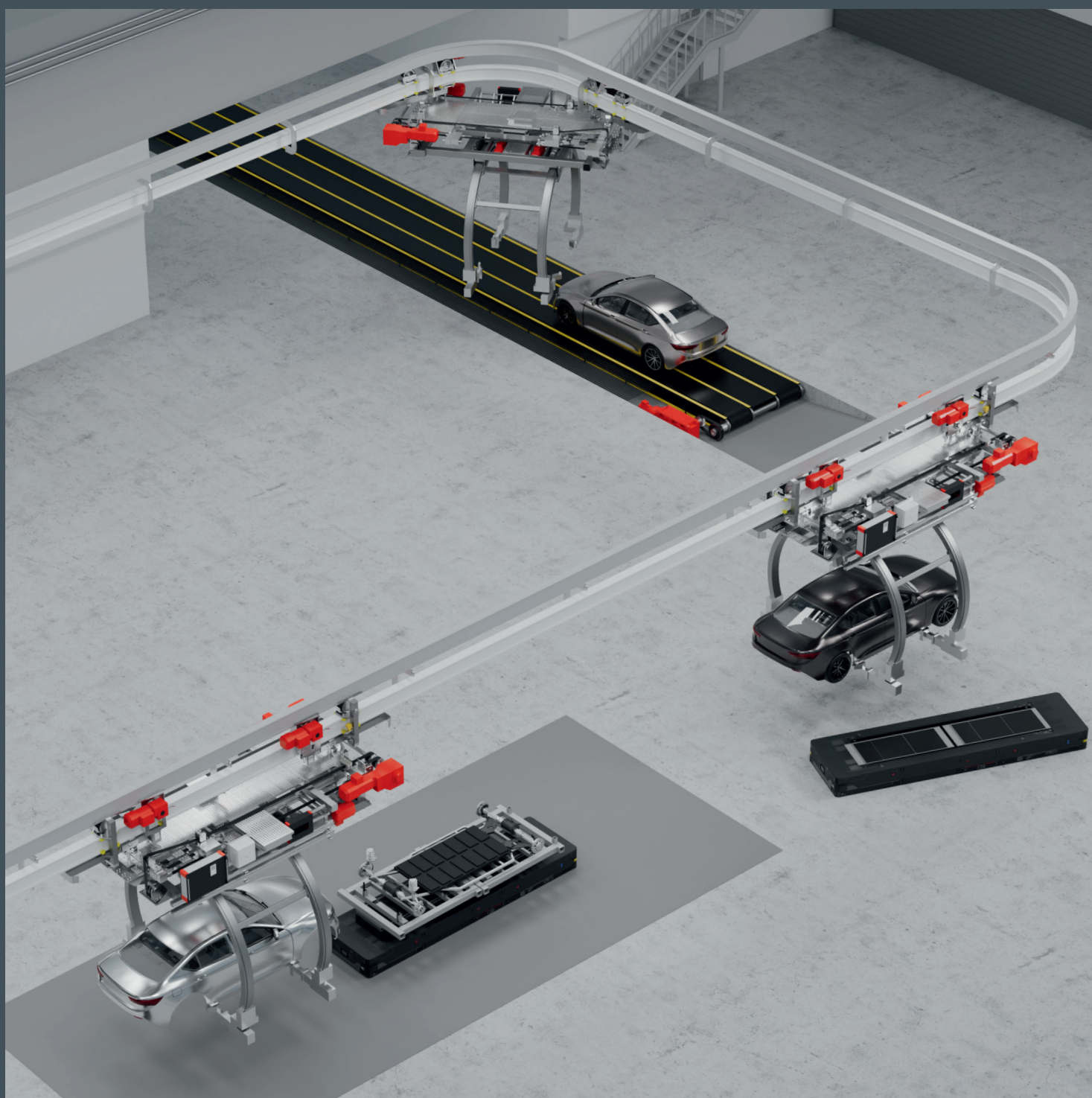


Efficient drive solutions for the automotive industry

For the industry with drive



Drive solutions for more drive in the automotive industry

Maximum performance and reliability for the automotive industry

SEW-EURODRIVE keeps the industry moving.

Manufacturing, painting, assembling – and finally “marrying” the individual vehicle components with the drivetrain. In automotive production, a lot is in motion – literally. Every step must interlock as precisely as the gears in our gear units. SEW-EURODRIVE supports the automotive industry in building the best vehicles to the latest standards.

Not only because we are one of the market leaders in drive and automation technology, but because we have been putting our heart and soul into developing the best possible solutions for our customers for over 90 years.

And we do so with a holistic mindset.

- As a family-owned company that takes quality and responsibility seriously.
- As an innovation leader, pioneering groundbreaking ideas and shaping the future of drive technology.
- And as a reliable partner, offering comprehensive consulting and service – no matter your needs or requirements.



We are your reliable partner and always close to you



57 countries



over 22,000
employees



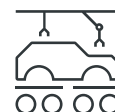
110,000
active customers



20 million parts/
month across
100+ locations



525,600 minutes
per year available
for you



Solutions for many
different industries



Trends for an industry with drive

The automotive industry is undergoing a profound transformation. Vehicle manufacturers are being challenged to adapt to connected mobility with new processes, technologies, and concepts.

The future of the automotive industry lies in smartly integrating major trends into production processes and vehicles themselves. Only with innovations that are in

tune with the times can the industry meet changing consumer needs and environmental demands – and actively shape the mobility of tomorrow.



Electromobility

Electromobility is the key trend transforming the industry. Automotive manufacturers must develop electric vehicles that deliver maximum range with powerful motors and long-lasting batteries. At the same time, vehicles must be affordable, and the charging infrastructure along the route must meet growing consumer demand.



New mobility concepts

Urbanization is prompting a rethink of road traffic. Mobility concepts like car sharing and new last-mile solutions are changing how people travel – both privately and commercially. Automotive manufacturers must adapt and establish new business models.



Green factory

The automotive industry is challenged to make manufacturing more environmentally friendly. Green factories aim to reduce emissions and waste while establishing circular economies. Switching to renewable energy, resource-efficient production methods, and integrating DC power grids are essential to minimizing the environmental impact of production.



Digitalization

Smart factories and Industry 4.0 are optimizing production processes in the automotive sector through big data and automation. Connected cars offer real-time connectivity, in-car apps enable personalized services, and autonomous driving has the potential to revolutionize mobility behavior. Manufacturers are keeping pace – navigating the tension between innovative technologies, vehicle safety, cybersecurity, and data protection.

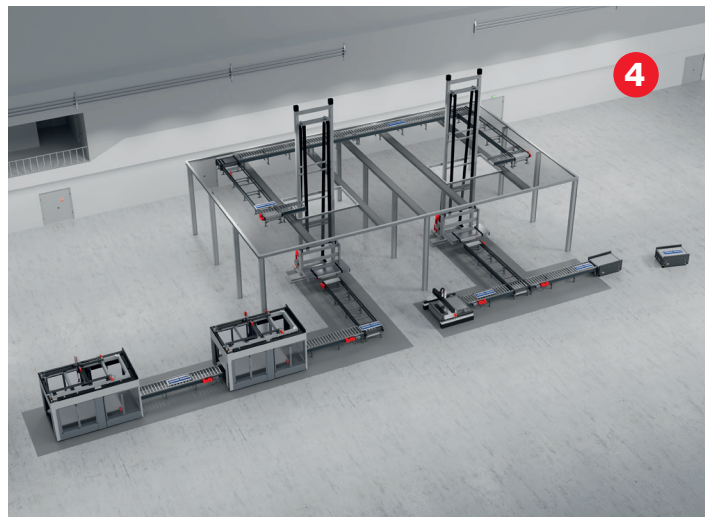
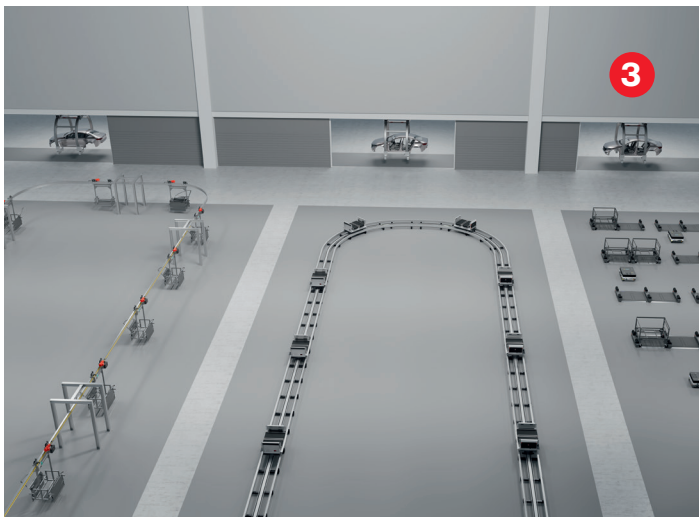
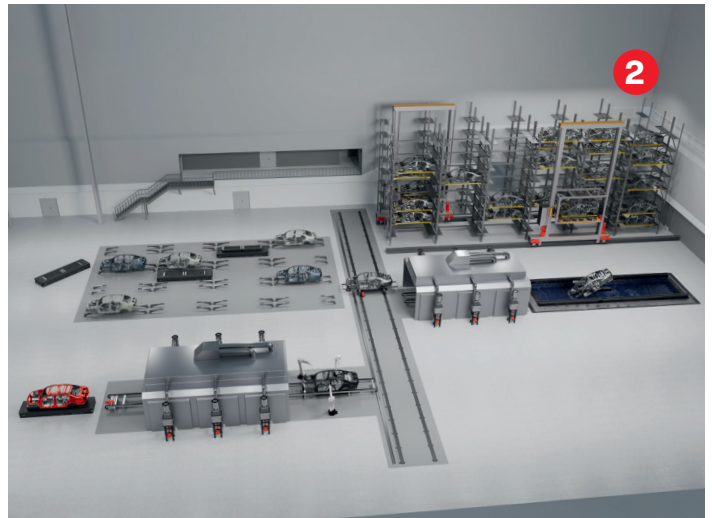
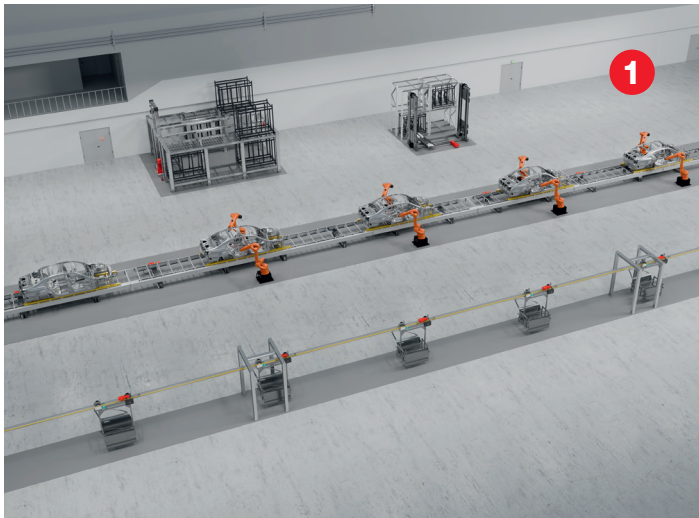


The right drive for the automotive industry

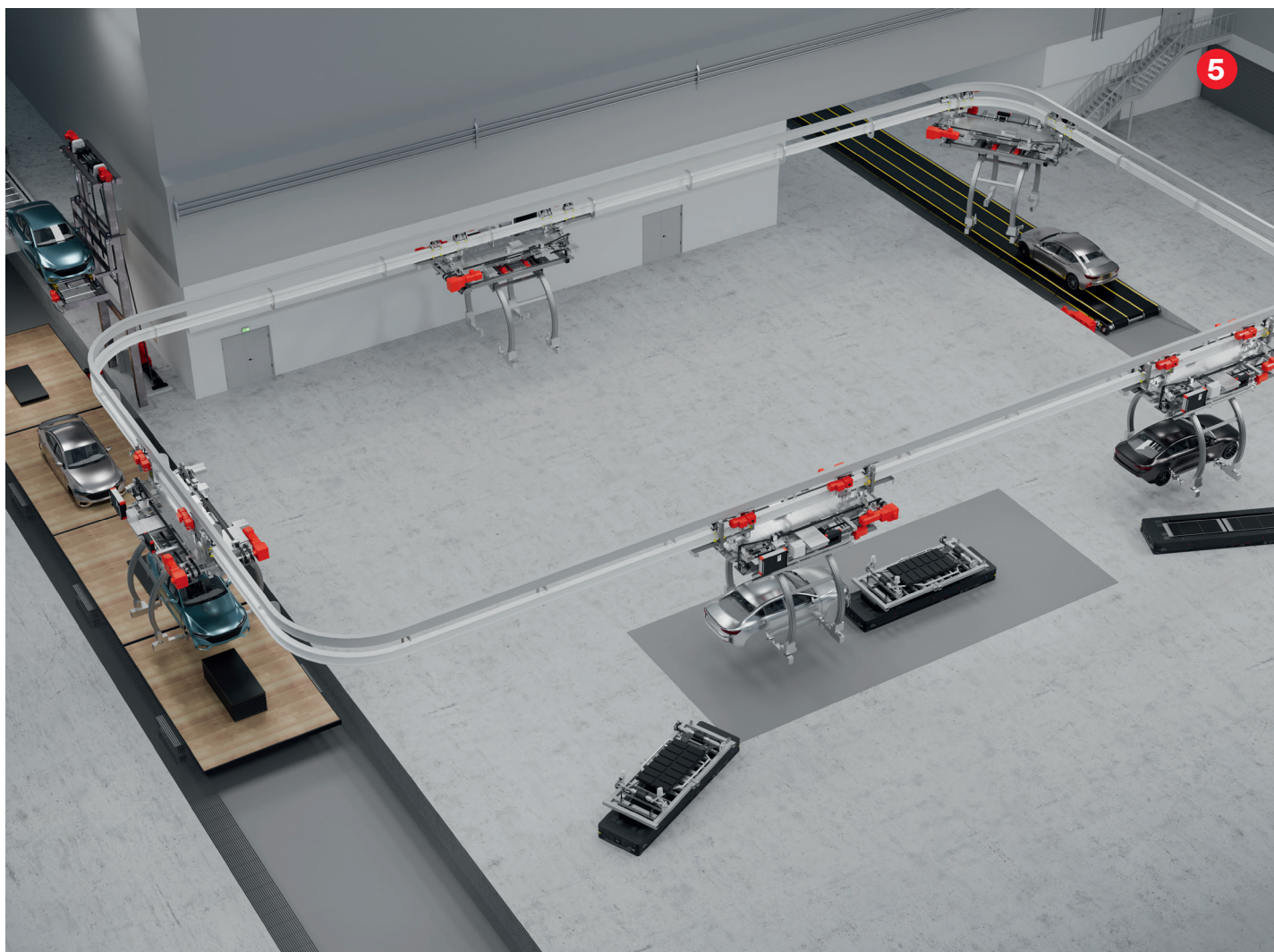
Convincing in all areas

From bodywork and battery pack to final vehicle inspection

The drive and automation technology from SEW-EURODRIVE supports you throughout the entire automotive production process. From body manufacturing and painting to vehicle assembly including battery pack installation. For both production and logistics, we develop concepts based on our experience to enable efficient and future-proof vehicle manufacturing.



