

Diehl Controls
Project new Production Plant in
Brasov
Groundbreaking Event 5th Sept.
Brasov

**FEEL THE DNA
OF ELECTRONICS**

Christoph Ubach

Wangen, 05.09.2023

01 | Diehl Group at a Glance

02 | Diehl Controls

03 | New Production Plant in Brasov

01 | Diehl Group

Diehl - Global Player with Tradition

Key figures Diehl Group 2022 (rounded)



EMPLOYEES



17,000

FAMILY-OWNED



Since 1902

REVENUE



3,500 Mio. €

R&D EXPENSES



350 Mio. €

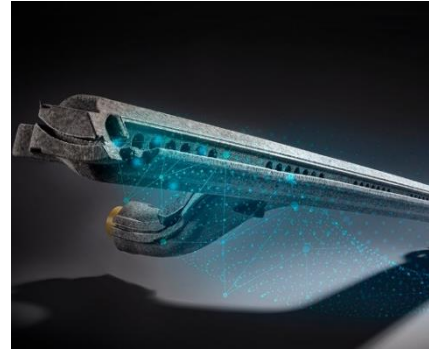
CAPEX



200 Mio. €

Diehl Group Corporate Divisions

Diehl Controls is integral part of the Diehl Group



DIEHL Metall

Rods and tubes
Synchronizer rings
Stamped parts



880 Mio. €



3,000

DIEHL Controls

Appliance solutions
HVAC/R solutions
Industrial electronics

560 Mio. €

3,700

DIEHL Defence

Guided missiles
Ammunition
Defence systems

800 Mio. €

3,100

DIEHL Aviation

Cabin interiors
Aircraft systems
Control systems

890 Mio. €

4,500

DIEHL Metering

Water, gas, electricity,
thermal energy meters,
Metering systems

360 Mio. €

1,800

02 | Diehl Controls

Headquarter Diehl Controls

Wangen im Allgäu



Wangen has around 27.000 inhabitants and is located between the mountains and lake Constance

Diehl Controls History

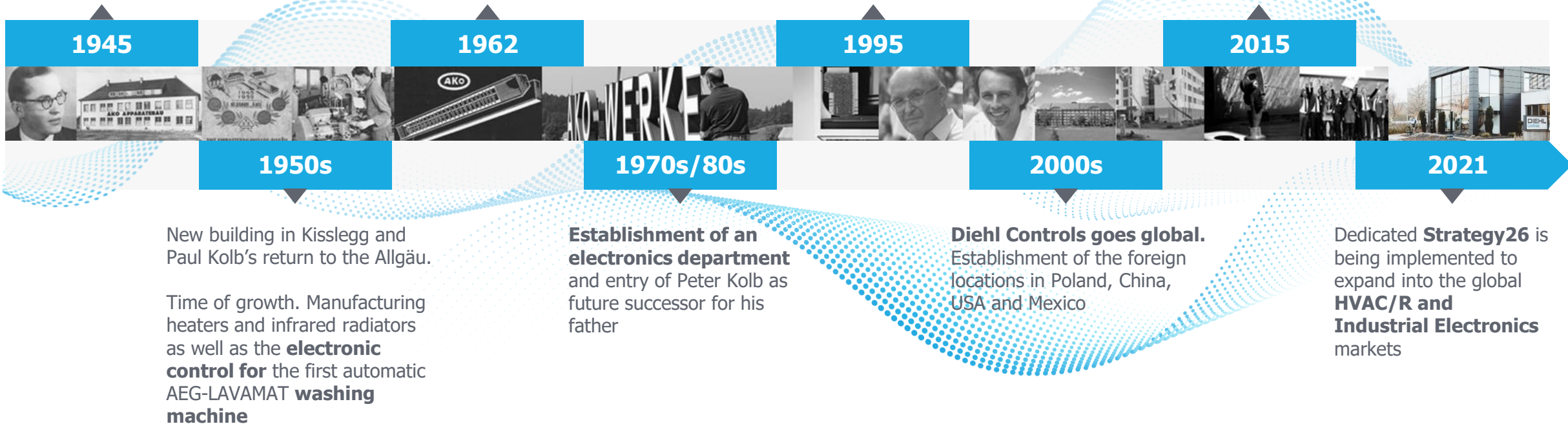
Electronics: within our DNA since the beginning

