



sensors
motion

**CUSTOMER-SPECIFIC
SENSORS AND MECHATRONICS**

THE PARTNER EBE sensors + motion

COMPETENCE CENTER FOR SENSOR AND ACTUATOR TECHNOLOGY

First-class brand manufacturers choose EBE as their OEM partner for customer-specific sensors and mechatronics. The reasons:

- **Competitive Edge:** By means of the intelligent integration of sensor and mechatronics EBE customers secure a clear competitive edge.
- **Unlimited Opportunities:** Household, mobility, medical - these are some of the areas in which EBE developments measure and switch. The fields of application are almost unlimited.
- **Customer Proximity:** Competent developers, designers and production staff are committed to customers' projects. In case of any questions they are only a phone call away.
- **Inhouse Manufacturing:** EBE sensors + motion produces largely at own locations in Germany. In this way customer requirements can be implemented flexibly and fast.
- **Owner-Managed, Independent:** As an independent medium-sized company EBE sensors + motion focuses on customer benefits. You can rely on EBE 100%.
- **Embedded Quality:** Process-oriented quality management ensures that the customer-specific products work for a lifetime.



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APPLIANCES



DOORS OPEN SMARTLY, SENSORS SEE MORE

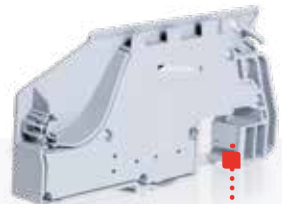
The coffee machine signals automatically when it is running out of coffee beans. Dishwashers open by themselves after the work is done.

A huge variety of sensors and opening modules from EBE bring new comfort into the household. They pave the way to handle-less kitchens and energy-saving automation. Renowned large-scale appliance manufacturers rely on smart technology from EBE.

Longevity is a main feature of the EBE modules. They resist temperature and humidity fluctuations. After countless operating cycles they measure and control as reliably as on the first day.



**DOOR OPENING
MODULE FOR
REFRIGERATORS**



**DOOR OPENING MODULE
FOR DISHWASHERS,
UNLOCKING DEVICE**



**CAPACITIVE LEVEL
SENSOR**



SAFETY IN PRODUCTION

ROBUST MEASURING, CONTROL, SWITCHING

By means of the robust assemblies for the human-machine-interface from EBE mechanical engineers develop smart and safe automation solutions.

The increasing degree of automation requires that production systems are becoming more intelligent, efficient, safe and reliable.

The contribution of EBE consists in the development and manufacturing of application specific sensors and assemblies for the human-machine-interface. These include pressure and position sensors as well as modifiable switches, encoders and actuating solenoids.

They guarantee lasting precise measuring, control and switching in rough industrial environments.



PUSH SOLENOID WITH DUST PROTECTION CAP ON THE PLUNGER FOR APPLICATIONS IN ROBUST ENVIRONMENTS

MOBILITY

STABLE ON THE ROAD

USEFUL HELPERS IN AND FOR THE VEHICLE

Dust, vibrations and splashes. Heat and cold. Vehicles are subject to considerable stress. Sensors and actuators from EBE take it all.

Sensor and actuator technology from EBE help vehicles move in a safe, stable and controlled way. They protect commercial vehicles, agricultural and construction machines from overloading. They work wear-free in the heavy-duty range. They provide electric vehicles with comfort and intelligence.

The technology portfolio of EBE offers solutions for many mobility applications.



**LONG-LIVED ENCODER WITH
PUSH BUTTON FUNCTION**



FLEXIBLE CODING SWITCH



**MINIATURE CODING SWITCH
WITH WATERPROOF AXLE
BEARINGS AND HOUSINGS**

FROM THE EBE PORTFOLIO:

- **Level measurement of different liquids**
- **Measuring of linear positions and rotary angle**
- **Switches, buttons, encoders for heavy duty and special applications**

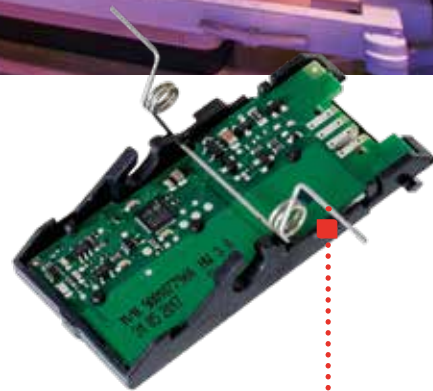


SAFETY FOR PATIENT

STERILE AND PRECISE MONITORING

Is the infusion working properly? How can analysis processes be automated? EBE provides answers.