-
- 1 Body shop
 - 2 Paint shop
 - 3 Production logistics
 - 4 Assembly of battery modules and packs
 - 5 Final assembly

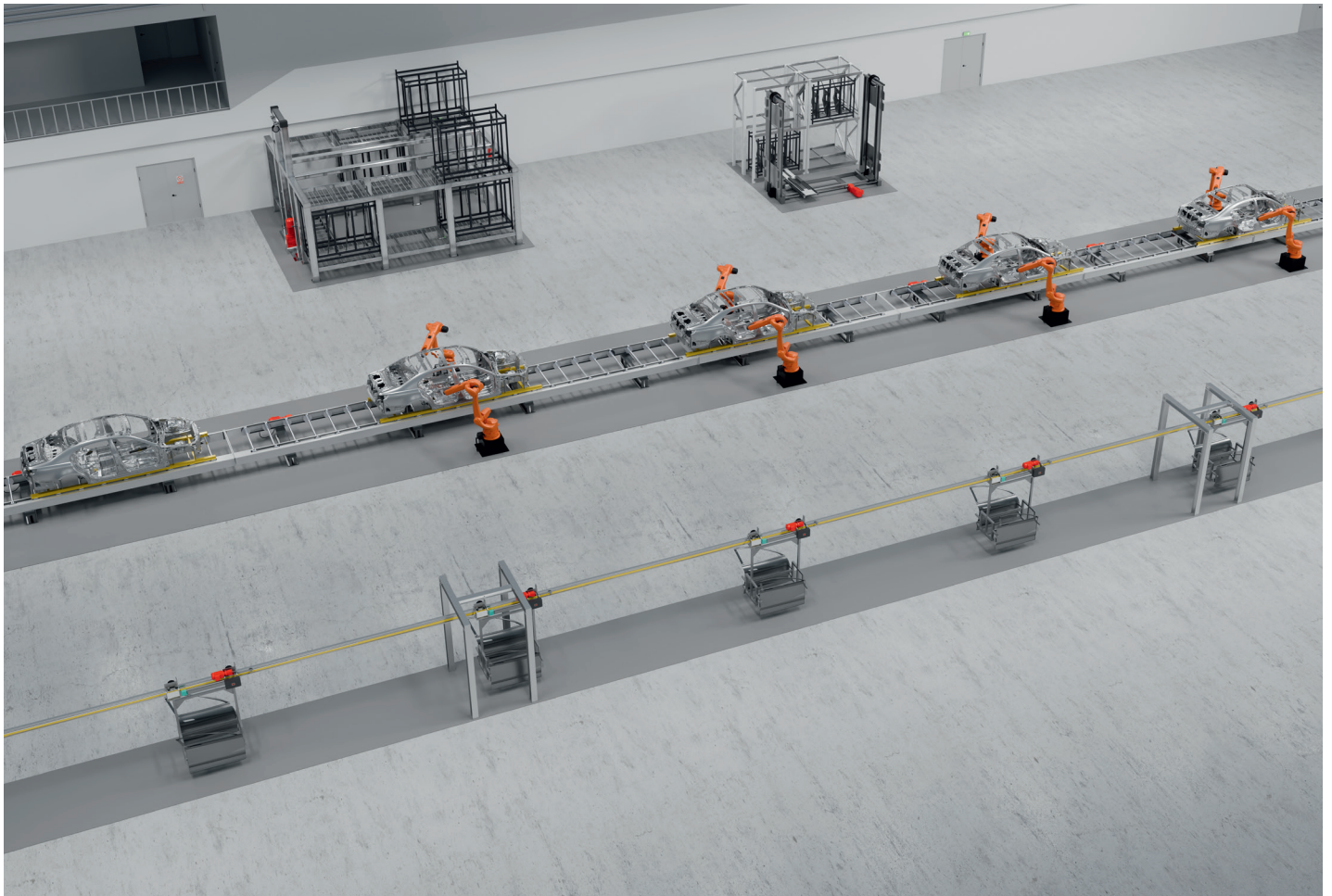


Body shop

- 1 Skid conveyor
- 2 High-speed roller bed
- 3 Scissor lift table
- 4 Process turntable and drum
- 5 Safety technology
- 6 Container station
- 7 Light-duty electrified monorail systems (EMS)
- 8 Three-axis gantry
- 9 Welding gun

A new system design with every model change, maximum machine safety, and real-time communication: processes in the body shop are highly diverse and require equally versatile drive technology. With SEW-EURODRIVE's

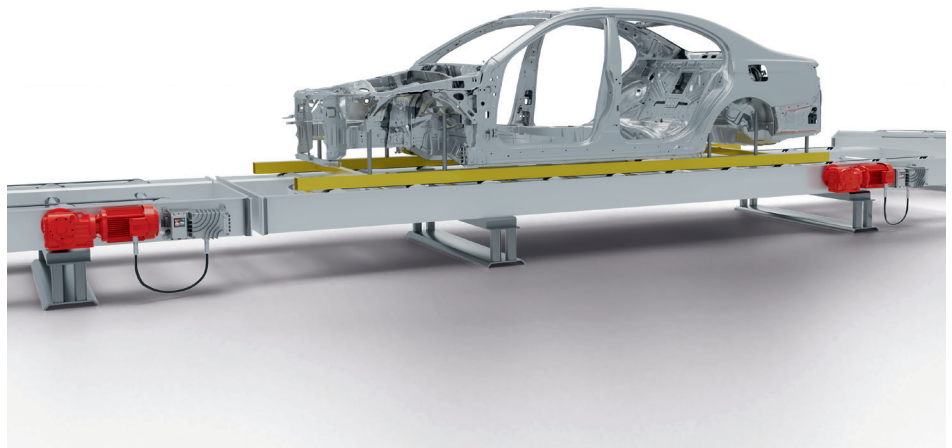
powerful and economical drive solutions, your systems operate continuously, safely, and reliably. Benefit from the expertise of a global leader in drive technology.



Conveyor technology for variable loads

1 Skid conveyor

A skid conveyor is used to transport standardized car body carriers. These roller conveyors ensure smooth and efficient transport of the car bodies through various production stages. The high standardization of the carriers ensures great flexibility and adaptability in the production process.



Your requirements

- Simple positioning
- High control accuracy
- Short cycle times
- Block conveying
- Energy-efficient drives

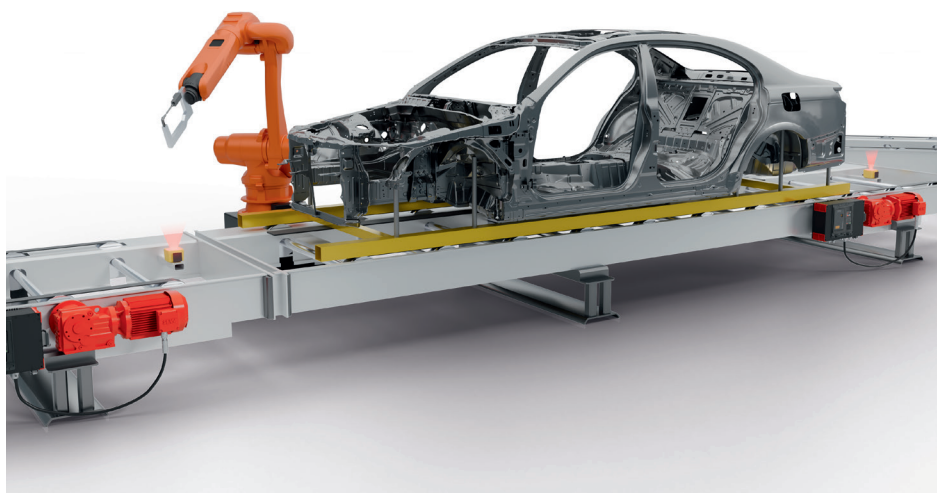
Our solutions

- **Decentralized inverter MOVIMOT® flexible**
Simple installation close to the motor with standardized hybrid cable for power supply and data connection
- **Drive unit MOVIMOT® advanced**
Flexible, as it can be combined with IE3 asynchronous or IE5 synchronous motors and any standard gear unit
- **Drive unit MOVIMOT® performance**
Flexible, as it can be combined with any standard or servo gear unit and operated on all common Ethernet-based infrastructures
- **Drive unit MOVIGEAR® performance**
Compact and quiet, with motor, gear unit, and inverter in one housing and fanless convection cooling, fewer variants thanks to a wide speed range and high overload capacity, efficiency thanks to IE5 motor and up to 50% lower system power loss than IES2
- **Software modules MOVIKIT® RapidCreepPositioning Drive and MOVIKIT® Velocity Drive**
Parameterization instead of programming – ready-made software modules that can be used to solve simple drive functions up to demanding motion control functions.

Fast and precise conveyor solutions

2 High-speed roller bed

A high-speed roller bed is used to precisely position non-form-fitting car body carriers. This results in fast and efficient transport of the car body carriers, which speeds up the production process and increases overall efficiency. Thanks to the high speed and accuracy of the high-speed roller bed, bottlenecks can be avoided and production capacity maximized.



Your requirements

- Precise positioning
- Very short cycle times
- No mechanical centering by lifting

Our solutions

- **Decentralized inverter MOVIPRO® technology**
Control cabinet-free solution for modular automation with up to 30 kW converter rated power
 - **Drive unit MOVIMOT® advanced**
Flexible, as it can be combined with IE3 asynchronous or IE5 synchronous motors and any standard gear unit
 - **MOVI-C® FIELD CONTROLLER**
Decentralized controller, including connection box with field distributor function, which minimizes the cabling effort for the subordinate drive axes.
 - **Software module MOVIKIT® Positioning Drive**
Parameterization instead of programming – for simple to advanced motion control
-

Precise lifting

3 Scissor lift table

A scissor lift table is used to overcome low heights (less than 2 m). There are synchronized versions for heavy weights as well as standby drives for process-critical stations.



Your requirements

- Precise positioning
- Reliable braking
- High safety levels
- Partial multi-motor operation

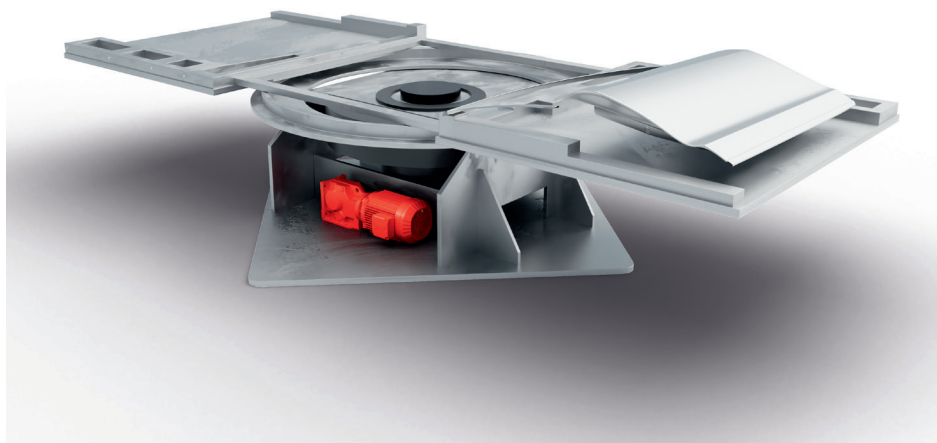
Our solutions

- **Decentralized inverter MOVIPRO® technology**
Control cabinet-free solution for modular automation with up to 30 kW converter rated power
 - **Drive unit MOVIMOT® advanced**
Flexible, as it can be combined with IE3 asynchronous or IE5 synchronous motors and any standard gear unit
 - **MOVIKIT® Positioning Drive software module – optionally with combined encoder evaluation for non-linear relationships between motor and line encoder**
Parameterization instead of programming – ready-made software module that can be used to solve simple drive functions through to sophisticated motion control functions.
-

Efficient turning and positioning

4 Process turntable and drum

This application is used for cyclical position changes between the insertion and gluing or welding of car body parts. It ensures precise and efficient handling of the car body parts, which improves the quality of the joints and optimizes the entire manufacturing process.



Your requirements

- Dynamic acceleration and positioning of high inertias
- Zero-play connection
- High strength
- Integrated measurement for counterweights

Our solutions

- **Decentralized inverter MOVIPRO® technology**
Control cabinet-free solution for modular automation with up to 30 kW converter rated power
 - **Bevel gearbox with hollow shaft and TorqLOC® clamping connection**
Long maintenance-free service life, wear-free gearing, and positive connection between customer shaft and hollow shaft
 - **MOVIKIT® Positioning Drive software module**
Parameterization instead of programming – ready-made software module that can be used to solve simple drive functions through to demanding motion control functions.
-

Protection and reliability

5 Safety technology

Safety technology is used to ensure personal protection between moving parts and car bodies in the rework area or during assembly. It includes protective devices such as light barriers, safety fences and emergency stop switches, which minimize the risk of accidents and thus increase the safety of the workforce.



