



# LAMBERT//dynamics

**BATTERY**system

**THE CONSTRUCTION KIT  
FOR YOUR BATTERY PRODUCTION**

**FASCINATION FOR AUTOMATION**

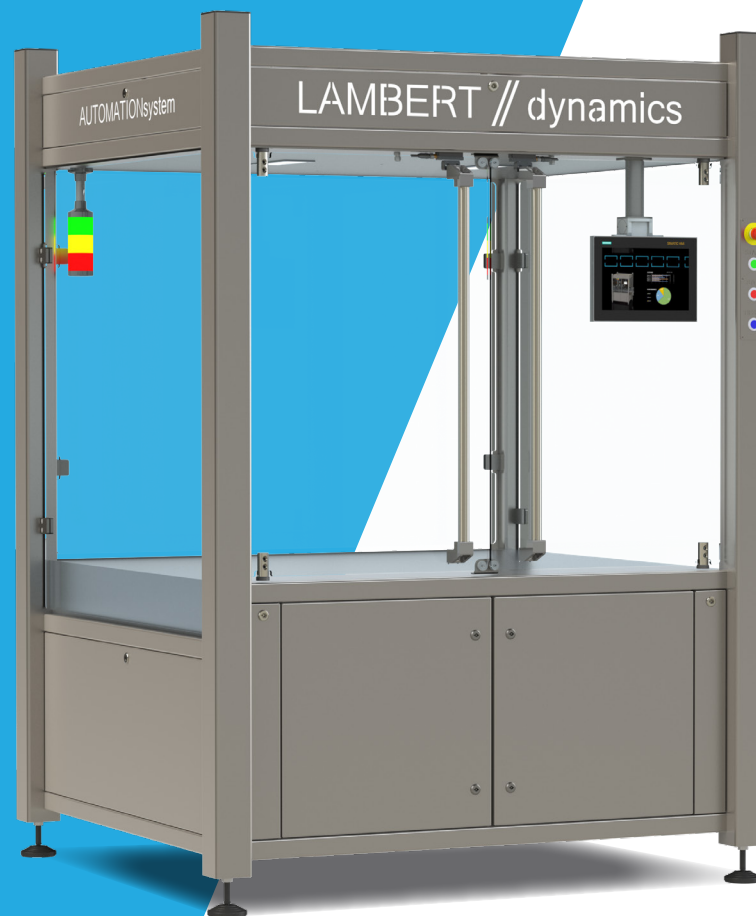
[www.lambert-dynamics.de](http://www.lambert-dynamics.de)

# DESIGN YOUR BATTERY PRODUCTION

LIGHT LEVEL

OPERATION LEVEL

SUPPLY LEVEL



DETAILS

3

## BATTERYsystem

### APPLICATIONS

- HIGH RATE DISCHARGE
- HIGH VOLATILE LEAKAGE
- AIR PRESSURE LEAKAGE
- TERMINAL GEOMETRY
- OPEN CIRCUIT VOLTAGE
- SHORT CIRCUIT
- RESISTANCE
- DEGASSING BOTTLE
- PLUG INSERTION
- TERMINAL BRUSHING
- TERMINAL GREASING
- MARKING
- LABELLING
- TERMINAL CAP
- ACID FILLING
- ACID LEVELLING
- ACID REFILLING
- ACID DUMPING
- ACID LEVEL

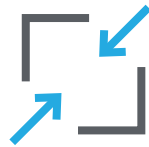
### FEATURES

With your decision for the **BATTERY**systems you get access to a flexible construction kit for the design of your battery production. No matter which process step has to be implemented, the machines are based on identical components. This reduces production costs, storage costs and variants of spare parts.

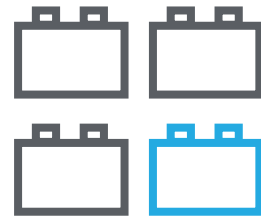
The intuitive operating concept through an ICON-based visualisation enables your employees easy set up, adjustments, change over and it enables to learn quickly new process steps when expanding your **BATTERY**systems.