Manufacturers of medical and laboratory technology trust EBE sensors + motion. As a reliable OEM partner with sound experience EBE develops the customer-specific sensor and actuator system. Solutions: Position monitoring of medical devices. Or: contactless, sterile, precise level and fluid monitoring. Suitable for dialysis, infusions, dosing, analytics and many other applications.



**CAPACITIVE LEVEL
SENSOR**

LEVEL SENSORS



LOOKING THROUGH THE HOUSING

CAPACITIVE SENSOR SYSTEMS FOR MANY PURPOSES

Wherever fluids or bulk goods must be monitored level sensors from EBE develop surprising capabilities.

Capacitive multi-channel sensors from EBE look through housings and tanks. Touchless and with high resolution they measure filling levels in spite of drops, condensate or biofilm in the tank. Fields of application: Appliances, production plants, vehicles, medical engineering, laboratory.

Drawing on the basic technologies capaTEC® and corTEC® EBE develops customer-specific level sensors.



**LOOKS THROUGH WALLS:
CAPACITIVE LEVEL SENSOR**

capaTEC®

corTEC®



INTELLIGENT IN PUSH AND PULL

DOORS OPEN IN NEW WAYS

Spoilt by handleless kitchens. A light touch and the refrigerator opens. And what about your doors?

Push to open or pull to open. A small gesture and the appliance door opens. This comfort is always made possible by smart door opening modules with integrated sensors. In this way EBE offers new options for household, catering and further fields of application.

Door opening modules are always developed specific to customer and project. Mechanics, sensors, electronics, software and the housing are customized for the planned appliance and produced in large scale.



**DETECTS THE USER'S
OPENING REQUEST:
INTELLIGENT DOOR
OPENING MODULE**

SWITCHES, BUTTONS & ENCODERS



SIMPLY INDESTRUCTIBLE

RELIABLE AND DURABLE OPERATION OF APPLIANCES & MACHINES

Top performance even under adverse conditions. The multi-functional switches, buttons and encoders from EBE are dependable.

They are permanently resistant to heat, cold, humidity and vibration. Every day they ensure the infallible control of appliances, machines, plants and commercial vehicles. For a whole machine life.

The product range includes different types of convenient electro-mechanic encoders. All can be customized to specific requirements. Among others the following features can be modified: Latching force, latching number, shafts, switching type, wiring.



**CBS CODE SWITCH
WITH 1 – 3 WAFERS**





THE FORCE OF MAGNETISM

SWITCHING, MOVING AND LOCKING

Strong, fast, robust. Solenoids from EBE sensors + motion are true all-rounders.

The solenoids provide for precise and safe actuating processes in demanding applications. They can be used in a variety of ways, among other things in industry and automation, mobility and medical engineering.

The range of modifiable designs, functions and technologies offers the perfect solenoid for every application. Thanks to series production available at a favorable price.