Your requirements

- Scalable safety technology based on risk assessment
- Comprehensive portfolio
- Easy startup via parameterization

Our solutions

- Safe bus with STO and SS1 for decentralized and control cabinet technology
- Safe motion with SLS and SDI for decentralized and control cabinet technology
- Safe absolute positioning and safe brake control for control cabinet technology: MOVIDRIVE® modular multi-axis system with MOVISAFE® CSA..A safety card with safe reading of the distance encoder

Space-saving and quickly available

6 Container station

A container station is used to position containers with car body parts synchronously. This enables an efficient and smooth production process.



Your requirements

- High precision
- Reliable safety technology

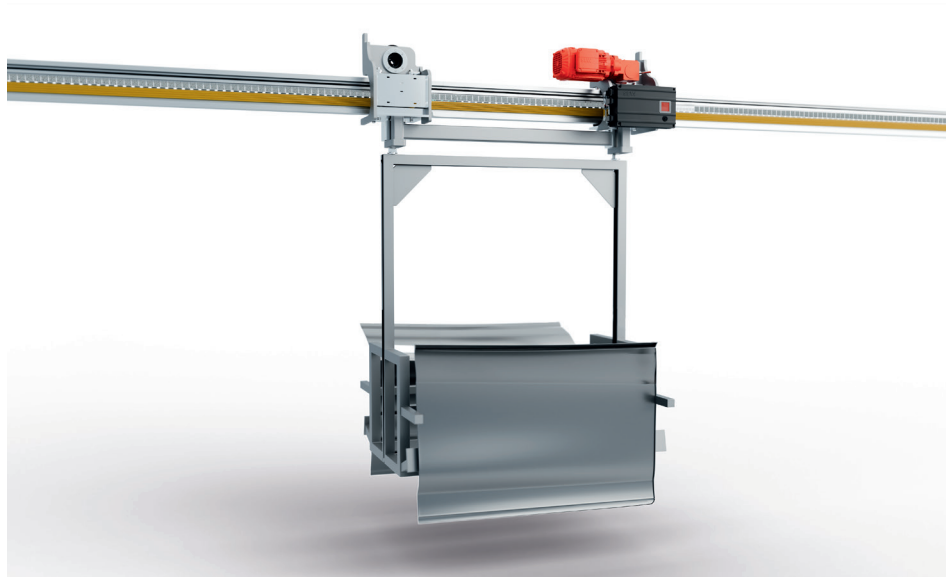
Our solutions

- **Multi-axis system MOVIDRIVE® modular**
Compact multi-axis system consisting of supply, regenerative, single-axis, and double-axis modules with up to 30 drives on one supply module
- **Drive unit MOVIMOT® advanced**
Flexible, as it can be combined with IE3 asynchronous or IE5 synchronous motors and any standard gear unit
- **MOVI-C® CONTROLLER**
Motion control functionality and intelligent control technology – flexible and scalable with connection to common control systems
- **MOVI-C® FIELD CONTROLLER**
Decentralized controller, including connection box with field distributor function, which minimizes the cabling effort for the subordinate drive axes.
- **Software modules MOVIKIT® MultiAxisController and MOVIKIT® Gearing**
Parameterization instead of programming – ready-made software modules that can be used to solve simple drive functions up to sophisticated motion control functions.

Efficient transport for light loads

7 Light-duty electrified monorail system (EMS)

The light load EMS basic with proven standard technology and the light load EMS advanced with high-tech functionality help to ensure that components are moved safely and precisely through the production process. This optimizes handling and production processes.



Your requirements

- Full scalability
- Easy retrofit
- Short and safe ramp-up phases
- Easy profile changes for each axis dimension
- Monitoring and diagnostics

Our solutions

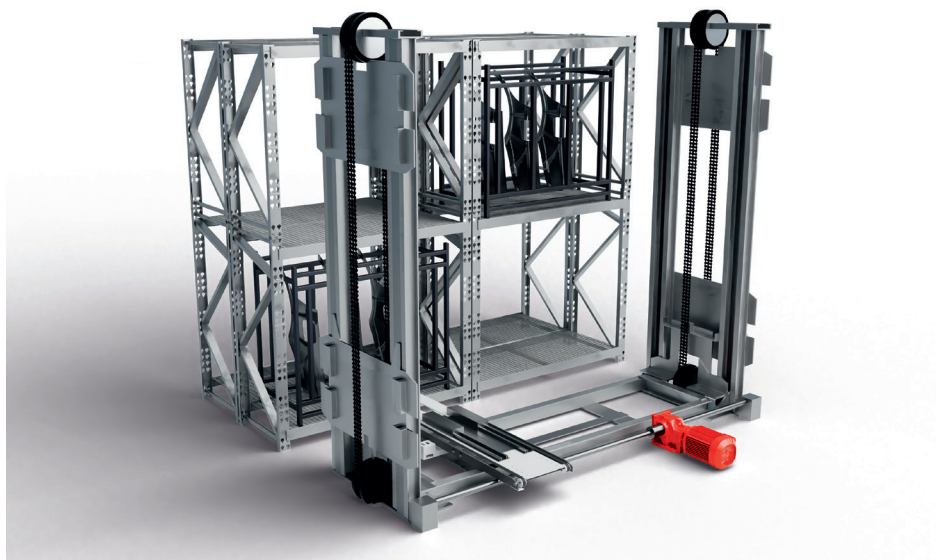
The comprehensive technology kit for MAXOLUTION® light-duty EMS

- Single-axis drive and application controller MOVIPRO® PHE basic for EMS, power range from 0.37 to 1.5 kW
- Binary control via half-wave signals
- STO interface
- SLS with optional safety monitor MOVISAFE® UCS..B
- EMS drives with coupling gear units from the HW/HK series
- Parameterization and diagnostic software MOVIVISION®

Precise handling in three dimensions

8 Three-axis gantry

A three-axis gantry enables flexible movement of the container boxes along three axes, ensuring precise positioning and efficient handling of the car body parts in the production process.



Your requirements

- High precision
- Length compensation chain
- Reliable safety technology (SLP, SCA, safe position)

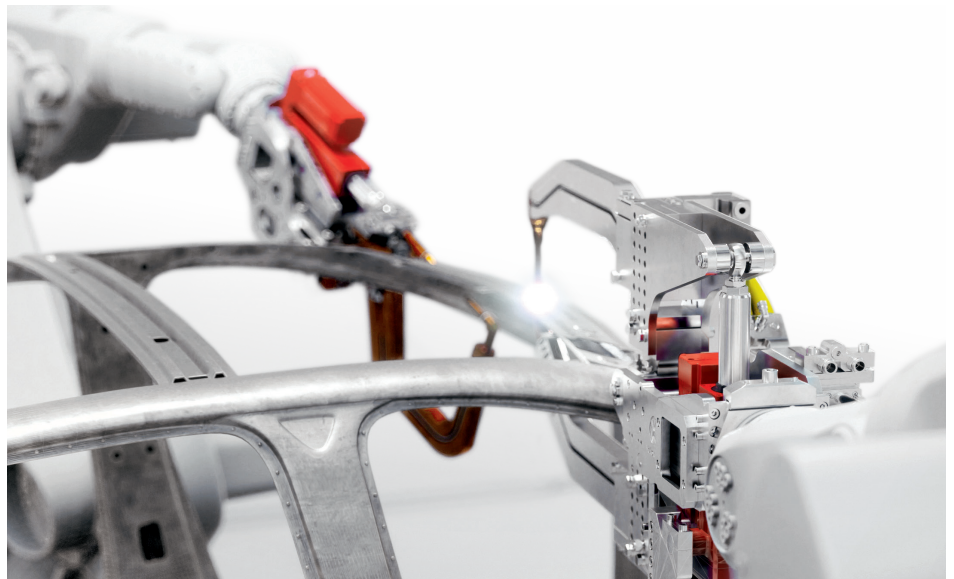
Our solutions

- **Multi-axis system MOVIDRIVE® modular**
Compact multi-axis system consisting of supply, regenerative, single-axis, and double-axis modules with up to 30 drives on one supply module
 - **MOVI-C® CONTROLLER**
Motion control functionality and intelligent control technology – flexible and scalable with connection to common control system
 - **Software module MOVIKIT® StackerCrane effiDRIVE®**
Parameterization instead of programming – prefabricated software module that is used to solve simple drive functions through to demanding motion control functions.
-

Automated precision welding

9 Welding gun

A safe and stable car body requires countless weld spots on the various components. These weld spots are now produced fully automatically, with consistent precision and quality.



Your requirements

- High force accuracy for consistent weld quality
- Maintenance-free over entire lifetime
- High productivity (welds per minute)
- Compatibility with robot controllers
- Long lifespan (>20 million welds)

Our solutions

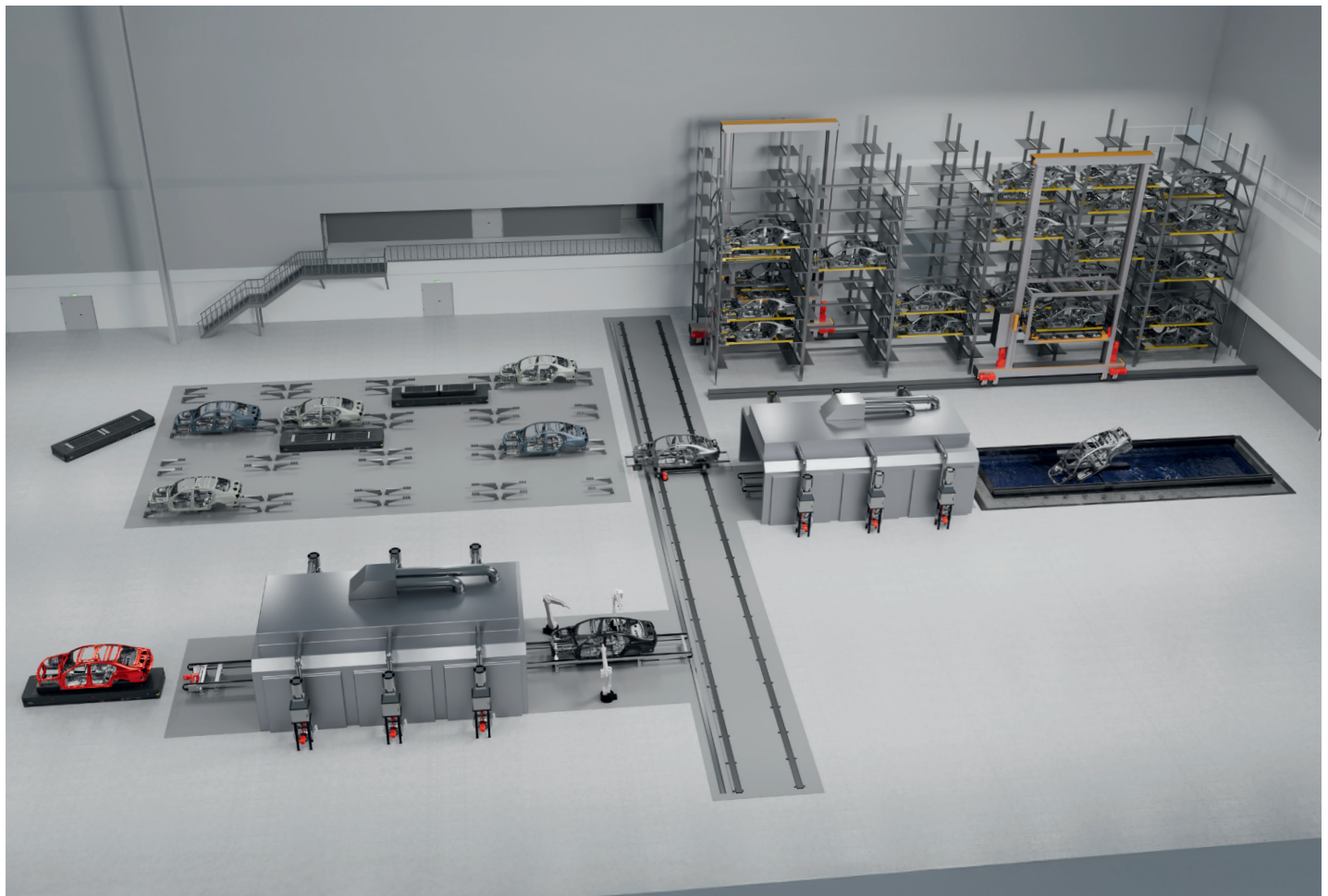
- **Electric cylinders CMSMB/AP CMP**
in various versions for common robot controllers
-

Paint shop

- ❶ Shuttle
- ❷ Central chain conveyor
- ❸ Cross transfer cart
- ❹ Pumps, blowers, and aerators
- ❺ Automated storage and retrieval system
- ❻ AGVs in the body storage area

The painting process in automotive production is crucial for the aesthetic quality and corrosion protection of vehicles. Cleaning and treating the surface, priming, precise paint application, consistent color – all of these

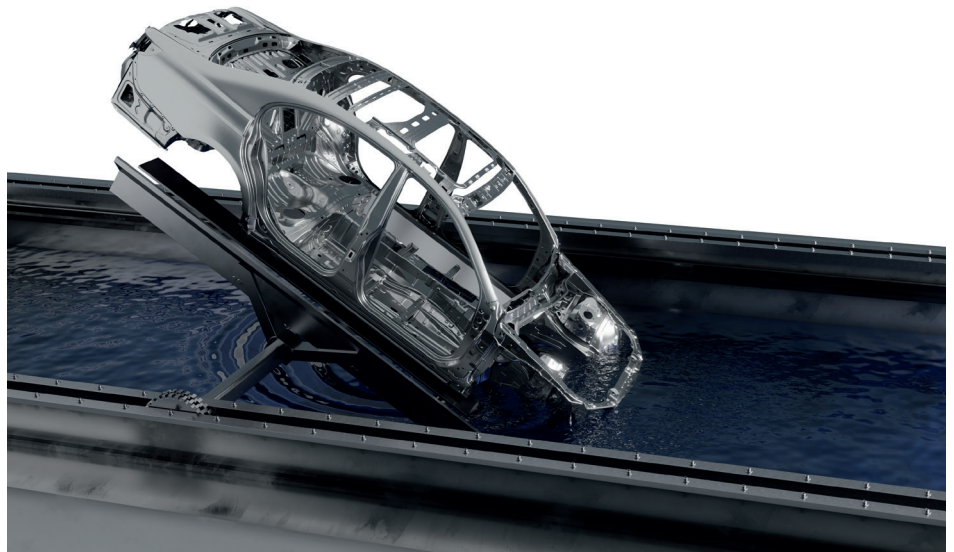
are demanding tasks for conveyor technology, special machines, pumps, and blowers. The reliable and robust drives from SEW-EURODRIVE won't let you down.