Virtual maintenance documents, documentation and explanatory videos for set-up processes and maintenance work round off the overall concept and reduce unnecessary downtime.

## FACTS



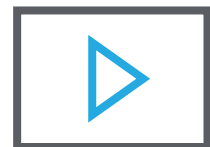
**30% SPACE  
REDUCTION**



**UP TO 30% MORE  
CAPACITY**



**BatteryExpertAnalyzer  
INTERFACE**



**OPERATING  
TUTORIAL VIDEO**



**VIRTUAL MAINTENANCE  
GUIDE & PREDICTIVE  
MAINTENANCE SCOUT**



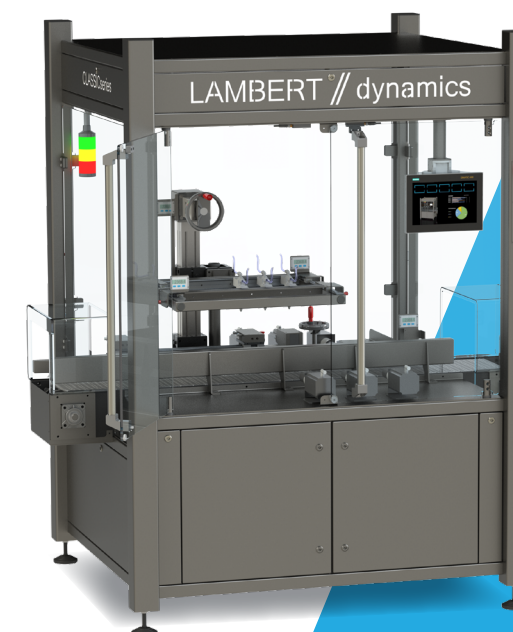
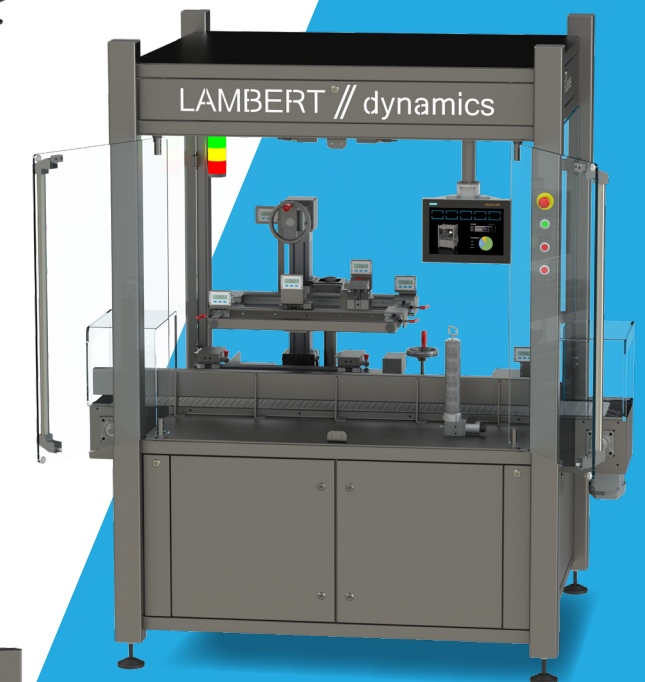
**LOW ENERGY  
CONSUMPTION**