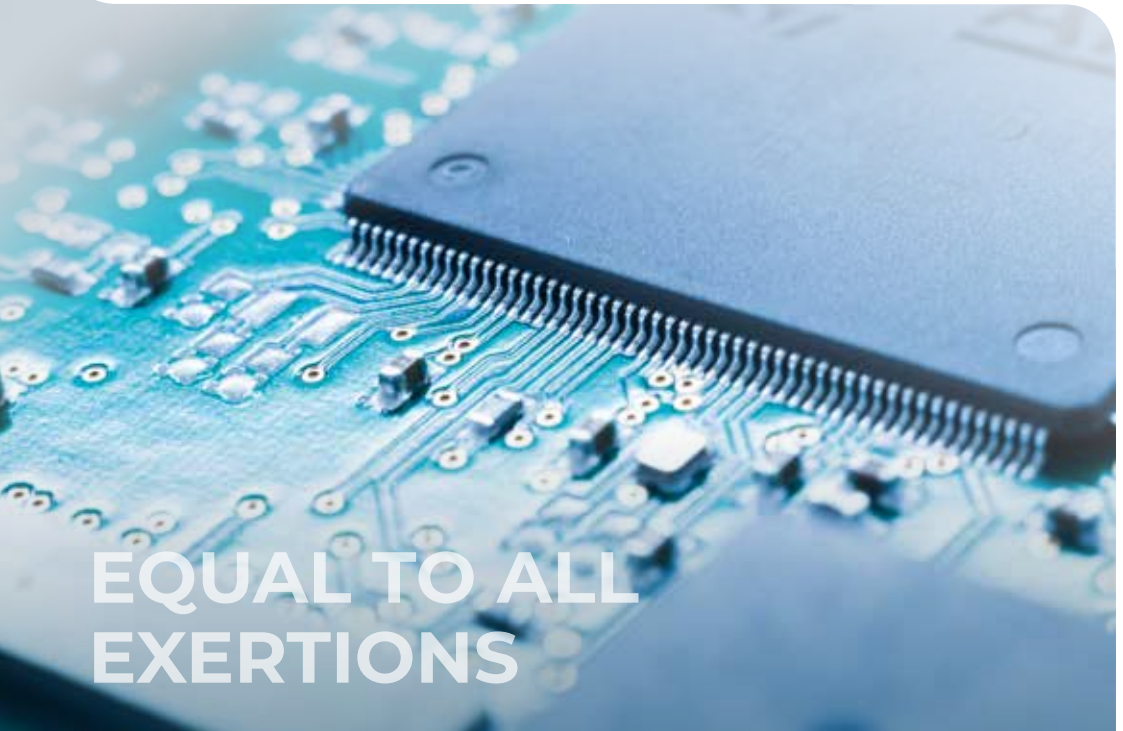


PUSH AND PULL SOLENOID IN A LARGE VARIETY OF TYPES



FLAPPER SOLENOID WITH INTEGRATED LEVER ACTION

PRESSURE SENSORS



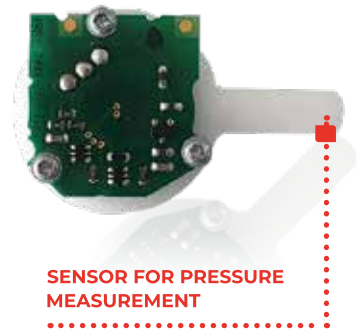
EQUAL TO ALL EXERTIONS

PRECISE MEASURING IN TINY SPACES

Reliable and robust pressure measuring. Inductive pressure sensors from EBE meet special requirements.

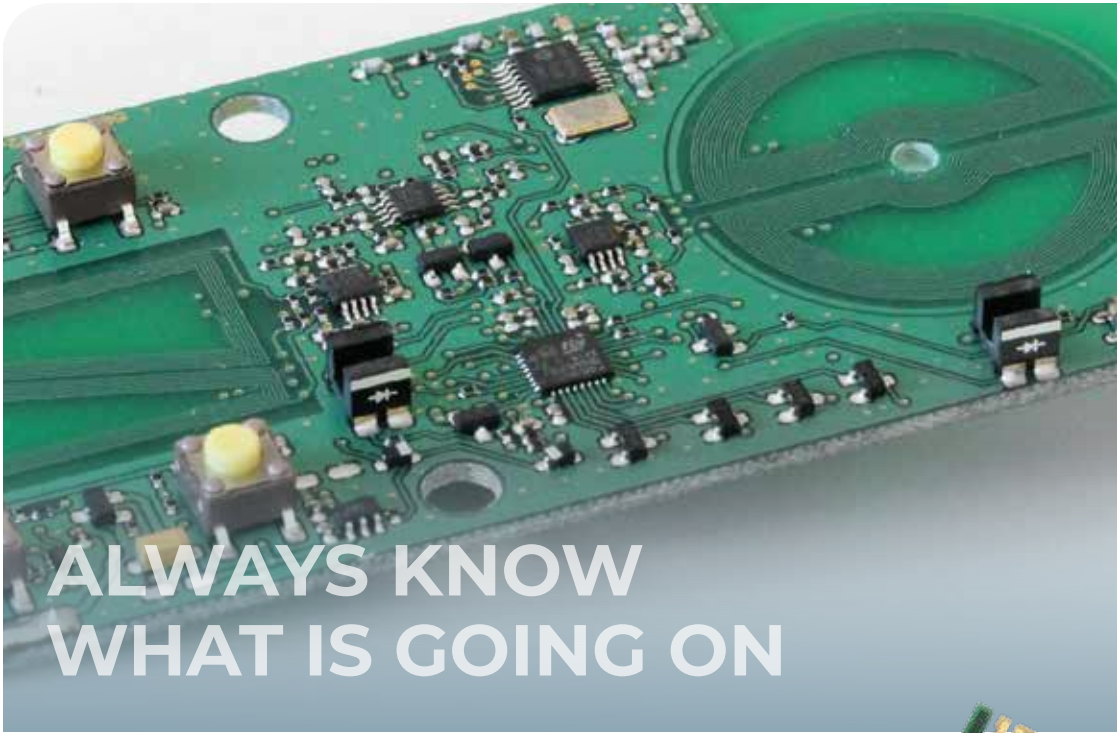
Pressure sensors from EBE are based on the induTEC® technology platform. They work according to the inductive principle and measure differential pressures in a variety of applications. They are precise, reliable and maintenance-free even under difficult environmental conditions.