Precise position in the dip bath

1 Shuttle

A shuttle system is used to position the car body in the dip bath at the optimum angle. It adjusts the position of the car body depending on the position of the tank, thus ensuring uniform and efficient coating. In addition, the shuttle system enables the car bodies to be immersed and turned in the dip bath, rotation of the car bodies in the dip tank, ensuring complete and even coating of all surfaces.



Your requirements

- Fast adjustment of process parameters
- Visual display and easy adjustment of immersion angle
- Collision prevention
- Durability in harsh environments
- Stable energy transfer without contact

Our solutions

- **Decentralized inverter MOVIPRO® technology**
Control cabinet-free solution for modular automation with up to 30 kW converter rated power
 - **Contactless energy transfer MOVITRANS®**
completely wear-free, quiet, and low-maintenance electromagnetic coupling with intelligent SAFS (Safe AC Field Stop) safety function
-

Main line for car body transport

2 Central chain conveyor

A central chain conveyor is used to transport the entire car body line through the paint shop. This conveyor ensures a smooth and continuous flow of car bodies.



Your requirements

- Robust and reliable drives
- Network-based diagnostics
- Standardized interfaces
- Explosion protection and wet area suitability

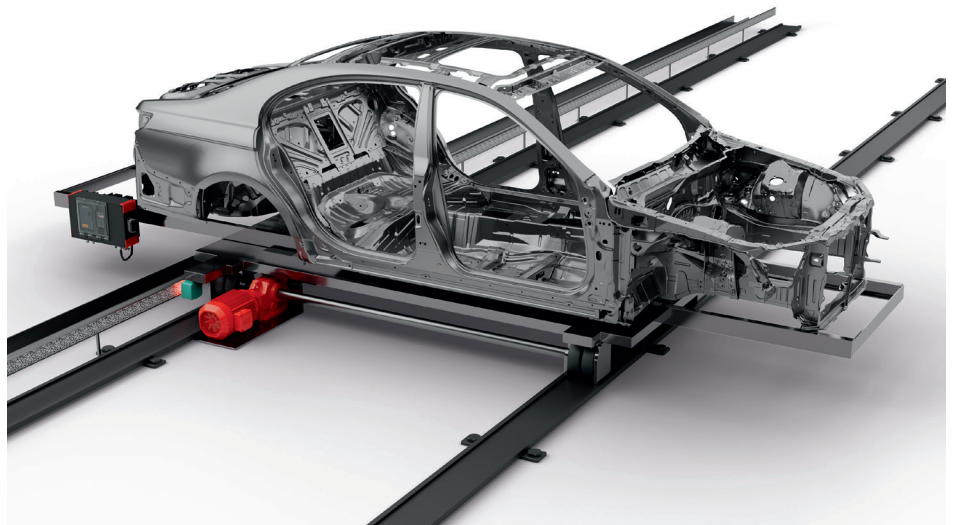
Our solutions

- **Standard inverter MOVITRAC® advanced**
Compact all-rounder with flexibly configurable functional safety that can be connected to common control systems
 - **Explosion-proof gear motors**
Safe operation, wide range of variants, and high torque implementation
 - **MOVI-C® CONTROLLER**
Motion control functionality and intelligent control technology – flexible and scalable with connection to common control systems
 - **Software modules MOVIKIT® Velocity Drive and MOVIKIT® MultiAxisController**
Parameterization instead of programming – ready-made software modules that can be used to solve simple drive functions through to sophisticated motion control functions.
-

Lateral transport of car bodies

3 Cross transfer cart

A cross transfer cart is used to precisely position and distribute car bodies. The efficient distribution of car bodies helps to shorten production times and increase the overall efficiency of the paint shop.



Your requirements

- High acceleration of large masses
- Fast and precise positioning using external encoders

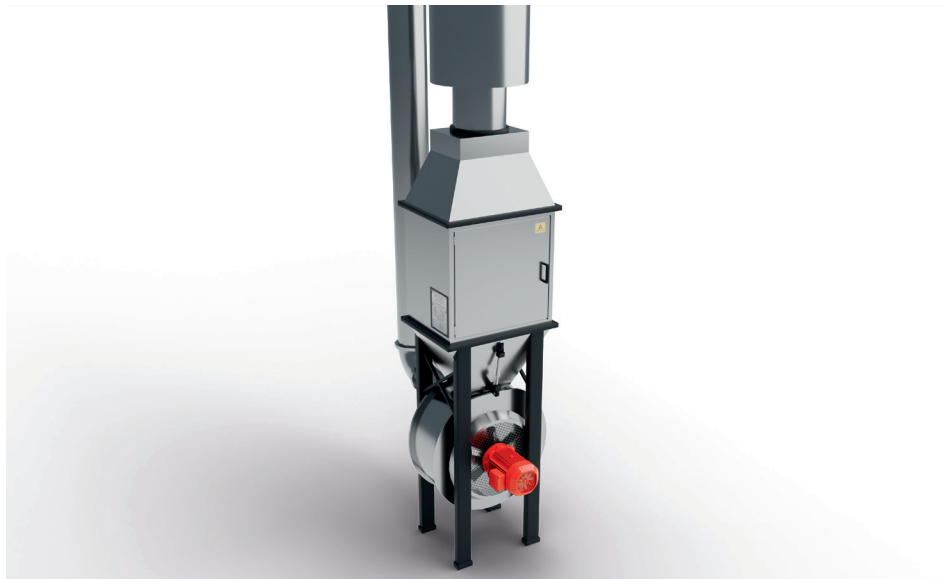
Our solutions

- **Decentralized inverter MOVIPRO® technology**
Control cabinet-free solution for modular automation with up to 30 kW converter rated power
- **MOVIKIT® Positioning Drive software module**
Parameterization instead of programming – ready-made software module that can be used to solve simple drive functions through to demanding motion control functions.

Efficient air and media exchange

4 Pumps, blowers, and aerators

Pumps, blowers, and aerators ensure continuous control to ensure air and media exchange. This allows operating conditions to be kept at an optimal level.



Your requirements

- Energy efficiency
- Load point optimization
- Specific control according to fan curve
- Intelligent braking without resistors
- Operation of (synchronous) reluctance motors

Our solutions

- **Standard inverter MOVITRAC® advanced**
Compact all-rounder with flexibly configurable functional safety, which can be connected to common control systems
 - **Standard inverter MOVITRAC® LTP-B with high degree of protection**
for humid environments, with seamless power range, easy to operate
-

Automated handling in storage

5 Automated storage and retrieval system in body storage

The storage and retrieval of painted car bodies in a buffer storage facility is carried out using a stacker crane. The precise and efficient handling of the car bodies ensures a flexible and smooth process.



Your requirements

- Energy management to reduce peak loads
- Fast startup
- Maximum storage capacity
- Grid-compatible system with high availability

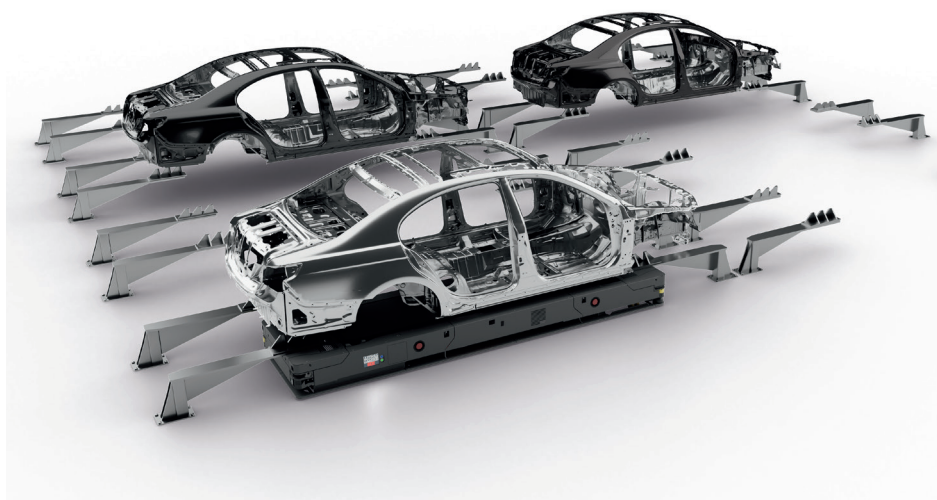
Our solutions

- **MOVI-C® CONTROLLER**
Motion control functionality and intelligent control technology – flexible and scalable with connection to common control systems
- **Multi-axis system MOVIDRIVE® modular**
Compact multi-axis system consisting of supply, regenerative, single-axis, and double-axis modules with up to 30 drives on one supply module
- **Software modules MOVIKIT® MultiAxisController, MOVIKIT® StackerCrane effiDRIVE®, MOVIKIT® Motion add-on AntiSway**
Parameterization instead of programming – ready-made software modules that can be used to solve simple drive functions through to demanding motion control functions.
- **Safety cards**
for comprehensive motion and position monitoring, compatible with all our drive inverters
- **Power and energy management system Power and Energy Solutions**
scalable DC and AC infrastructure for reliable, uninterrupted operation and cost reduction through energy savings and lower peak demand

Automated handling in storage

6 AGVs in body storage

Automated guided vehicles (AGVs) perform transport tasks autonomously and cooperatively, offering maximum flexibility for buffering car bodies in your process. These systems operate independently of storage and retrieval sequences and ensure an efficient and continuous flow of materials.



Your requirements

- Low effort and high flexibility in route design
- Suitable for heavy rack and tray transport
- High integration with process modules (e.g., robot cells)

Our solutions

The comprehensive technology kit for MAXOLUTION® AGV

- Up to 3000 kg payload
 - Omnidirectional driving mode
 - Integrated lift
 - Contactless charging during operation
 - Free navigation with parking function
 - Interoperable communication interface VDA 5050
-

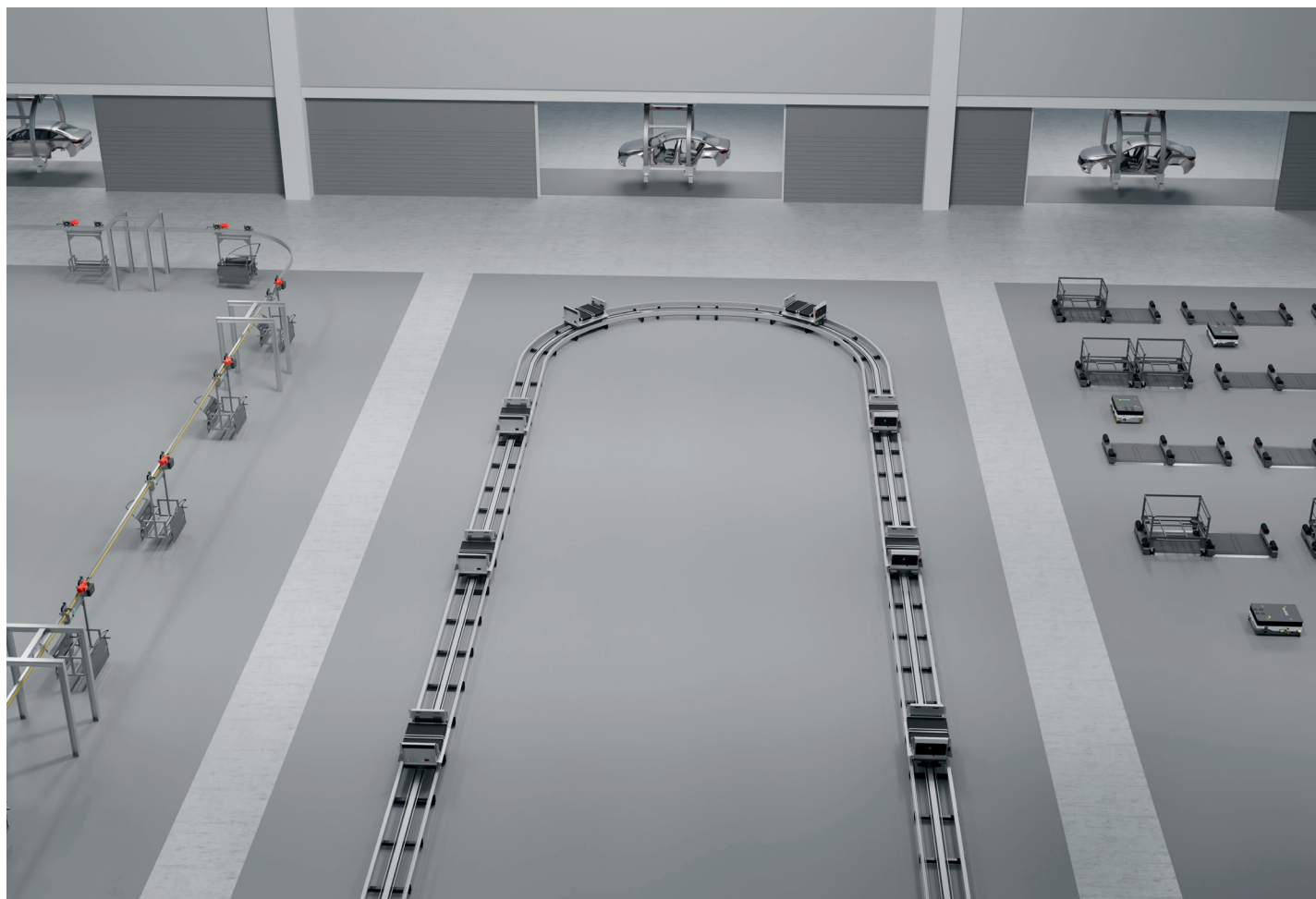


Production logistics

- 1 AGV
- 2 EMS for logistics applications
- 3 Electrified floor track system

Logistics in automotive production only run smoothly when materials are transported automatically from A to B and everything is precisely coordinated. Parts are transported safely in containers and pallets and reach their destination

by road or rail. Each of these systems is crucial for smooth production. Because the right parts must be in the right place at the right time. SEW-EURODRIVE has the solution for this.