Patenting of an electric fencer by Paul Kolb (1942);
Foundation of „Apparatebau Kolb (AKO)“

Erection of the new **factory in Wangen**. In 1967 it became headquarters of AKO

AKO becomes part of the Nuremberg based **Diehl Group**. Beginning of dedicated Inverter development

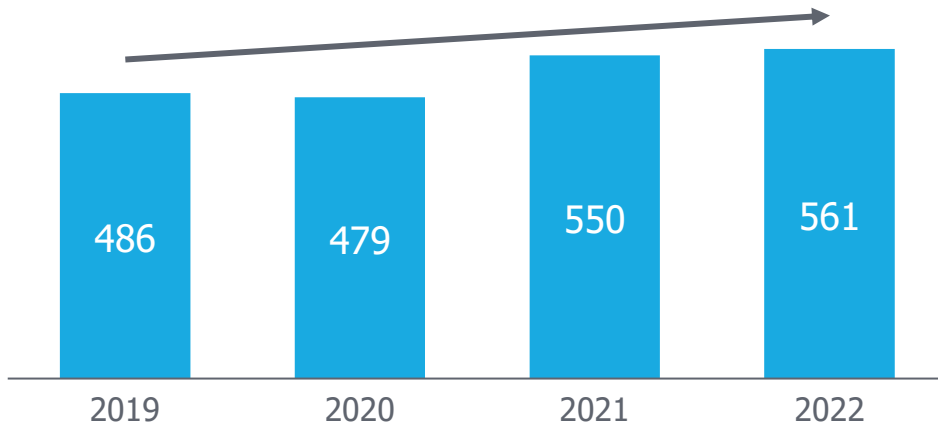
Factory of the Year 2015
In recognition of the continuous improvement of all processes Diehl Controls receives the Factory of the Year award



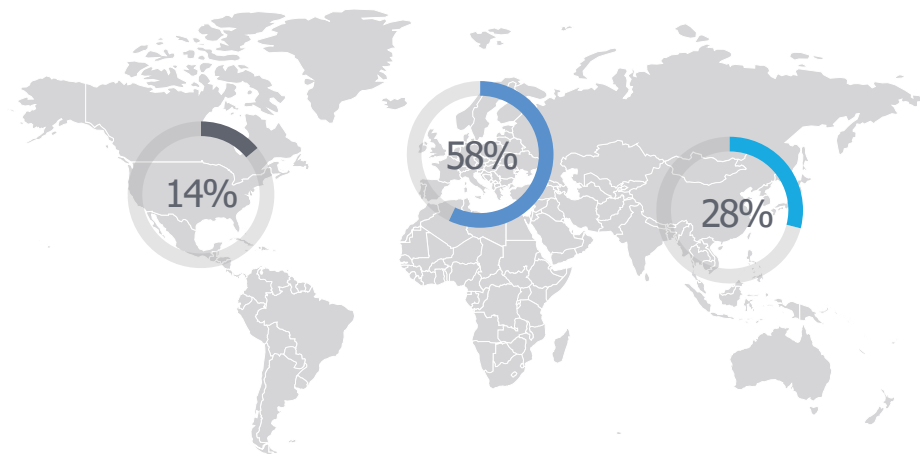
Diehl Controls at a Glance

Globally positioned hidden champion, headquartered in Germany

Revenue history from 2019 until 2022 (Mio. €)



Revenue in percent by region in 2022



- Production from thousands to millions** (Icon: gear and wrench)
- 50 Million** electronic systems produced annually (Icon: factory and circuit board)
- More than 500 Engineers** (Icon: person at a computer)
- 3 Continents** Europe, America, Asia (Icon: globe and gear)
- 30 Years** inverter technologies (Icon: circuit board)
- 25 Mio. €** annual R&D spend (Icon: lightbulb)

Broad Customer Base (exemplary)

