flow or form the basis for flexible assembly processes.

**Advantages compared to other automated logistics systems:**

- Great flexibility
- No obstruction of floor space
- Standardization
- High efficiency

Our inductive AGV portfolio comprises various components of our MAXOLUTION® system:

A key element is contactless energy transfer with MOVITRANS®. Thanks to contactless energy transfer, which is resistant to environmental influences, the AGV does not need a battery. The vehicle functions are controlled by the decentralized MOVIPRO® drive and positioning controller. Separate energy management ensures optimum efficiency. The vehicles are coordinated via the parameterizable MOVIVISION® plant software with an interface to the customer’s master controller.
Why MAXOLUTION® is typical for SEW-EURODRIVE

The advantages of the MAXOLUTION® system solution are based on mature, innovative, individual components. Quality, reliability and market orientation down to the last detail: typical for SEW-EURODRIVE. The three core components: MOVITRANS®, the integral component for contactless energy transfer. MOVIPRO®, the decentralized drive and positioning controller. And MOVIVISION®, the parameterizable plant software for vehicle coordination.

MOVITRANS®
The MOVITRANS® contactless energy supply system is based on the principle of inductive energy transfer. A permanently installed cable transfers the energy to one or several mobile consumers. Without contact. Electromagnetically coupled via an air gap. Wear and maintenance-free. This type of energy supply is safe and reliable in any kind of weather. MOVITRANS® neither produces any dirt nor is it sensitive to it.

MOVIPRO®
The decentralized drive, positioning, and application controller MOVIPRO® combines drive electronics and software intelligence. This makes MOVIPRO® the ideal basis for every open and flexible plant architecture, be it for newly built plants or modernizations. MOVIPRO® allows for decentralized control of conveyor lines. This technology is superior to traditional, centrally controlled systems. The electronic components require a lot less space. Project planning, installation and maintenance could not be any simpler.

MOVIVISION®
So far, three things have been necessary to start up or modify plants, drive systems or individual drives: A lot of time, strong nerves, and special programming skills. MOVIVISION® has been designed so that plant manufacturers and operators can start up the materials handling equipment easily and quickly. Even during the production process, the plant parameters can be adjusted quickly to new production requirements with MOVIVISION®.
Always moving: Our innovations in action

What makes an innovation such as MAXOLUTION® relevant? The market accepting it. We are only satisfied when our solutions prove their worth in everyday operations at the customer site. MAXOLUTION® has been tried and tested in many different industries under a variety of demanding conditions.

Automated guided vehicle system for cockpit assembly

A MAXOLUTION® system solution offers new, trendsetting possibilities also in the automotive industry: Automated guided vehicle systems from SEW-EURODRIVE are based on contactless energy transfer. They can be used, for example, in the cockpit assembly.
Curved-track gantry robot for the beverage industry

The beverage industry uses new and impressive handling systems for distribution, sorting, and palletizing. Their decisive advantage compared to conventional gantry systems: They can travel along a curved track. The driving force behind it: MAXOLUTION®.

High Speed Monorail

The highly dynamic system provides remote monitoring with cameras, e.g. for airports, runways, or large factory premises. The high-speed monorail is extremely reliable and very autonomous thanks to a magnetic, contactless drive system. Based on the inductive energy transfer system MOVITRANS® and the positioning controller MOVIPRO®, the vehicles can be moved individually and independently of the weather.