Autonomous material flow

1 Automated guided vehicles (AGV)

Automated material supply from the warehouse (also known as the supermarket) to the assembly lines is carried out using driverless transport systems. These autonomous vehicles, such as AGV trains or “underride AGV,” navigate independently and ensure efficient and continuous material flow.



Your requirements

- Reliable navigation through the versatile factory
- Flexible adaptation to new circumstances, e.g. through individual route calculation
- Maintenance-free, sustainable energy concept
- Clearly defined and standardized interfaces for interaction with higher-level systems
- Lean processes and optimized throughput times

Our solutions

The comprehensive technology kit for MAXOLUTION® AGV

- Up to 3000 kg payload with flexible load handling device and integrated lift
- Bi- and omnidirectional driving mode
- Contactless charging during active operation with MOVITRANS®
- Free navigation with parking function
- Vehicle and order coordination via interoperable communication interface VDA 5050 or via MAXOLUTION® connected Fleet Manager

Flexible overhead conveyor solution

2 EMS for logistics

The EMS modular is an automation bundle that has been specially developed for simple transport tasks in material handling. It offers a flexible and scalable solution that can be adapted to different requirements and applications.



Your requirements

- High speeds for quickly bridging large spatial distances
- Open interface for operation with commercially available controllers
- Low engineering costs, customer-specific project planning

Our solutions

The comprehensive technology kit for MAXOLUTION® EMS for logistics applications

- Communication options PROFINET/EtherNet/IP™ via CAN bus or slot waveguide
- MOVI-C® inverters of the MOVITRAC® advanced type with a power range from 0.25 to 315 kW
- UHX controller with MOVIKIT® RailGuidedSystems software module for barcode positioning
- Scalable safety functions

Efficient floor conveyors

③ Electrified floor track system (EFS)

A floor-based system for transporting materials, containers, and pallets, which is used in particular to connect high-bay warehouses and picking zones or multiple storage areas.



Your requirements

- Planning reliability and risk minimization
- Data transparency
- High system availability

Our solutions

The comprehensive technology kit for MAXOLUTION® EFS

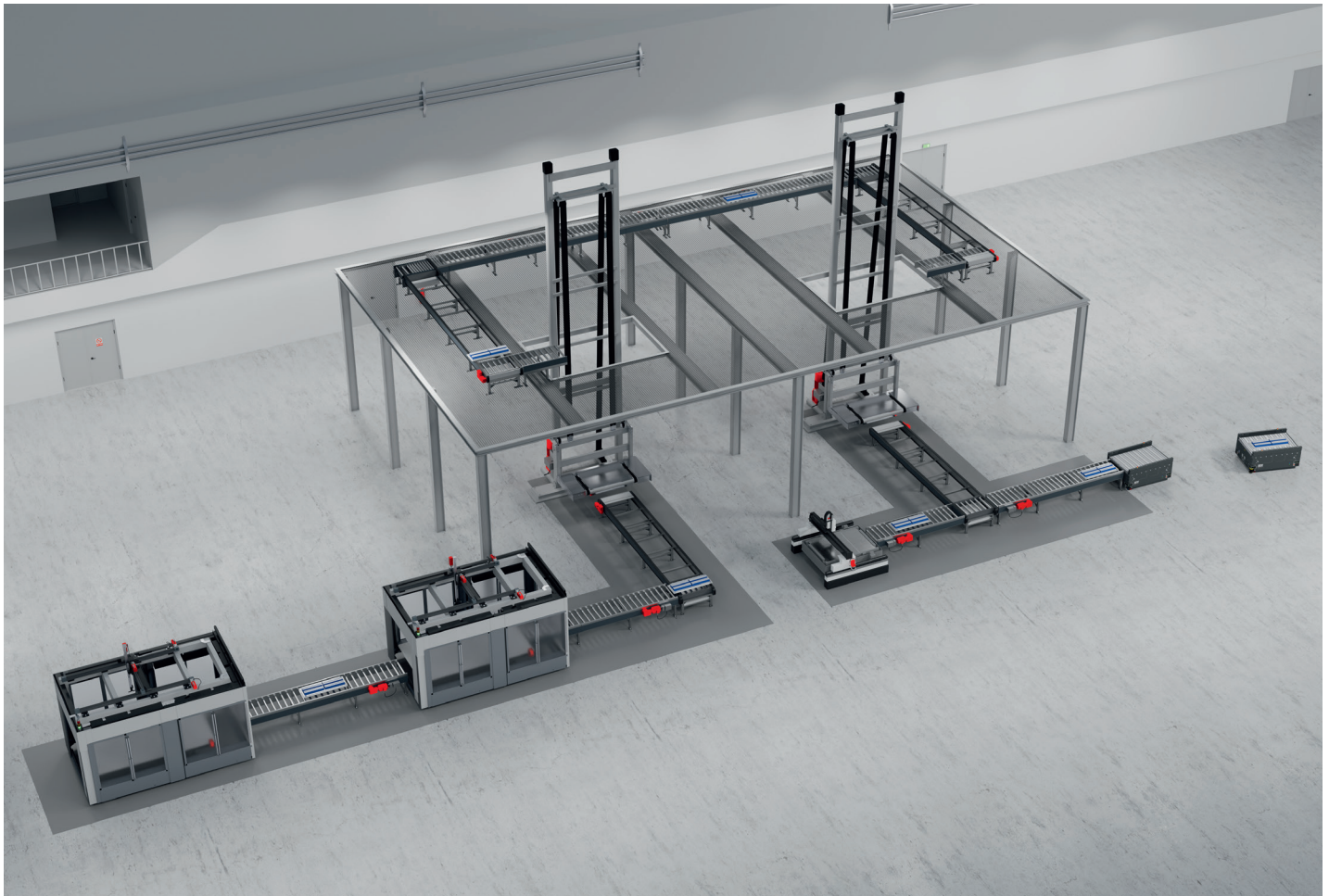
- Application controller MOVI-C® FIELD CONTROLLER, type FHM35A with integrated WLAN and linux-based operating system, start-up time less than 15 seconds
- Drive unit MOVIMOT® advanced and decentralized inverter MOVIMOT® flexible for the drive axis
- Optional energy transfer with MOVITRANS®
- For EFC safety with safety controller MOVISAFE® HM31B or safety monitor MOVISAFE® UCS..B, safe position detection via 2D camera system and DataMatrix code band
- Wear-free slot waveguide technology for shielded WLAN communication between vehicle and plant control level

Battery module and pack assembly

- 1 Three-axis gantries
- 2 Hoists
- 3 Horizontal conveyors and slat chains
- 4 Laser welding and contacting
- 5 Automated guided vehicles

In the cell-to-module-to-pack approach, individual cells are stacked or plugged into a module and then connected. Several such modules are assembled together with other components to form a pack. In the alternative cell-to-pack

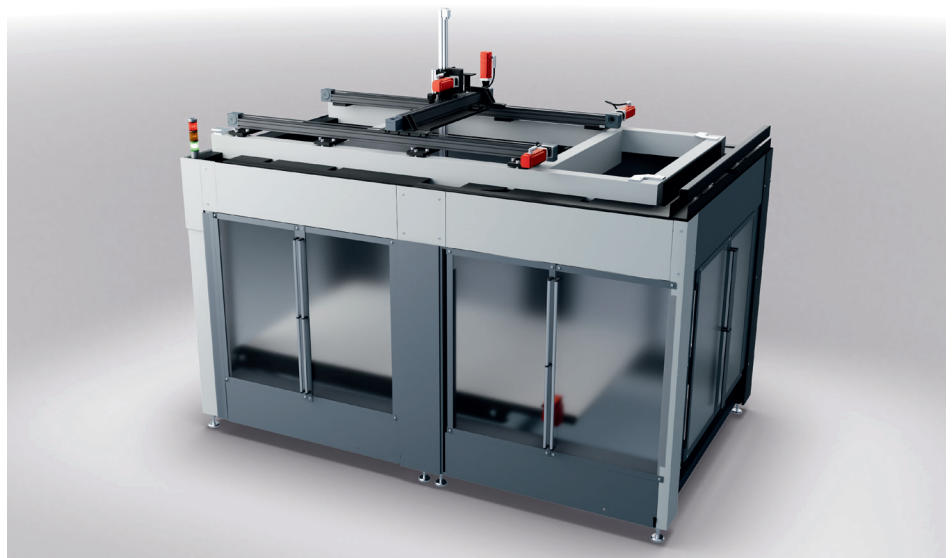
approach, the cells are integrated directly into the pack. From the cell to the finished pack, SEW-EURODRIVE supports your processes with drive and automation solutions.



Precision in three dimensions

1 Three-axis gantries

The portals enable precise handling of battery modules and components. This allows for exact positioning and processing of the battery modules, which is essential for automation.



Your requirements

- Precise, dynamic coordination of multiple axes
- Standardized, easy startup
- High gearbox stiffness

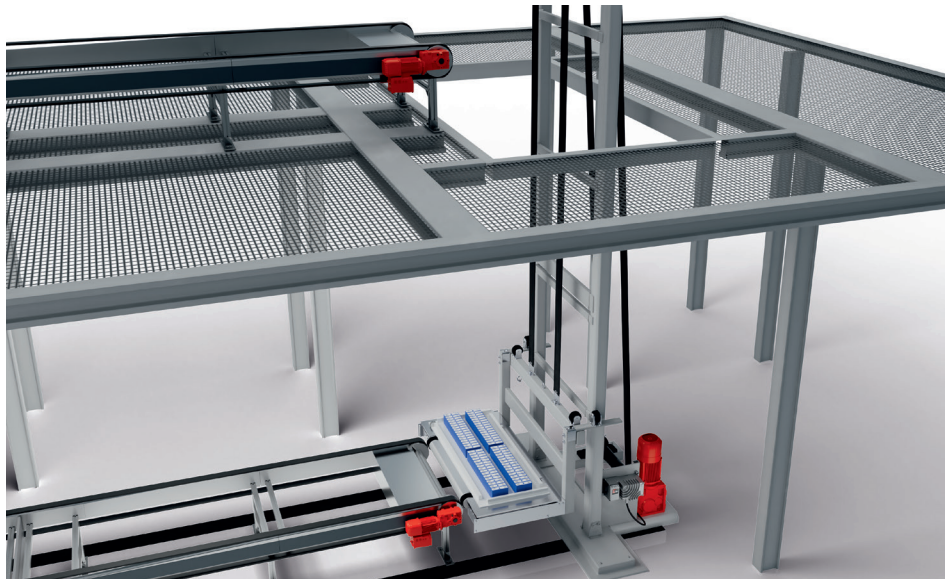
Our solutions

- **Multi-axis system MOVIDRIVE® modular**
compact multi-axis system consisting of supply, regenerative, single-axis, and double-axis modules with up to 30 drives on one supply module
- **Cabinet inverter MOVIDRIVE® technology**
Inverter for direct mains connection with flexible fieldbus connection, which can also be commissioned via pluggable operating devices.
- **Precision planetary gear motors PxG® CM3C..**
space savings thanks to compact design, combined with higher power density and reliable transmission of torque/speed thanks to continuous positive locking
- **Software module MOVIKIT® Robotics**
Parameterization instead of programming – ready-made software module that can be used to solve simple drive functions through to sophisticated motion control functions.

Efficient vertical transport

2 Hoists

Hoists transport battery modules to higher levels, where they can be buffered and the adhesives can cure, for example.



Your requirements

- Positive-locking positioning with motor encoder
- Compact, modular design for decentralized installation

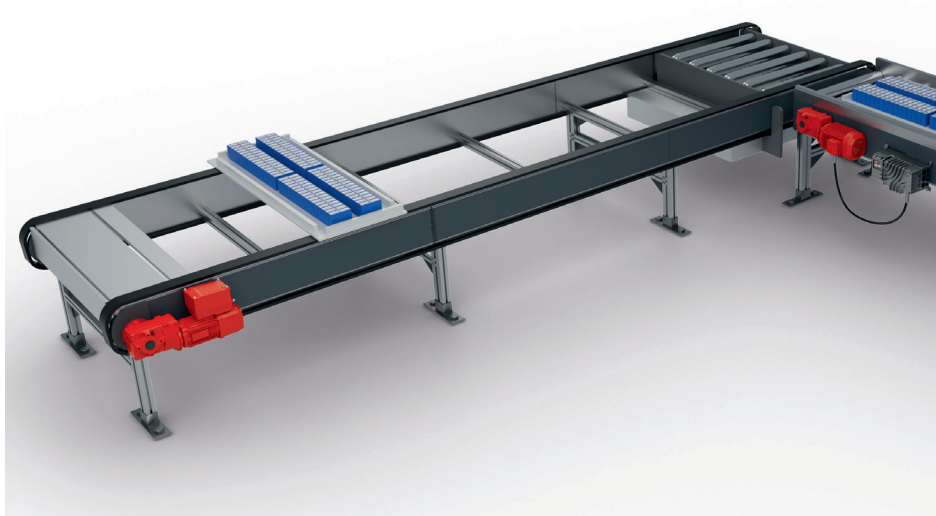
Our solutions

- **Decentralized inverter MOVIMOT® flexible**
Simple installation close to the motor with standardized hybrid cable for power supply and data connection
-

Efficient horizontal transport

3 Horizontal conveyors and slat chains

The transport and separation of battery modules between the various processing stations is carried out using horizontal conveyor technology and compartment chains. These systems are essential for the smooth and efficient transport of the modules.