The coil structure can be realized as PCB inductance. Therefore, it is possible to save space and costs by integrating it on the PCB.



SENSOR FOR PRESSURE MEASUREMENT

induTEC®



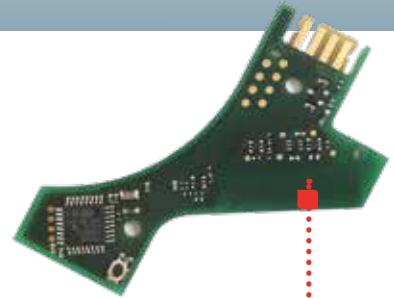
ALWAYS KNOW WHAT IS GOING ON

DISTANCE AND POSITION PRECISELY DETECTED

Extremely precise to a micrometer and the tenth of a degree. Inductive position sensors from EBE always have distances, angle and position under control.

They combine robust design and unlimited customization options with low costs. But what is their true strength?

Position sensors from EBE work contactless. Sensor and measured object need no physical or optical connection. This allows a variety of applications. Even in rough industrial environments or commercial vehicles the inductive sensor technology unerringly detects distances and angles.



**POSITION SENSOR FOR
ROUGH ENVIRONMENTS**

induTEC®

SENSOR TECHNOLOGIES



INNOVATION MULTIPLIED BY THREE

ADAPTIVE PLATFORMS

Perfectly understand what's going on. And show a smart reaction. This is made possible by the three proven sensor technologies from EBE.

Capacitive, inductive and high-frequency measurement with a technological edge. The three sensor platforms offer this advantage. They measure spatial positions, force, pressure, torque, elongation, filling levels and further values unerringly and in high resolution.

Their robustness makes them indispensable components in a variety of applications. No matter whether in appliances, industrial plants, vehicles or medical engineering. As an OEM partner EBE offers the best solution for each scenario.

THE BENEFITS:

- **Project specific development and manufacturing**
- **Easy connection to existing interfaces**
- **Reliable thanks to proven platforms**
- **Development and manufacturing from one source**



capaTEC®

**THE CAPACITIVE, PRECISE AND
ROBUST MEASUREMENT TECHNOLOGY**

High-resolution capacitive sensors based on capaTEC® measure filling level, distance and many other parameters. They function contactless, touchless and maintenance-free.



induTEC®

**THE INDUCTIVE MEASUREMENT SYSTEM -
PRECISE IN ANY POSITION**

Path, distance, angle: induTEC® sensors take over position measurement. Due to robust design and good integration capacity they are ideally suited for serial use.