## SERVICE

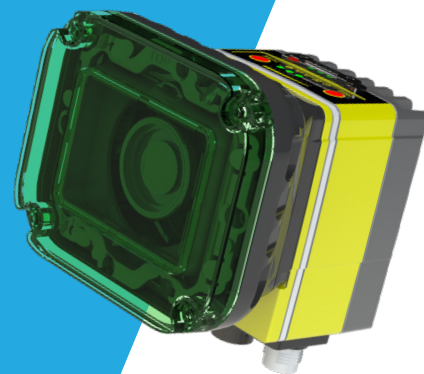
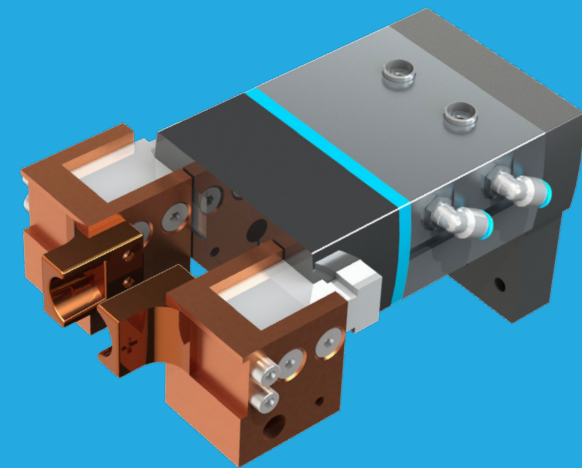
We are glad to provide you support when you need help of a specialist. We support you via telephone or connect to you via remote control using a secure data connection. To provide you with the best service, we are working with service partners around the world.

## SPAREPARTS

We pay attention, that the design of our machines guarantees the lowest possible wear. Should it nevertheless be necessary to exchange spare parts, we promise you the fastest possible processing and shipping of the necessary components. In the future an online shop will also be available so that orders can be placed 24/7.



# CHOOSE YOUR PREFERRED APPLICATIONS



## ACID FILLING



### BENEFITS

- monitored and controlled by precision servo pumps
- precise volume filling, independent of plate stack tolerances and deviations during lid welding
- integrated acid buffer tank with flow control

Precision is essential when filling with acid. In order to guarantee an exact filling level in the battery, each cell is independently monitored and controlled by precision servo pumps. The machine design enables filling of almost all battery geometries by easy and fast changeover.

## ACID REFILLING

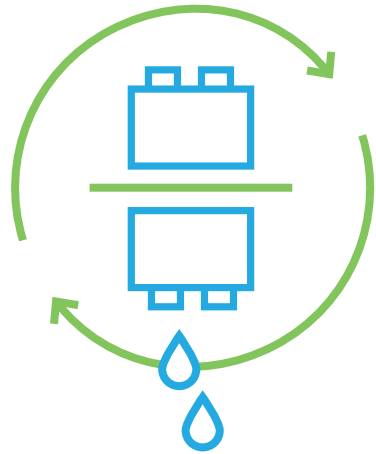


### BENEFITS

- monitored and controlled by fiber-optic sensors
- precise volume filling, independent of plate stack tolerances and deviations during lid welding
- integrated acid buffer tank with flow control

Precision is essential when filling with acid. In order to guarantee an exact filling level in the battery, each cell is independently monitored and controlled by fiber-optic sensors. The machine design enables refilling of almost all battery geometries by easy and fast changeover.

## ACID DUMPING



### BENEFITS

- smart HMI design for easy operating
- combined SPS & servo controlled 180° rotation
- shaking option and selectable dumping volume
- fully automatic self-cleaning with water

Complete or partial emptying of the batteries is possible through the SPS & servo controlled rotation system. It is also possible to shake the batteries if necessary for your production process. Full automatic cleaning system allows to reduce the maintenance time of the machine. The machine design enables drainage of almost all battery geometries by easy and fast changeover.