Your requirements

- Compact, modular design
- Low-power drive technology
- Intelligent singulation control

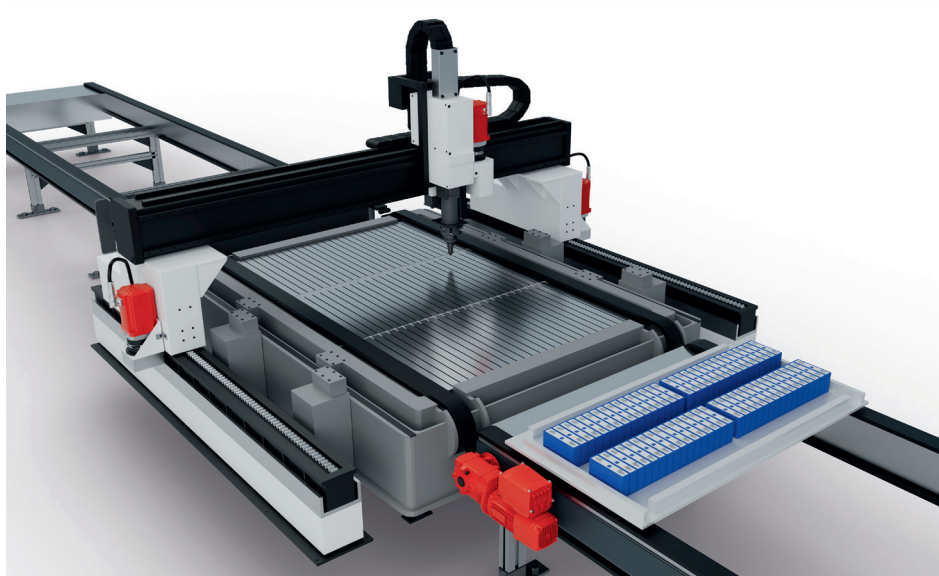
Our solutions

- **Decentralized inverter MOVIMOT® flexible**
Simple installation close to the motor with standardized hybrid cable for power supply and data connection
- **Drive unit MOVIMOT® advanced**
Flexible, as it can be combined with IE3 asynchronous or IE5 synchronous motors and any standard gear unit
- **Compact low-voltage drive MOVIMOT® performance ELV**
Maximum communication thanks to integrated Ethernet-based interface and extremely compact and energy-efficient thanks to DC energy feedback

Precise contacting

4 Laser welding and contacting

Laser welding is used to precisely connect the frame parts of the battery modules. The poles of the individual modules are then contacted to combine them into a complete battery. These processes are crucial for the structural integrity and electrical connection of the battery.



Your requirements

- Synchronization with laser axis
- Precise timing and high process safety
- Interpolated positioning

Our solutions

- **MOVI-C® CONTROLLER**
Motion control functionality and intelligent control technology – flexible and scalable with connection to common control systems
 - **Multi-axis system MOVIDRIVE® modular**
Compact multi-axis system consisting of supply, regenerative, single-axis, and double-axis modules with up to 30 drives on one supply module
 - **MOVIKIT® Positioning Drive software module**
Parameterization instead of programming – ready-made software module that can be used to solve simple drive functions through to demanding motion control functions.
-

Autonomous material transport

5 Automated guided vehicles (AGV)

AGVs are used to transport materials, containers, and pallets efficiently. These autonomous vehicles navigate independently through the production halls and warehouses and handle internal transport. They are of central importance for optimizing material flow and contribute to increasing productivity.



Your requirements

- Low effort and high flexibility in route design
- Maximum layout flexibility
- Minimal maintenance

Our solutions

The comprehensive technology kit for MAXOLUTION® AGV

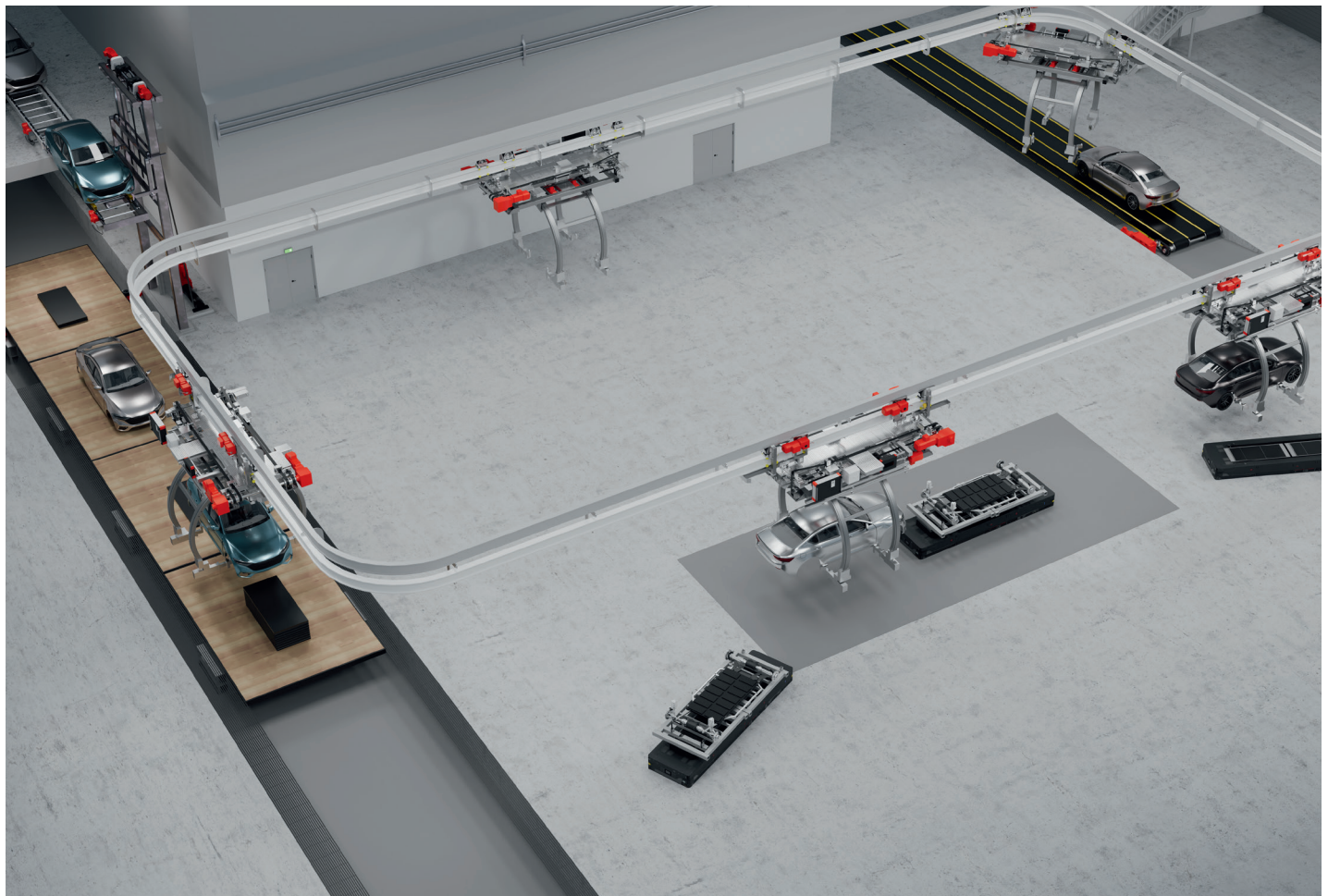
- Up to 3000 kg payload with flexible load handling device and integrated lift
- Bi- and omnidirectional driving mode
- Contactless charging during active operation with MOVITRANS®
- Flexible energy storage with LFP battery or double-layer capacitors MOVI-DPS®
- Free navigation with personnel-safe parking function
- Vehicle and order coordination via interoperable communication interface VDA 5050 or via fleet manager
- Compliance with ISO 6 requirements

Final assembly

- 1 Synchronized hoists
- 2 Turntables
- 3 Docking station and skillet feed
- 4 Skillet line
- 5 Light-duty electrified monorail system (EMS)
- 6 Heavy-duty electrified monorail system (EMS)
- 7 "Marriage" in final assembly
- 8 Plastic belt conveyor
- 9 Safety technology for personnel protection

In final assembly, the car body, battery pack, and all other assemblies are "merged" into a vehicle. This so-called "marriage" takes place under great time pressure, and modern just-in-sequence production principles place the

highest demands on technology. With the precise and innovative solutions from SEW-EURODRIVE, you can meet all requirements.



Uniform lifting of heavy loads

1 Synchronized hoists

Synchronized hoists are ideal for distributing car bodies and individual parts to different levels within the production hall and seamlessly connecting production lines with each other.



Your requirements

- Energy recovery from regenerative movements
- Process-oriented energy management
- Safe vertical braking

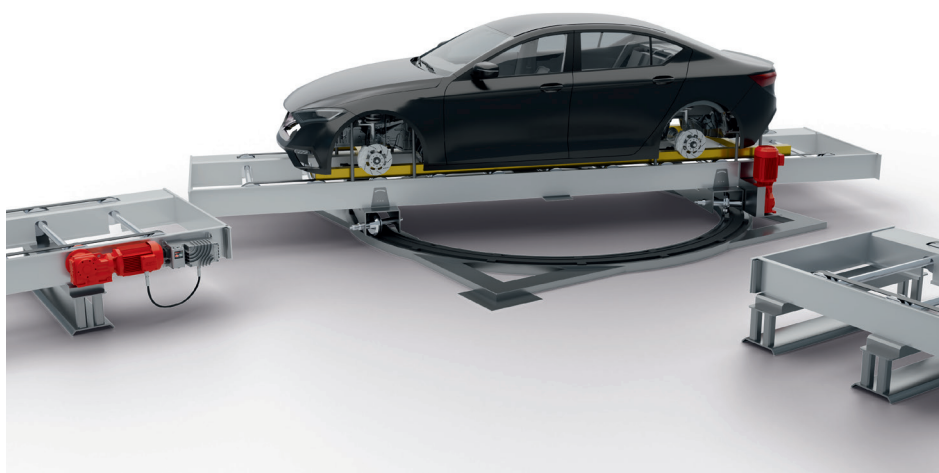
Our solutions

- **Cabinet inverter MOVIDRIVE® technology**
Inverter for direct mains connection with flexible fieldbus connection, which can also be commissioned via pluggable operating devices.
- **Energy recovery MOVIDRIVE® MDR**
Utilization of energy from the lowering and braking movements of your application, feedback of the recovered energy back into the grid and reduction of total energy consumption
- **Drive unit MOVIMOT® advanced**
Flexible, as it can be combined with IE3 asynchronous or IE5 synchronous motors and any standard gear units
- **Software modules MOVIKIT® Positioning Drive – optionally with combined encoder evaluation for non-linear relationships between motor and line encoder**
Parameterization instead of programming – ready-made software module that can be used to solve simple drive functions through to sophisticated motion control functions.

Precise turning for optimal alignment

2 Turntables

Turntables are used to precisely move car bodies and make transport routes within the production hall more flexible.



Your requirements

- Scalable drive technology
- Standardized application modules for fast startup

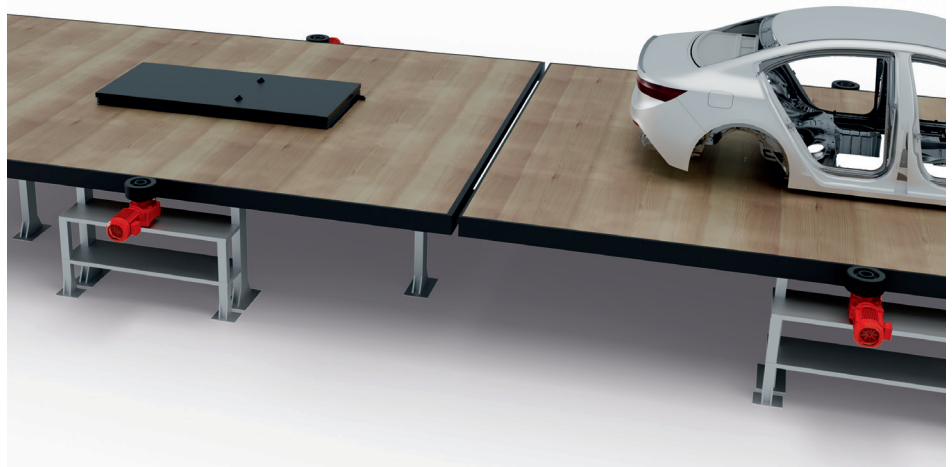
Our solutions

- **Decentralized inverter MOVIPRO® technology**
cabinet-free solution for modular automation with up to 30 kW converter rated power
 - **Alternative: Drive unit MOVIMOT® advanced**
Flexible, as it can be combined with IE3 asynchronous or IE5 synchronous motors and any standard gear unit
 - **Alternative: MOVIDRIVE® technology cabinet converter**
Inverter for direct mains connection with flexible fieldbus connection, which can also be commissioned via pluggable operating devices
 - **Software modules MOVIKIT® Positioning Drive and MOVIKIT® RapidCreepPositioning Drive**
Parameterization instead of programming – ready-made software modules that can be used to solve simple drive functions up to sophisticated motion control functions.
-

Efficient platform connection

3 Docking station and skillets feed

It is used to precisely synchronize the skillets and ensure a seamless transfer to the main assembly line



Your requirements

- Group drives on both sides
- Dynamic response to main line speed changes
- Seamless platform movement

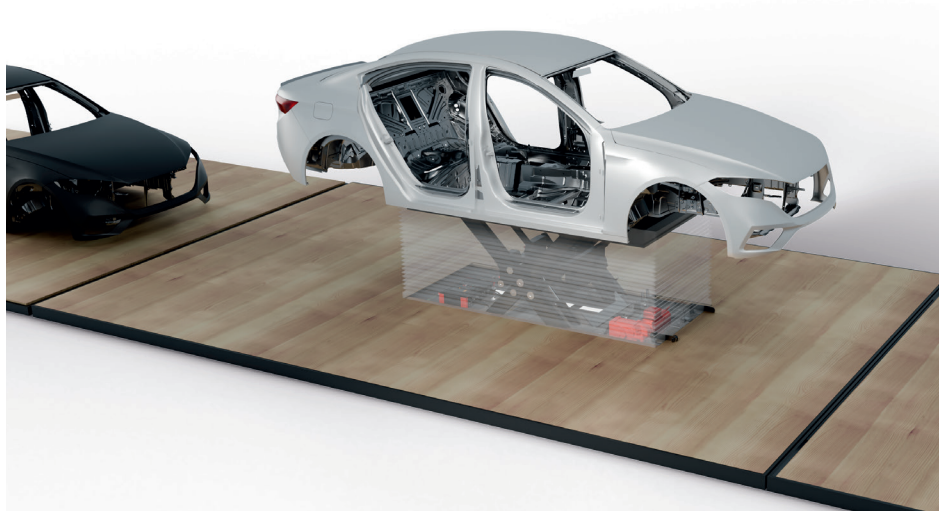
Our solutions

- **Decentralized inverter MOVIMOT® flexible**
Simple installation close to the motor with standardized hybrid cable for power supply and data connection
 - **Energy recovery MOVIDRIVE® MDR**
Utilization of energy from the lowering and braking movements of your application, feedback of the recovered energy back into the grid and reduction of total energy consumption
 - **Software modules MOVIKIT® Velocity Drive and MOVIKIT® Torque Drive**
Parameterization instead of programming – ready-made software modules that can be used to solve simple drive functions through to sophisticated motion control functions.
-

Powerful for heavy loads

4 Skillet line

Skillets (also known as push skids) are moved in the longitudinal and transverse directions and are used, for example, for floor-based flow assembly with accompanying workers. They provide work platforms that are lined up next to each other, continuously moving or cyclical work platforms with a lifting function for carrying out assembly steps.