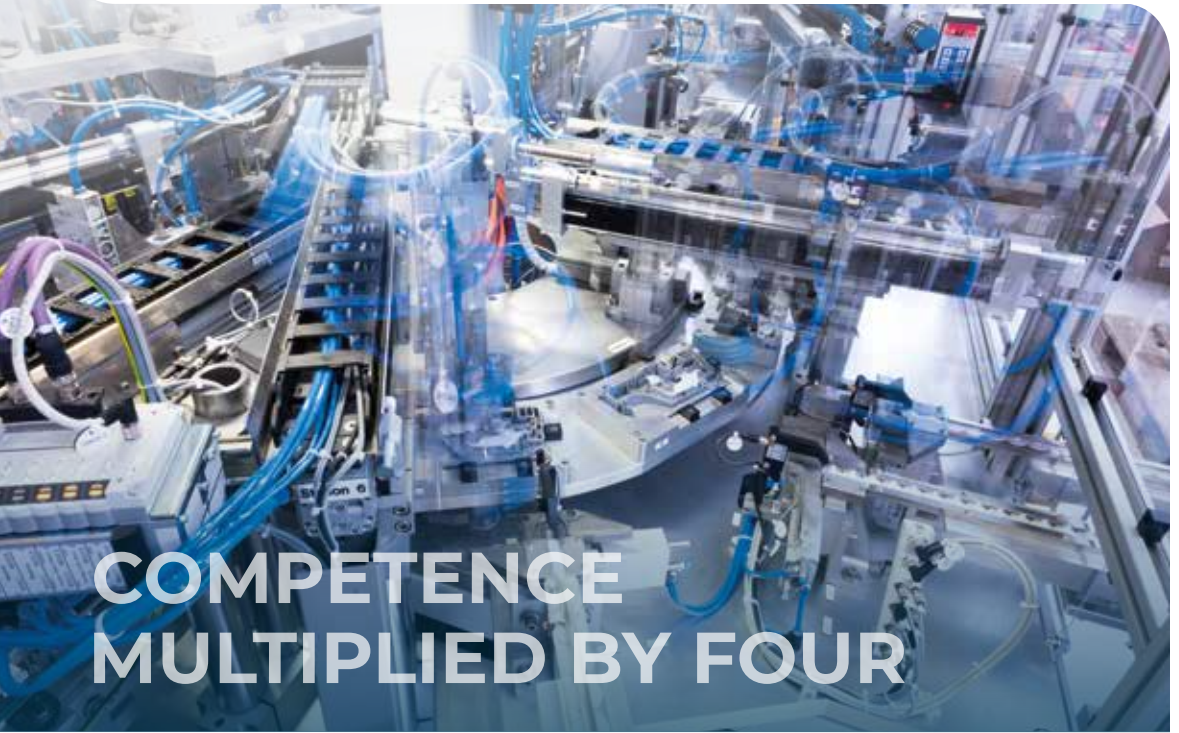


corTEC®

**HIGH-FREQUENCY MEASUREMENT
WITH EXTENDED CAPABILITIES**

Level sensors and fluid sensors based on the corTEC® technology measure filling levels of water-like or strongly adhesive media. They can clearly distinguish the liquid column from the film on the tank wall.

MECHATRONICS



COMPETENCE MULTIPLIED BY FOUR

ENGINEERING FROM ONE SOURCE

A perfect product needs many building blocks. EBE develops them all and puts them together. From electronics to mechanics.

The OEM partner EBE sensors + motion complements the customer-specific development of sensors by a complete mechatronics development. Experienced engineers and technicians cover the areas of electronics, software, actuator technology, magnetics and mechanics.

Our bundled competence in the development center in Leinfelden-Echterdingen allows for a 100% customized implementation of customer requirements. The interdisciplinary and agile teams always bear functionality, installation space, quality and costs in mind.



ELECTRONICS

**ALL FACTORS FIT
FUNCTION, QUALITY, PRICE**

Function, manufacturing, quality and price of the PCBs and sensor electronics definitely match the planned product and application.



SOFTWARE

**MAKING SURE THAT SENSORS
CALCULATE CORRECTLY UNDER ALL
CIRCUMSTANCES**

Software, firmware and algorithms harmonize with the desired interfaces, protocols, functions and application scenarios.



MAGNETICS

**CORE COMPETENCE IN
SOLENOID DESIGN**

EBE masters magnetics unlike almost any other. The company develops and manufactures, individually applicable actuating solenoids.



MECHANICS

**FROM IDEA VIA 3D-CAD
TO SERIES PRODUCTION**

Our mechanical design completely develops housings and mechatronic solutions. From 3D CAD-design via prototyping to series maturity.

CUSTOMIZED SOLUTIONS



YOUR PROJECT ALONE TAKES CENTER STAGE

THE WAY TO PERFECT DESIGN AND OPTIMUM FUNCTION

Why reinvent the wheel? EBE sensors + motion knows proven and adaptable solutions for your project as well.

With sensors and drives from EBE technical challenges can be mastered more easily. Especially if precision and reliability are required. The engineers at EBE totally devote themselves to the customer project and design individual solutions. They use best practices from their wealth of experience.

The way to a product suitable for series production can be short. Access to proven basic technologies simplifies the process. Existing solutions can be modified effectively and fast for new tasks.