## DEGASSING BOTTLE



### BENEFITS

- automatic sorting of the degassing bottles
- precise insertion of the degassing bottles into the lid
- reliable monitoring of the process

The machine is designed for positioning the acid degassing bottles at the formation area. The acid degassing bottles are automatically sorted and precisely inserted into the lid. The machine design allows the processing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## PLUG INSERTION

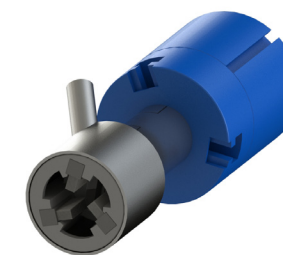


### BENEFITS

- automatic sorting of the plugs
- precise insertion of the plugs into the lid
- precise height control for quality monitoring

The machine is designed for inserting the plugs at the finishing area. The plugs are automatically sorted and precisely inserted into the lid. The machine design allows the processing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## TERMINAL BRUSHING



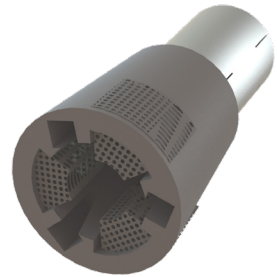
### BENEFITS

- soft brushes for perfect scratch free surfaces
- every terminal position possible
- integrated suction system for safe removal of lead dust

The machine is designed for terminal brushing at the finishing area. The brushing tool is mounted at the electric driven system. A vacuum cleaner connection is provided. The machine design allows the brushing of almost all battery geometries by easy and fast changeover. An optional automation kit with program management allows the changeover at a push of a button.



## TERMINAL GREASING

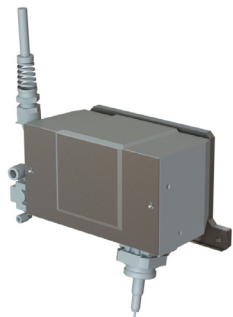


### BENEFITS

- easy to fill up the grease by cartridge system
- every terminal position possible
- perfect and smooth surface by using high flexible dispense rubber

The machine is designed for terminal greasing at the finishing area. The greasing tool is mounted on a special cylinder and is connected to a cartridge greasing pump. The machine design allows the greasing of almost all battery geometries by easy and fast changeover. An optional automation kit with program management allows the changeover at a push of a button.

## MARKING



### BENEFITS

- marking of terminal and lid possible
- every terminal position possible
- automatic date code for timestamp operating

Whether scribing, stylus marking, dot-peening, hot stamping or laser marking, with this machine almost all desired markings for a perfect finish can be applied. Depending on the requirements, different applicators can be added to the system. The machine design enables the marking of almost all battery geometries by simple and quick change.

## LABELLING



### BENEFITS

- various label sizes can be applied on all 4 sides and the lid
- additional stamp labels on top of pre-applied labels
- applicators can be adapted to match your existing labels

One of the last steps for the perfect finish of the batteries, are the brand labels. To apply them accurately, the batteries pass through this machine. Depending on the requirements, different applicators can be added to the system. The machine design allows almost all battery geometries to be labelled by easy and fast changeover.

## TERMINAL CAP

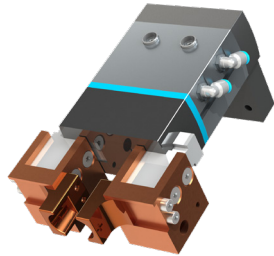


### BENEFITS

- setting of cone and flat caps
- easy changeover with fast exchanger tool
- easy emptying process of buffer system
- teach in mode for correct position

The machine is designed for terminal cap setting at the finishing area. You can choose between cone caps or flat caps with and without hook. The fast changeover tool at the robot enables an easy operating for different cap types. The different battery layouts are easy set up by teaching the position manually without calculating difficult X-Y-Z positions. The machine design allows almost all battery geometries by easy and fast changeover.