Trusted by blue chip companies of our focused markets

Alliance
Laundry Systems

 **arçelik**

B/S/H/

 **Carrier**

 **Danfoss**

 **Electrolux**

Haier

Hisense

LIEBHERR

 **Midea**

Miele

 **RATIONAL**

RITTAL

 **SCHULTHESS**

STIEBEL ELTRON

STIHL

 **Vaillant**

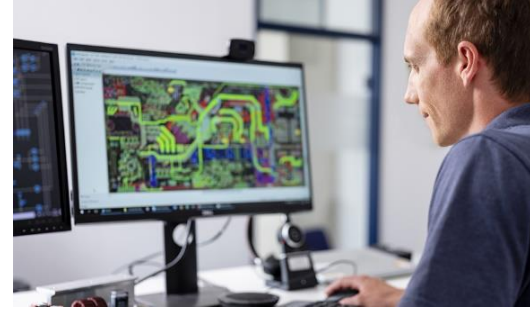
 **Whirlpool**

 **winterhalter**

 **WOLF**

Diehl Controls as a Full Service Provider

From (co)-development to industrialization and series production



SYSTEM ARCHITECTURE

- Requirements Engineering
- Distributed systems
- System block diagram
- Product Lifecycle Management
- Standards, guidelines and legal requirements

INDUSTRIAL PRODUCT DESIGN

- Global design guidelines
- Design for Manufacturing
- Design for Testability
- Functional security and safety
- Continuous design optimization

ELECTRONIC DESIGN

- Development of complete high-quality devices
- Technical solution concepts
- Detailed simulations of electronic circuits
- EMC/RF-compatible design
- Certification and product approvals

MECHANIC DESIGN

- Design of robust mechatronic systems
- Housings, wiring & harness, packaging design
- Simulations for structural, thermal and flow analysis
- Rapid prototyping

Diehl Controls as a Full Service Provider

From (co)-development to industrialization and series production



SOFTWARE DESIGN

- Know-how in the entire SW lifecycle
- Support common micro-controller manufacturers
- Professional processes and tools
- Long-term maintenance and update possibilities



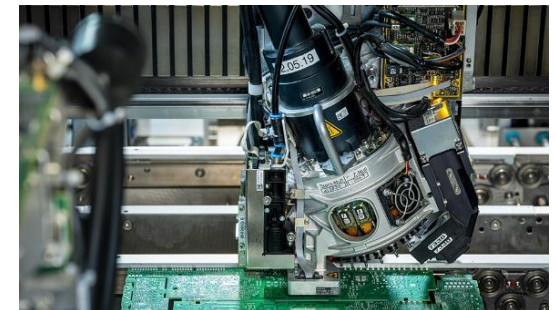
RAPID PROTOTYPING

- Experience in the creation of prototypes
- Early risk and quality management
- Fast and flexible testing of prototypes
- Production of housing samples with 3D printing



TEST & CERTIFICATION

- Own quality labs with advanced equipment
- Experienced test engineers
- System test in continuous operation with different environmental situations
- Monitoring with Data Acquisition System

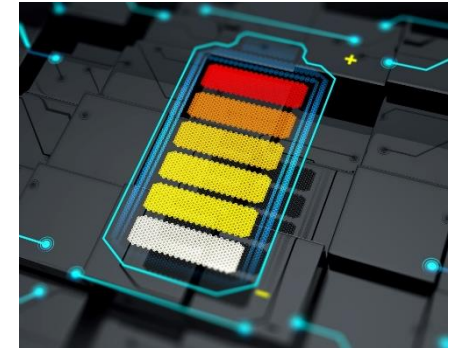





SERIES PRODUCTION

- Global production sites
- Uniform quality standards
- Networked systems for optimal process flows
- Traceability of products and production processes
- Individual supply chain solutions

Dedicated Market Focus

With our excessive electronics competence we serve several high demanding markets



 <p>Markets</p>	<p>HOME APPLIANCE</p>	<p>PROFESSIONAL APPLIANCE</p>	<p>HVAC/R</p>	<p>INDUSTRIAL ELECTRONICS</p>
 <p>Applications</p>	<p>Laundry Care, Cooking, Refrigeration, Dish Care, SDA</p>	<p>Laundry Care, Cooking, Dish Care</p>	<p>Heating, Ventilation, Air Conditioning, Prof. Refrigeration</p>	<p>Various industrial applications</p>
 <p>Solutions</p>	<p>HMI, Main control, Inverter, Connectivity</p>	<p>HMI, Main control, Inverter, Connectivity</p>	<p>Inverter, Main control, HMI, Connectivity</p>	<p>Battery Management System</p>