Your requirements

- Ergonomic lift height adjustment
- Robust, standardized solution
- High, scalable safety requirements
- Process and cycle reliability

Our solutions

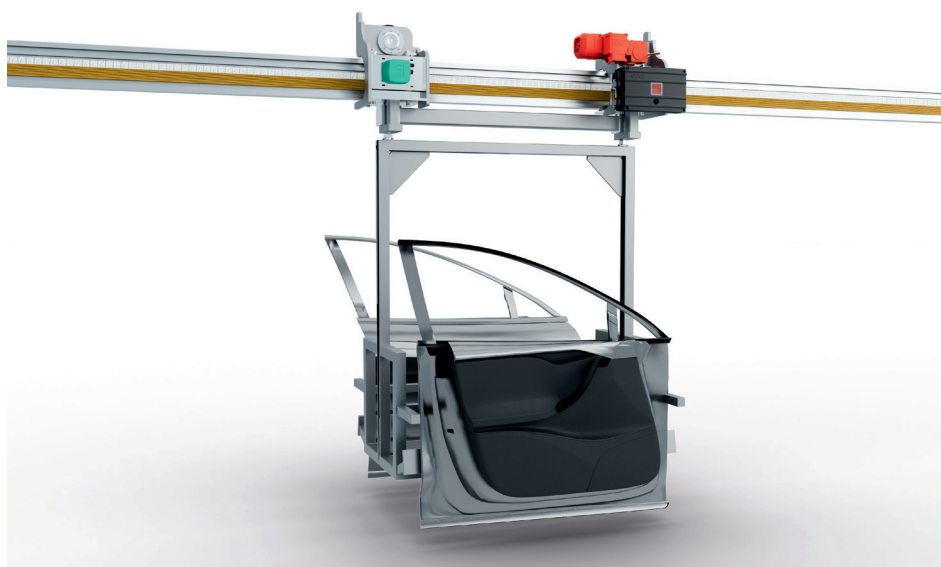
The comprehensive technology kit for MAXOLUTION® skillet lines

- Application controller MOVI-C® FIELD CONTROLLER, type FHM35A with integrated WLAN and linux-based operating system, start-up time less than 15 seconds
- Application inverter MOVIPRO® PHC in flat design up to 7.5 kW
- Power transfer Optional with MOVITRANS®
- Optional with safety controller MOVISAFE® HM31B or safety monitor MOVISAFE® UCS..B
- Reliable position detection via 2D camera system and DataMatrix code band

Fast transport of light components

5 Light-duty electrified monorail system (EMS)

The lightweight EMS advanced is used to transport doors, cockpits, or axles to the assembly line using proven standard technology. The lightweight EMS advanced ensures transport with high technological functionality. These systems enable reliable and efficient transport through the production process.



Your requirements

- Full scalability
- Easy retrofit
- Fast and safe startup
- Flexible profile changes
- Monitoring and diagnostics
- Real-time product tracking

Our solutions

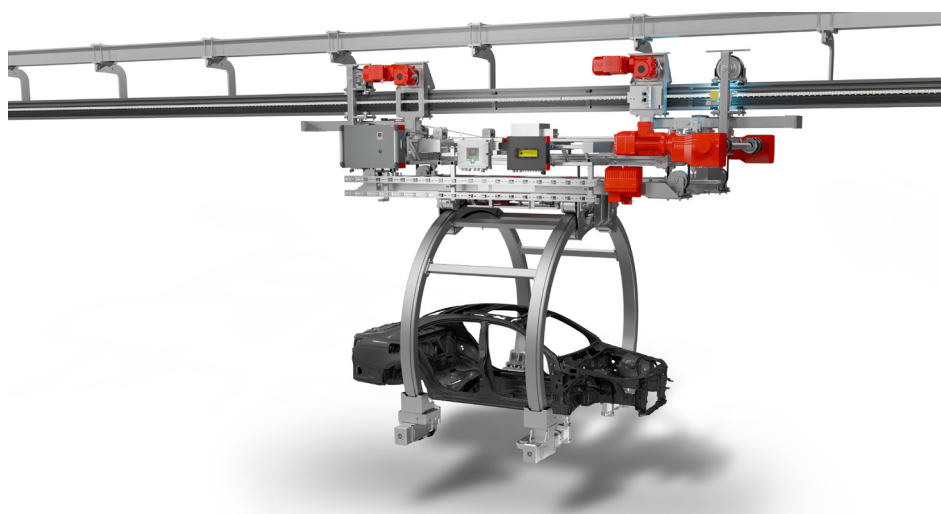
The comprehensive technology kit for MAXOLUTION® light-duty EMS

- Application controller MOVIPRO® PHE advanced and integrated frequency inverter with a power range of 0.37 – 1.5 kW
- Slotted waveguide technology with WLAN communication to the stationary UHX 65 segment controller
- STO interface
- SLS with optional safety monitor MOVISAFE® UCS
- EMS drives, e.g. the HW/HK series with coupling gearboxes
- parameterization and diagnostic software MOVIVISION®
- Absolute positioning with 2D camera system

Safe transport of heavy loads

6 Heavy-duty electrified monorail system (EMS)

The heavy-duty EMS is used to transport heavy loads such as car bodies through the assembly line, e.g. in the chassis line or during swivel assembly. Once the assembly steps are complete, it transports the car bodies to where they are joined with the power-train. This happens in parallel and synchronously with the movement of the automated guided vehicle (AGV), ensuring an efficient and smooth production process



Your requirements

- Fast startup
- Safe planning and flexible adaptation
- 3D visualization and condition monitoring
- Dynamic distance monitoring
- Compliance with safety standards
- Software patching for current functions

Our solutions

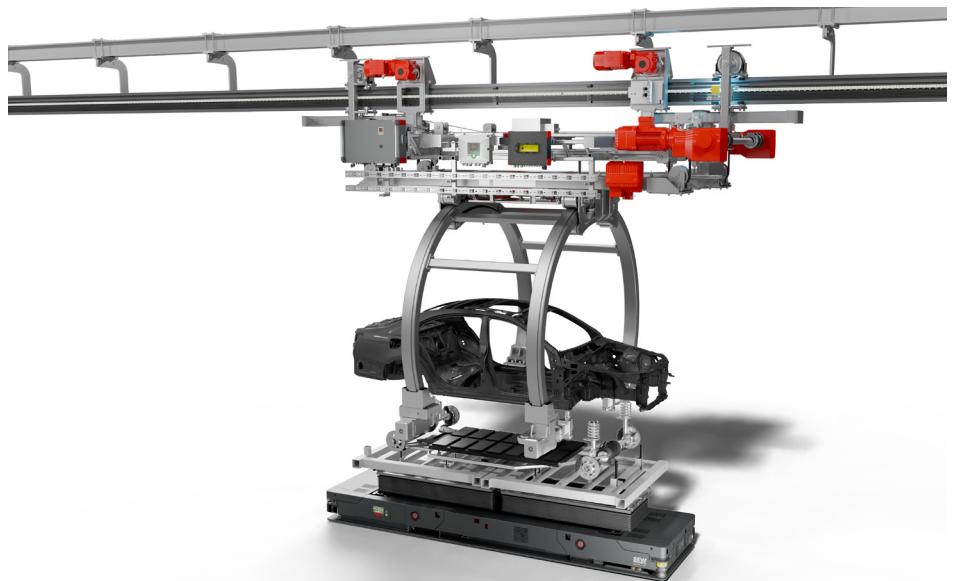
The comprehensive technology kit for MAXOLUTION® heavy-duty EMS

- Application controller MOVI-C® FIELD CONTROLLER, type FHM35A with integrated WLAN and linux-based operating system, start-up time less than 15 seconds
- decentralized inverter MOVIMOT® flexible for the travel axis
- decentralized inverter MOVIPRO® technology for the lifting axis
- Optional: MOVITRANS® contactless energy transfer
- Safety controller MOVISAFE® HM31B or safety monitor MOVISAFE® UCS..B, safe position detection via 2D camera system and DataMatrix code band
- Wear-free slot waveguide technology for shielded WLAN communication between vehicle and plant control level

Autonomous transport in assembly

7 “Marriage” in final assembly

An automated guided vehicle (AGV) is used in the final assembly line to connect the powertrain to the car body. This is done in parallel and synchronously with the movement of the heavy-duty EMS, ensuring an efficient and smooth process. In addition, the AGV serves as an intelligent workbench for assembly, as it is easily accessible and thus enables ergonomic working.



Your requirements

- High maintenance-free operation
- Scalable functions from drive to safety
- Process optimization and cycle time improvement
- Dynamic distance monitoring

Our solutions

The comprehensive technology kit for MAXOLUTION® AGV

- Segment controller for joint process and vehicle control for optimized coordination of both applications
- MOVIVISION® software portfolio with simulation/emulation for fast availability of the plant, early commissioning, and short ramp-up phase
- Safety control with MOVISAFE® HM31B for the joint process step combined in a safety control system

Continuous conveying

8 Plastic belt conveyor

A plastic link belt is a slow-moving conveyor belt that is used for transporting vehicles. It can also be designed as a worker ride-along belt so that assembly work can be carried out directly on the belt. This type of conveyor belt enables continuous and efficient assembly by allowing employees to move with the vehicles while performing their tasks.



Your requirements

- High torque and durable gearbox for main drive
- Avoidance of slip-stick effect via optimized brake drive
- Constant belt speed

Our solutions

- **Multi-axis system MOVIDRIVE® modular**
Compact multi-axis system consisting of supply, regenerative, single-axis, and double-axis modules with up to 30 drives on one supply module
- **Software modules MOVIKIT® Velocity Drive and MOVIKIT® MultiAxisController**
Parameterization instead of programming – ready-made software modules that can be used to solve simple drive functions through to sophisticated motion control functions.
- **7-series gearbox/large gear unit**
Robust solutions with high torque
- **Intermediate circuit connection**
between main and brake drive

Maximum safety for employees

9 Safety technology for personnel protection

Safety technology ensures personal protection during moving applications throughout the entire production process. In addition to protective devices such as light barriers and safety fences, it also includes monitoring and safe shutdown of the system. The risk of accidents is minimized and the safety of the workforce is increased.



Your requirements

- Scalable safety technology based on risk assessment
- Comprehensive portfolio
- Easy startup via parameterization
- Safe and dynamic distance monitoring

Our solutions

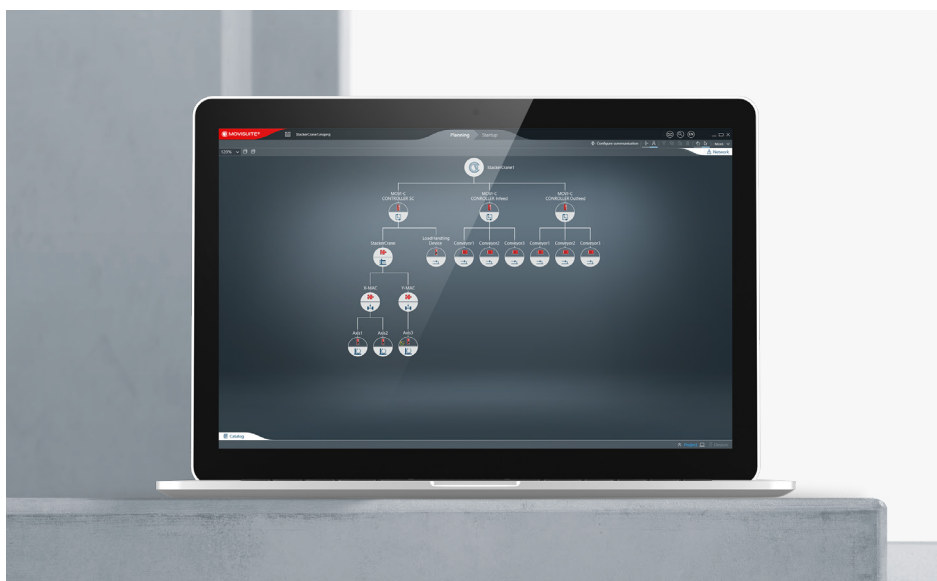
The comprehensive technology kit for MAXOLUTION® safety technology

- Safe Distance Monitoring (SDM®) for dynamic distance monitoring in the assembly line
- Safe envelopes for lifting and swiveling applications
- Safe absolute position of individual vehicles
- Safe motion monitoring with SLS and SDI
- Safe shutdown of the inverter with STO, SS1, and SBC option

Smart networking for the future

Engineering software MOVISUITE®

With the MOVISUITE® engineering software, all components of the MOVI-C® automation system (control technology, inverters, motors, and gear units) can be configured, commissioned, and monitored consistently. The software package includes functions for drive startup, visualization, and programming.