## HIGH RATE DISCHARGE

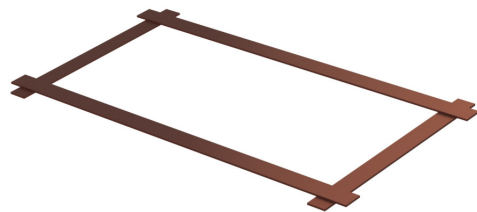


### BENEFITS

- parallel gripper with coned tool for optimal terminal contact
- every terminal position possible
- electronic test device of a German supplier

The machine is designed for high rate discharge test at the finishing area. The electronic test device will be connected to the test clamps of the system. The machine design allows the testing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## HIGH VOLTAGE LEAKAGE

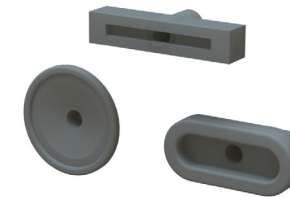


### BENEFITS

- optional testing of bottom
- circumferential inspection of the cover seam for precise error localization
- every terminal position possible
- electronic test device of a German supplier

The machine is designed for high voltage leakage test at the finishing area. The electronic test device is connected to the test bolt of the system. Copper bars ensure accurate leak detection at the battery lid. The machine design allows the testing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## AIR PRESSURE LEAKAGE

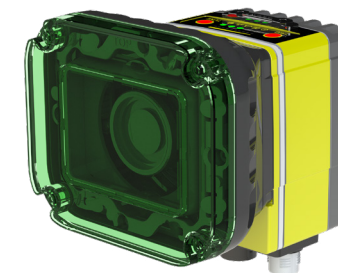


### BENEFITS

- rotating test head allows test at every test position
- every terminal position possible
- easy changeable test head sealing for different battery designs

The machine is designed for air leak test at the finishing. The electronic test device is connected to the test heads of the system. The machine design allows the testing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## TERMINAL GEOMETRY



### BENEFITS

- contactless measuring process while the batteries run through the machine
- every terminal position possible
- high-precision measuring process

To ensure the dimensional accuracy in diameter and height of the terminal after welding, the battery passes through this test machine. The non-contact measurement process with a 3D scanner continues as the batteries run through the machine. The machine design allows the testing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## OPEN CIRCUIT VOLTAGE



### BENEFITS

- terminal-preserving contact system
- every terminal position possible
- high-resolution measurement electronics

The machine is designed for open-circuit-voltage test at the finishing area. The electronic test device will be connected to the test bolts of the system. The machine design allows the testing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## SHORT CIRCUIT

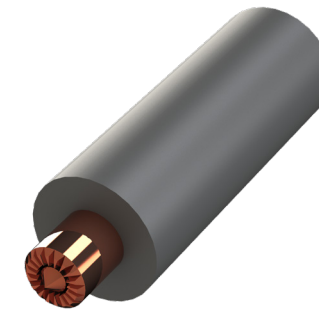


### BENEFITS

- terminal-preserving contact system
- every terminal position possible
- high-resolution measurement electronics

To check the completed short-circuit after the partition intercell welding, the batteries pass through this test machine. Batteries that should fail quality control (i.e. due to lead scraps in the element group or missed/cracked separators) will be detected that way. The machine design allows the testing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## RESISTANCE

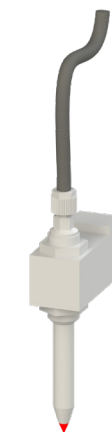


### BENEFITS

- two circuit test head
- High Precision, High Resolution, Quick Response
- high-class measurement electronics

The machine is designed for voltage and internal resistance measurement of the cells at the finishing area. The electronic test device will be connected to the test bolts of the system. The machine design allows the testing of almost all battery geometries. The working process is performed by a robot and the automated changeover with program management is done at a push of a button.