Hidden Champion of Electronics

We offer cutting edge technologies for various industries

HMI

Solutions from gesture control to high-end TFT



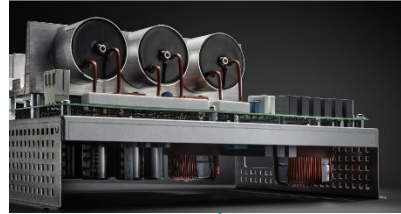
MAIN CONTROL

Energy consumption of less than 100 milliwatts



INVERTER

Product range from 30 Watt to 11 KW



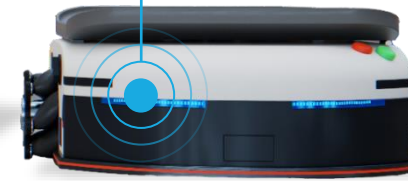
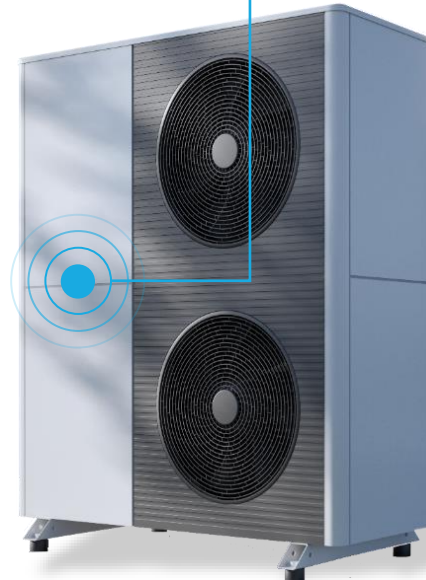
BMS