Architecture features

- Unified engineering interfaces
- Efficient data management
- Integrated project management
- Network scan and device visualization
- Scope function
- Electronic product catalog
- Extensive user support
- Intuitive manual operation

Your benefits

- Fast startup
 - Easy onboarding via modern interaction design
 - Free and available online
-

We offer you the right solution for every process step for smart automation – with the complete solution for configuration, startup, and monitoring of all components from the MOVI-C® automation kit. Visualization and simulation functions as well as the provision of IoT-usable data and measured variables ensure maximum transparency.

Easy startup

Software modules MOVIKIT®

Pre-engineered software modules for simple drive functions or even for sophisticated motion sequences. Applications are easily put into operation thanks to the graphical configuration and comprehensive diagnostics of the software modules.



Architecture features

- Basic drive functions: speed control and positioning
- Motion control functions: cam disc and robotics
- Operation via the real-time operating system of the MOVI-C® CONTROLLER or on the MOVIDRIVE® inverter

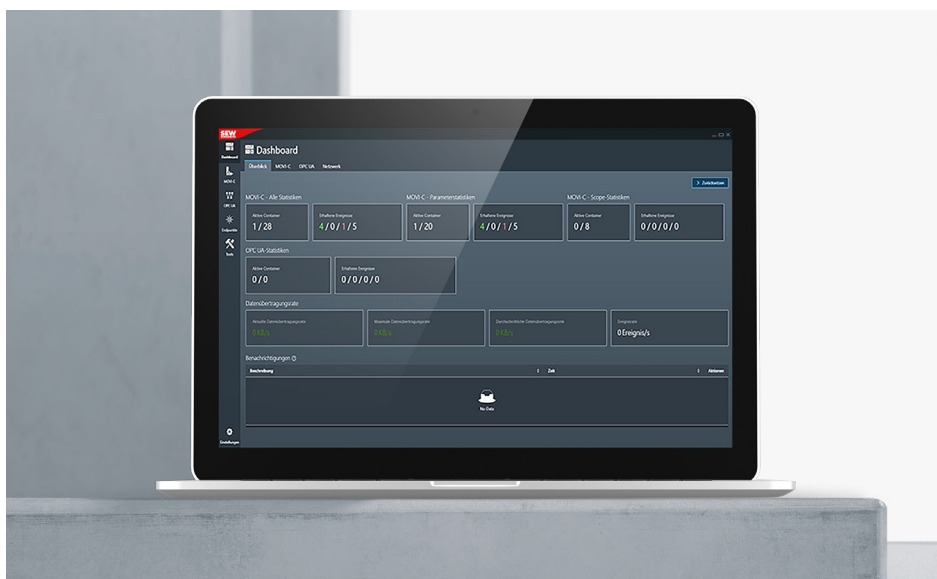
Your benefits

- Intuitive parameterization instead of programming – Saves time and money during startup
 - Fast program creation through automatic IEC code generation
 - Consistent and hardware-independent configuration
-

Software for data and analysis

DriveRadar® SmartDataCollector

The DriveRadar® SmartDataCollector is software for providing IoT-usable data and metrics. The software forms the interface between real devices and the cloud level, where the data is used for condition assessment and further analysis.



Architecture features

- The SmartDataCollector collects all data within the IoT system.
- The edge level is the interface between the device and cloud levels.
- The data is processed and utilized for further use in the customer's cloud or that of SEW-EURODRIVE.
- The data can be used and visualized in the web application DriveRadar® IoT Suite for applications.

Your benefits

- Countless devices from SEW-EURODRIVE can be used as data sources for condition monitoring and predictive maintenance.
- Can be retrofitted, even as a retrofit solution, for lines with Ethernet-based systems, without additional hardware or wiring.

Automation with a future

MAXOLUTION® Software Solutions

Integrated software solutions for digitization and networking in production and assembly plants.



Architecture features

- Virtual Factory: digital twin of the factory
- System management: information provider, interface, data acquisition, condition monitoring
- Factory processes: plant control and coordination between process and conveyor technology
- Simulation/emulation: planning reliability and transparency for the entire assembly process (end-to-end)
- Automotive Production: Control of EMS, EFS, Skillet, line-guided AGVs – with MOVIVISION®
- Production logistics: Control of mobile assistance systems (AGVs/AMRs)
- Edge Devices: Data coupling of third-party I/O devices via MQTT to MAXOLUTION® connected

Your benefits

- Planning reliability, shorter ramp-up times, and maximum plant availability
- End-to-end process transparency throughout the entire production cycle
- Comprehensive monitoring and diagnostic options

Life Cycle Services

Perfect all-round service

SEW-EURODRIVE offers you services and support throughout the entire plant life cycle – from planning and maintenance to modernization. Everything from a single source, with more than 90 years of experience in drive and automation technology.

We would be happy to put together a customized service package tailored to your needs and scalable at any time.

The following goals are particularly important in the automotive environment:

- Fast and smooth startup
- Avoidance of downtime
- Standardization and reduction of variants
- Suitable retrofit concepts



**Further information on
Life Cycle Services can
be found at**

[www.sew-eurodrive.de/
en/life-cycle-services](http://www.sew-eurodrive.de/en/life-cycle-services)



A good thing – with plenty of benefits



Everything from a single source

You receive services, support tools, and resources that are closely integrated with our product portfolio – all from a single source.

One point of contact

We're here for you and personally committed. Worldwide.

Safety

You receive reliable, fast assistance that ensures the safety of your production process.

Expertise and consulting

You can rely on over 90 years of expertise in drive and automation technology and benefit from personalized consulting.

The right service at every stage



Orientation

Personal consulting

- Application and industry expertise
- Exchange on innovation topics
- Regulations and standards
- Trends and future topics
- Knowledge transfer

Planning & engineering

- Operational and maintenance concepts
- Energy consulting
- Engineering
- Concept development
- Project planning and design
- Safety consulting
- Training
- Variant management

Procurement & delivery

- Barcode labels (DriveTag)
- Electronic data exchange (EDI)
- Electronic delivery notifications
- Electronic invoicing
- Delivery service





Installation & startup

- Application programming
- Startup
- Installation consulting

Operation

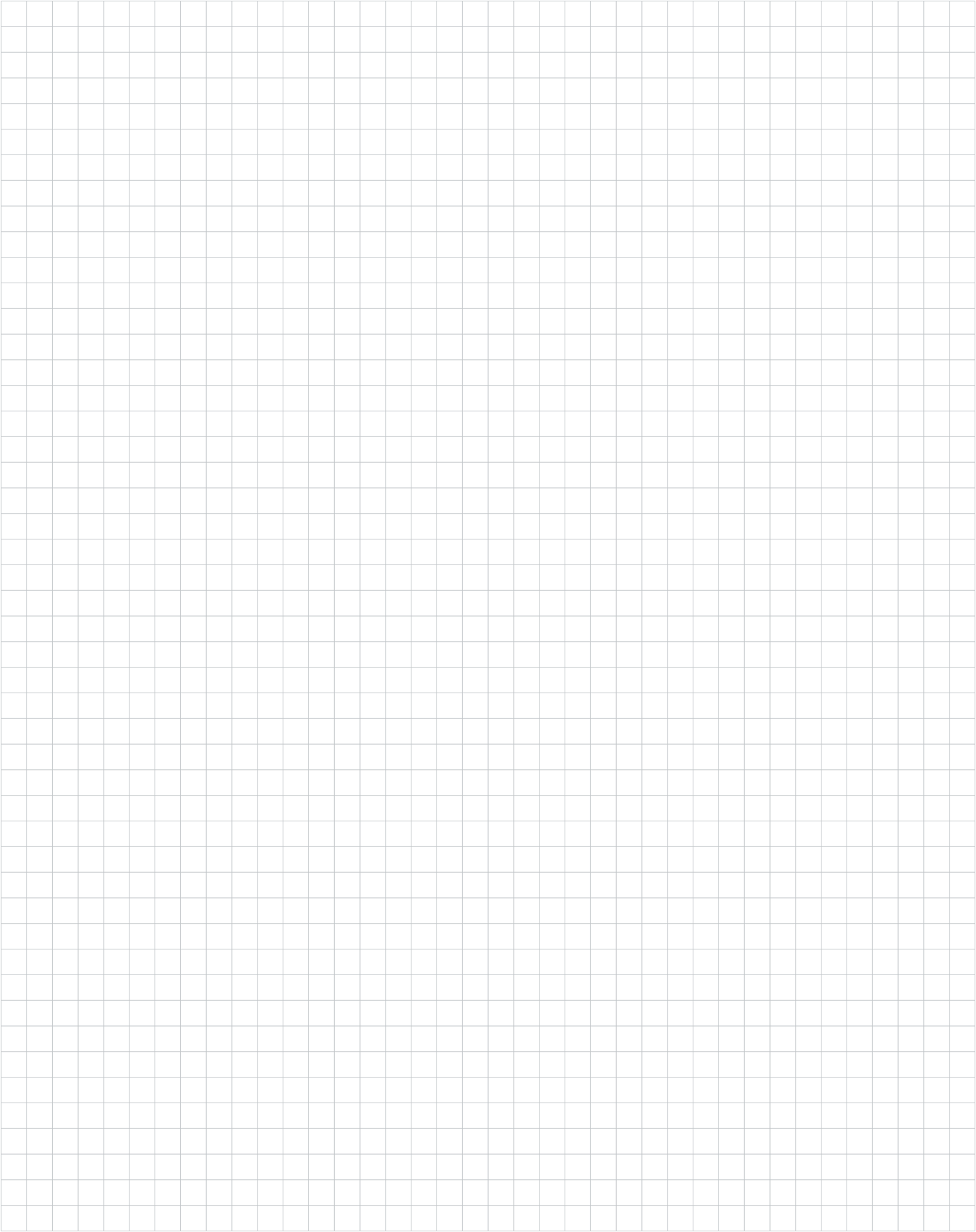
- CDM® – Complete Drive Management
- Condition monitoring
- Express assembly
- Endoscopy
- Energy management
- Spare parts service
- Pick-up and delivery service
- Inspection & maintenance
- Quick check
- Production support
- Remote service
- Repair
- Thermography
- 24h service hotline

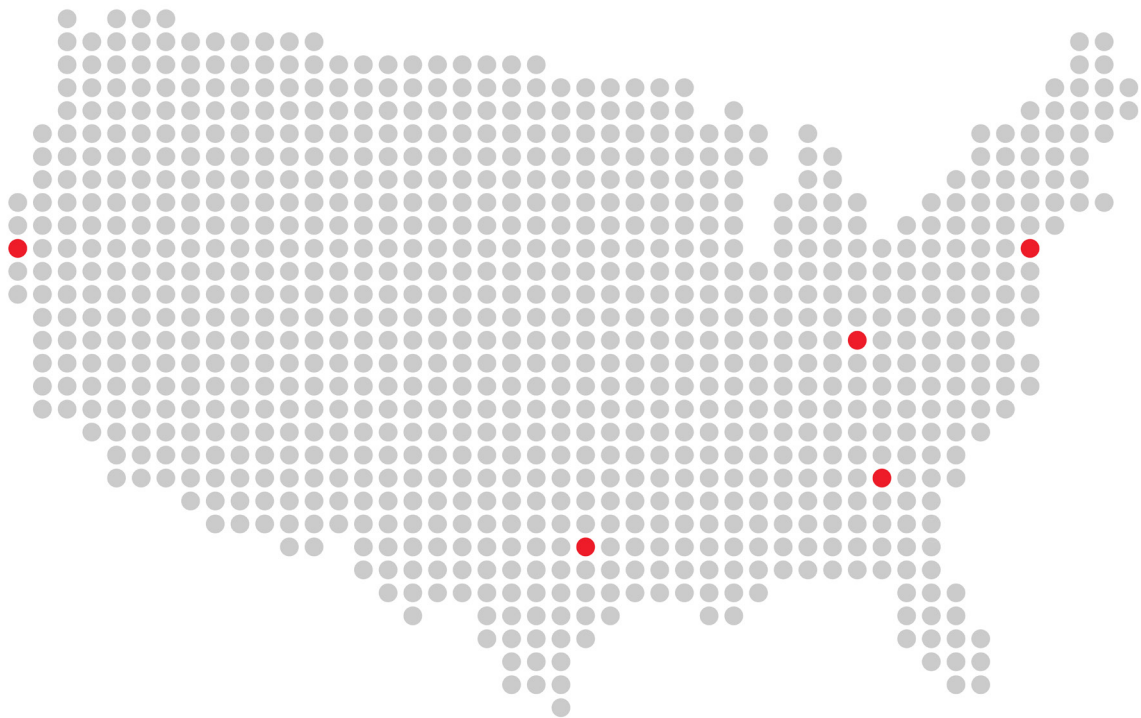
Modernization

- Retrofit



Notes





U.S. locations

U.S. Headquarters/Southeast Region

SEW-EURODRIVE, Inc.
220 Finch Road
Wellford, SC 29385
P: (864) 439-7537
cslyman@seweurodrive.com

Southwest Region

SEW-EURODRIVE, Inc.
202 W. Danieldale Rd.
DeSoto, TX 75115
P: (214) 330-4824
csdallas@seweurodrive.com

Western Region

SEW-EURODRIVE, Inc.
30599 San Antonio St.
Hayward, CA 94544
P: (510) 487-3560
cshayward@seweurodrive.com

Midwest Region

SEW-EURODRIVE, Inc.
2001 West Main St.
Troy, OH 45373
P: (937) 335-0036
cstroy@seweurodrive.com

Northeast Region

SEW-EURODRIVE, Inc.
2107 High Hill Rd.
Bridgeport, NJ 08014
P: (856) 467-2277
csbridgeport@seweurodrive.com

Heavy Industry Gearing

SEW-EURODRIVE, Inc.
148 Finch Rd.
Wellford, SC 29385
P: (864) 439-8792
igssorders@seweurodrive.com