## ACID LEVEL



### BENEFITS

- exact measurement of each individual cell
- level measurement independent of height deviations of lid position
- high-quality measurement electronics

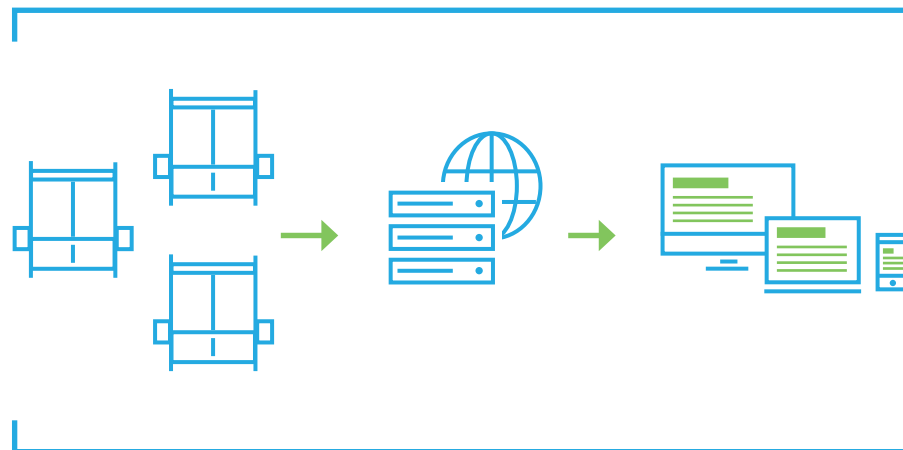
The machine is designed for measuring the acid level of the cells at the formation area. The probes are connected to the high-precision measuring system. The machine design allows the testing of almost all battery geometries by easy and fast changeover. An optional automation kit with program management allows the changeover at a push of a button.



# BatteryExpert Analyzer

## PRODUCTION MACHINES AND PROCESS DATA STORAGE SOFTWARE FROM A SINGLE SOURCE.

Rely on **BEA** of LAMBERT//dynamics and benefit from many years of experience in the design of user interfaces and hardware design.



Save and visualize your process data on a supplied server or cloud application. Use your process data to improve your products and processes. Perfect transparency of test results enable work of the highest level and set you apart from the competition.

Offer your customer a complete history of your production process.

# SMARTcontrol

## THE MACHINE ON YOUR WRIST



New touch for HMI – the challenges of networked production require innovative solutions. With a smartwatch app, machine visualization becomes mobile. Truly mobile. Based on middleware (Manufacturing Service Bus), LAMBERT//dynamics realizes the most intelligent interface for your machines.

Create a location-independent monitoring option for your operators.

With modern smartwatches a solid and efficient interface is available. Ultra-mobile and intuitive. The biggest advantage: your operator is up to date. Everywhere – hands free.