Integrated mechatronic BMS solutions



CONNECTIVITY

Secure multi protocol IoT connection





Ultra Wide TFT
9.5 Inch TFT



Smartphone Feeling
Touch Screen, Video



Dead Front
Panel integration



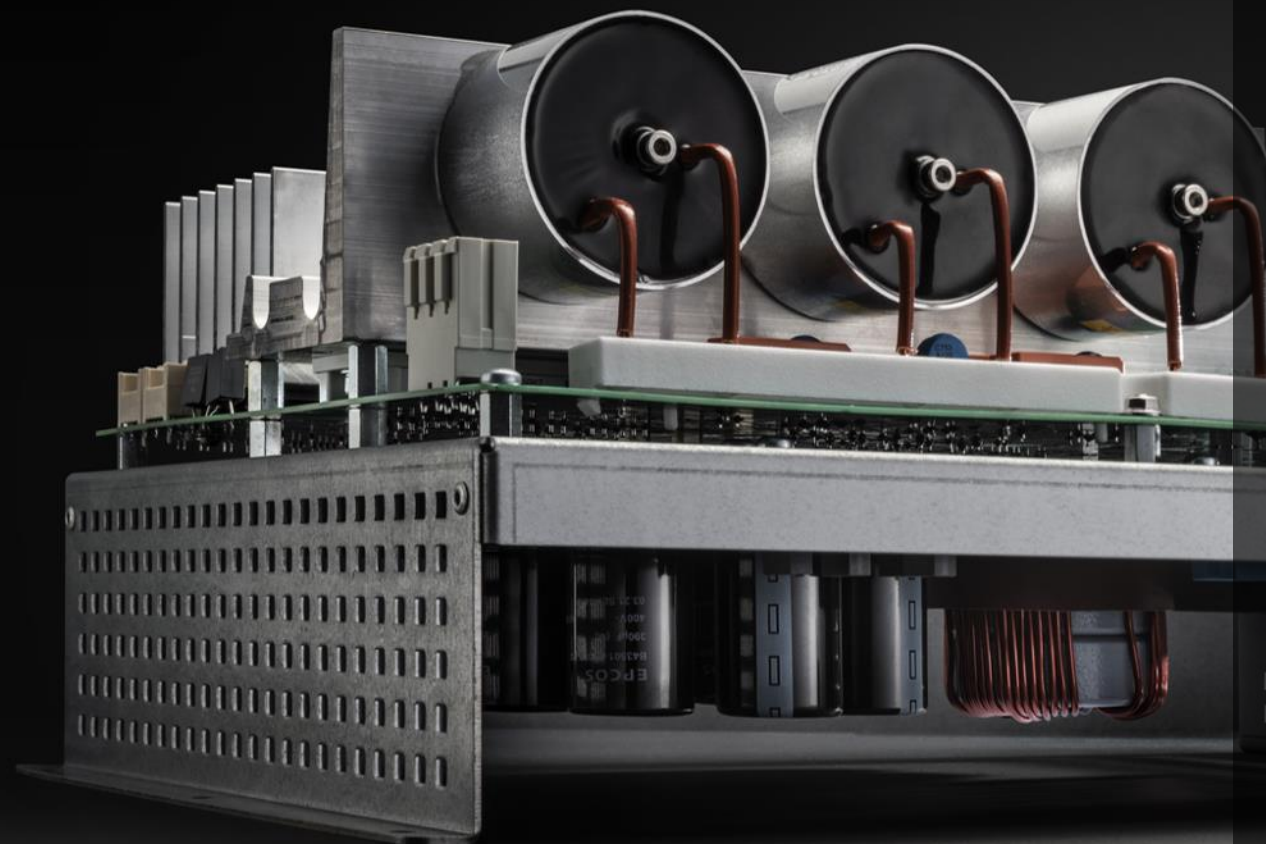
Operating Systems
Linux OS, Android OS



Connectivity
Wifi & BT supported



Product Branding
3rd party software



Full Power Range
<1-11 KW, 230 V/400 V



Active PFC
PF 1 for 3 phase grid



SIP Topology
high energy efficiency



Flammable Refrigerant
approved system



Functional Safety
protecting the system



Data Monitoring
predictive maintenance

ENVIRONMENT

Environmental aspects play a **key role** in our daily doing. Focus areas are:

- **CO₂ footprint** (Scope 1-3) and SBT aligned **reduction targets of 38% until 2030***
- **Products** and **ECO design of these** to reduce the environmental footprint
- **Energy efficiency** in our processes incl. ISO14001 certification of all sites

GOVERNANCE

Sustainability is firmly embedded in our **governance** through

- Sustainability ratings (**e.g. CDP**)
- **Supplier assessments** with **EcoVadis**
- Diehl Group **Code of Conduct** and transparency guidelines



SOCIAL

Employees and **society** are integral part of Diehl Controls

- **High global health standards**
- Employee **trainings**
- **Diverse recruiting process** throughout all hierarchy levels

Global Industrial Footprint

Throughout a global network of existing sites and expansion projects we serve our customer local for local



USA

5 employees
sales hub



GERMANY

540 employees
15.5 Mio electronics p.a.



POLAND

1.250 employees
19 Mio electronics p.a.



CHINA (2023)

Up to 330 employees
Up to 5.5 Mio elect. p.a.



MEXICO

660 employees
6.7 Mio electronics p.a.



ROMANIA (2024)

Up to 600 employees
Up to 12 Mio elect. p.a.



CHINA

1.130 employees
18.5 Mio electronics p.a.

03 | New Production Site in Brasov

Planned new Production Site


Facts and Figures




Plant opening
in **Q3/2024**


Up to **40 Million**
investment


Up to **600**
new employees


6.668 m2
Office space


5.945 m2
Production space


5.259 m2
Warehouse space

European Production Footprint

All production sites are focused on their specialty



GERMANY Wangen (HQ)

- Fully automated and flexible production
- Focus on complex EMS production

Cyber physical matrix production



POLAND Namysłów

- Increase automated high volume production
- Highly automated production

High volume Speed line production



ROMANIA Brasov

- Ramp up with 3 Step production process
- Increase complexity of the production process