FROM YOUR IDEA TO YOUR FINISHED PRODUCT

As an OEM partner EBE excels by sound know-how in engineering. The team successfully implements the project goals in a structured process:

- 1 The customer requirements:** Experienced engineers at EBE carry out a requirement analysis together with the customer. It shows how sensors and actuators are supposed to react in real life.
- 2 The development process begins:** An interdisciplinary project team develops the best possible solution. It uses available basic technologies from EBE to save costs and time.
- 3 Quality assurance:** EBE continuously checks the performance features of the system. This includes tests under extreme conditions. EBE plans and produces test benches in its own development center.
- 4 Individually coordinated production:** Before the small or large series is launched production plants and quality inspection are prepared for the customer-specific manufacturing.
- 5 Finally the perfect product:** Every effort has paid off. The customer holds a tailor-made innovative solution in their hands.

EMS SERVICE



YOUR PCBs IN GOOD HANDS

ELECTRONIC MANUFACTURING SERVICES FROM PROTOTYPE TO LARGE SERIES

The EMS experts at EBE sensors + motion take over the assembly and mounting of electronic components for premium brands.

Manufacture samples for development. Assemble small or large batches. Deliver just-in-time to the line. Or procure and store exclusive electronics parts. The Electronic Manufacturing Team at the EBE location Tettnang manages each job around PCBs.

As an independent service provider EBE offers experienced SMT and THT assembly in-house. In addition, the competent team manufactures not only sensor, actuator and mechatronics components but also complete assemblies and devices.



ENGINEERING

WELL LOOKED AFTER FROM THE START

Fixed contact persons accompany customers through the whole project. They take responsibility for development, production plan and costs.



MATERIAL LOGISTICS

SUPPLY CHAIN MANAGEMENT COMPLETE

EBE surveys the complete value chain. Procurement, production, storage and distribution interlock.



PRODUCTION

ALL FROM ONE SOURCE

Assembling, wiring, mounting, testing. This is manufacturing from one source. EBE guarantees efficient, cost-optimized manufacturing.



QUALITY

THREE DIMENSIONAL CHECK

When it comes to quality assurance the EMS plant counts on 100% safety. Among other things automatic 3D-inspection is available.

QUALITY



**GUARANTEED
MADE IN GERMANY**

UNCONDITIONALLY COMMITTED TO TRUE QUALITY AWARENESS

Sensor and mechatronics products from EBE remain fail-safe and faultless for many years. This has its reasons.

Their points of use keep challenging the EBE products - no matter if in appliances or commercial vehicles, production facilities or medical equipment. Comprehensive quality assurance ensures that they work reliably for an entire lifetime.

All employees at the three EBE locations feel unconditionally committed to consistent process-oriented quality management. Thus EBE guarantees that the requirements from customers, developers and suppliers are met at any time.



CERTIFIED

CERTIFIED

EBE regularly produces at its own plants in Leinfeld-Echterdingen, Rednitzhembach and Tettngang. They are certified without exception.

- The processes within the company are certified after ISO 9001
- Many years of experience in the production of components in the medical technology according to ISO 13485
- In the automotive industry experience in the production of components according to IATF 16949

**QUALITY MADE
IN GERMANY**

www.ebe.de

Headquarters and engineering center:

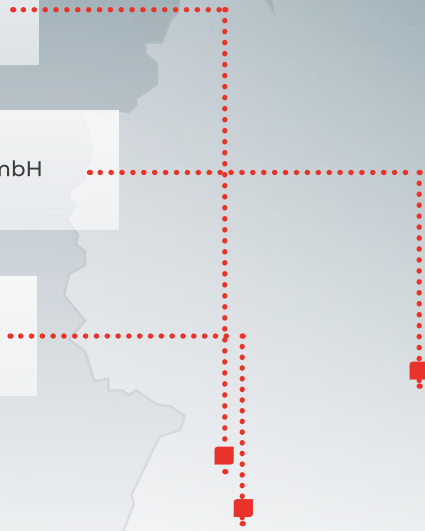
EBE Elektro-Bau-Elemente GmbH
Leinfelden-Echterdingen

Production:

EBE Elektro-Bau-Elemente GmbH
Rednitzhembach

Factory offering EMS services:

EBE Elektro-Bau-Elemente GmbH
Tett nang



EBE 1022 ENG500A Technical advances, errors and omissions excluded

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