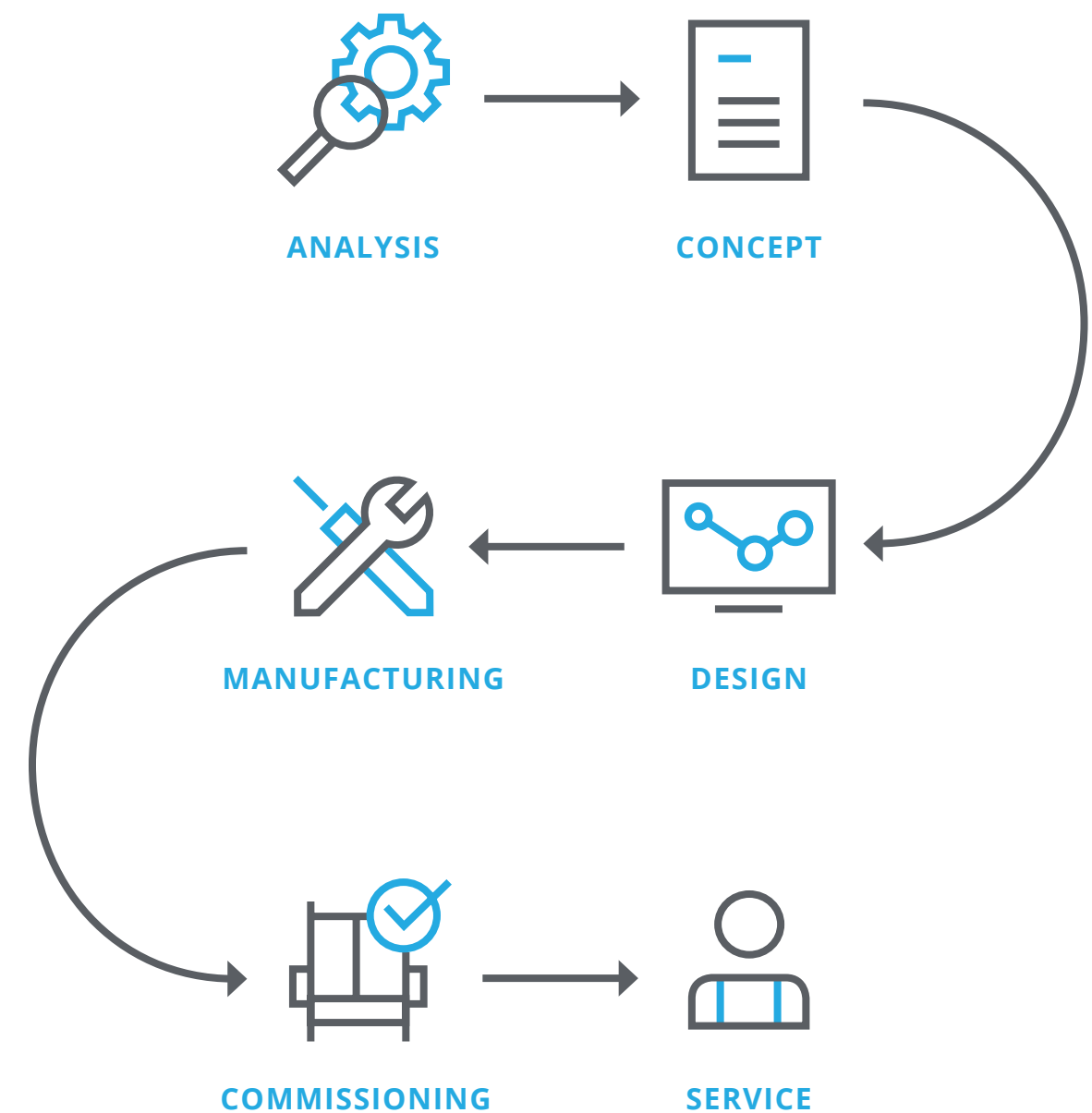
# Our Workflow

## WE SUPPORT YOU ON THE WAY FROM THE IDEA TO THE FINAL SOLUTION

Based on our experience we optimized and automated the process from the analyzing of the problem all the way over the design, mounting, installation to the service.

After a site visit and the detailed recording your ideas and process parameter, we work out a concept, go on with a detailed design and manufacture your individual system. Our team is at your disposal of course also after commissioning.

We are glad to inform you about the details of our workflow in a personal conversation.



# Our Philosophy

**WE ARE YOUR SOLUTION PARTNER.  
CREATE YOUR FUTURE NOW!**

It's only possible to work successfully, if you have a strong partner at your side. We combine forward-looking solutions with many years of experience at the automation sector. Trust on our experience in the battery industry and work with us to develop your production of tomorrow.

We do not want to be a simple supplier. We want to build up a partnership with you and develop new solutions and goals.

Choose your right partner.

HEADQUARTER  
in Taunusstein,  
Germany



# Our Partner

**A INNOVATIVE NETWORK.  
USE THE KNOW HOW OF EACH INDIVIDUAL.**

**OMRON**

**SICK**  
Sensor Intelligence.

**FESTO**

**piab**

**igus®**

**KUKA**

**Leuze**

**KEYENCE**

**ROBOTUNITS®**  
DER AUTOMATISIERUNGSBAUKASTEN

**LinMot®**

INFORMATION

# Contact Us

**YOU ARE PLANNING A PROJECT  
OR NEED MORE INFORMATION?**

Send us a short message or give us a call.  
We gladly support you with our know-how.

We are happy to hear from you!

LAMBERT//dynamics

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