Qualification according IATF Standard for automotive business

Location Advantages of the City of Brasov

Optimization for the Europe region

LOCATION & LOGISTIC

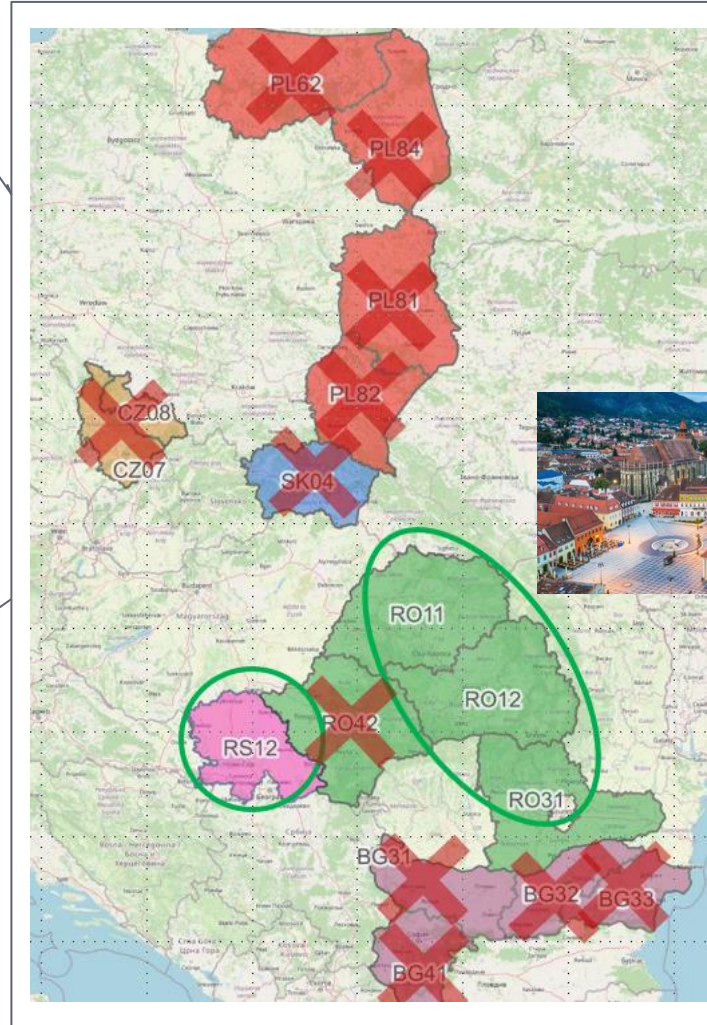
The location of the new production site is important

- Good connection between existing Sites
- Good infrastructure, motor way train and airport
- Good accessibility for employees by public transport

HUMAN RESSOURCES

Employees and **society** are a major success factor for Diehl Controls

- **Good Labour force availability**
- Good local education system (University & Dual education system)
- Work force with experience in electronic and automotive business available



Brasov

SUSTAINABILITY

Environmental aspects play a **key role** in our daily doing. Focus areas are:

- **ECO design of the building** reduce the environmental footprint
- **Usage of green Energy** in our production processes
- Proven **waste reduction** and material **recycling** process

POLITIC & GOVERNANCE

Political stability and culture

- Stable political environment that meet DC culture
- EU Membership
- The local government is interested in the settlement of Diehl Controls

State of the art production

Modern air-conditioned buildings with new production concept





Diehl Controls criteria for the Developer selection

- Higher construction standard of isolation to reduce energy cost during plant operation
- Developer CTP is ISO 14001 certified, all new buildings are certified according the BREEAM standard
- Building is designed to install Photovoltaic on the roof to run the factory with green energy
- Analysis to use heat pumps for the heating system are ongoing

Install waste and recycling system from Germany

- Common waste collection and recycling system will be installed to avoid waste and bring as much material as possible into the recycling system
- Use of recyclable transport containers for the internal flow of goods, reduction of wooden pallets and cardboard boxes in the production area

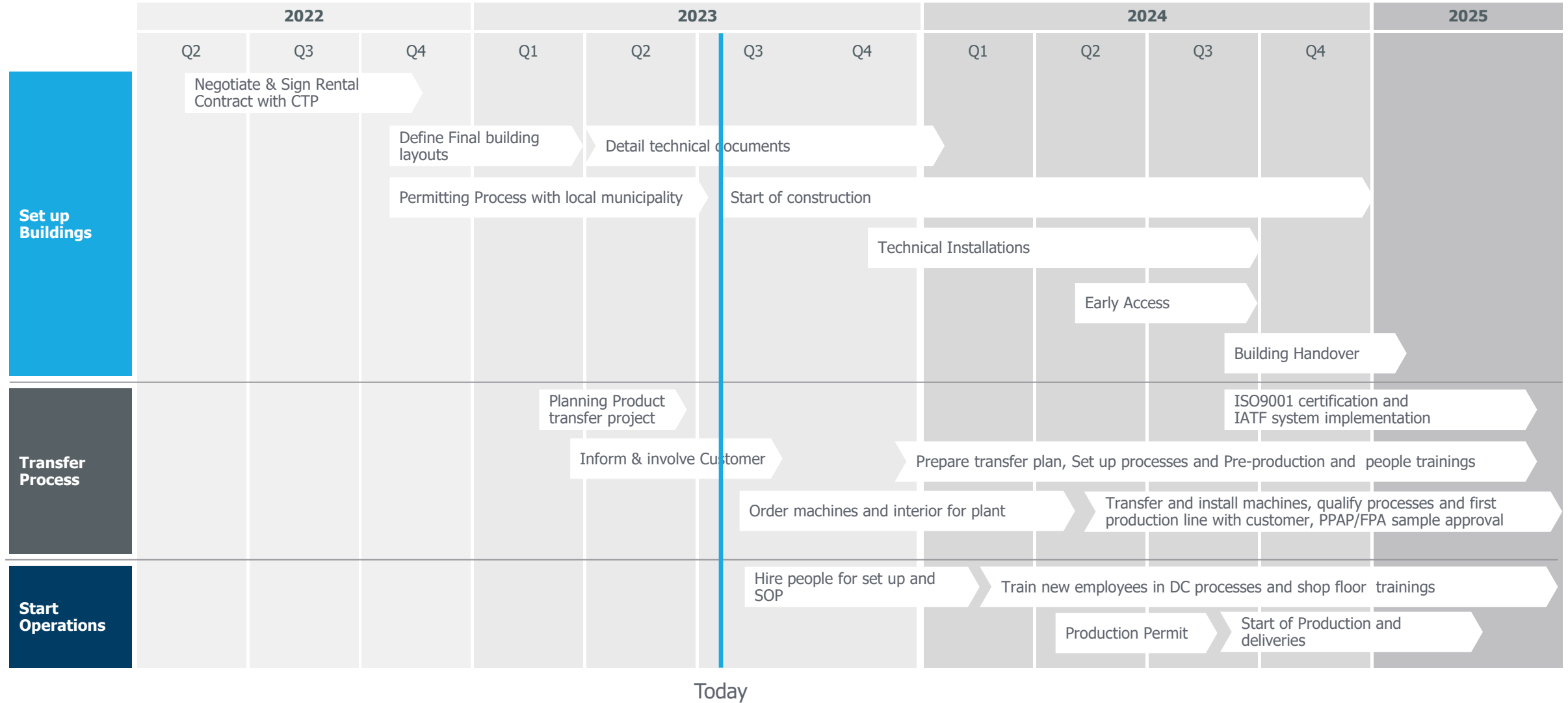
Sustainability

Insulated building and possibility for regenerative energies



Timeline

Main Topics



Feel the DNA of Electronics

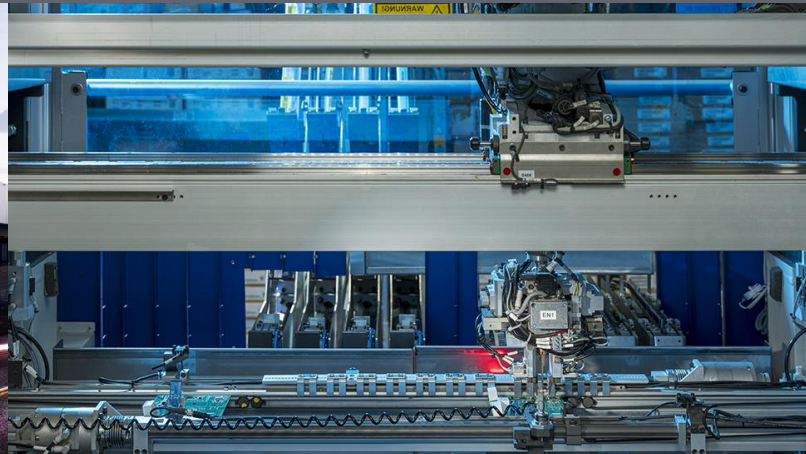
With everything we do at Diehl Controls we contribute to our customers success

As globally trusted, we have ...

- deep expertise in development, industrialization and production
- unique HMIs, Inverters, Power Boards, Connectivity and BMS Solutions
- established global production sites with highest quality standards

With the new Brasov production plant, the European production network is prepared for future customer demands

FEEL THE DNA
OF ELECTRONICS



THANK YOU!

**Diehl AKO Stiftung
& Co. KG**

Pfannerstr. 83

D-88239 Wangen i. A.

www.diehl.com/controls