Capital Markets Day

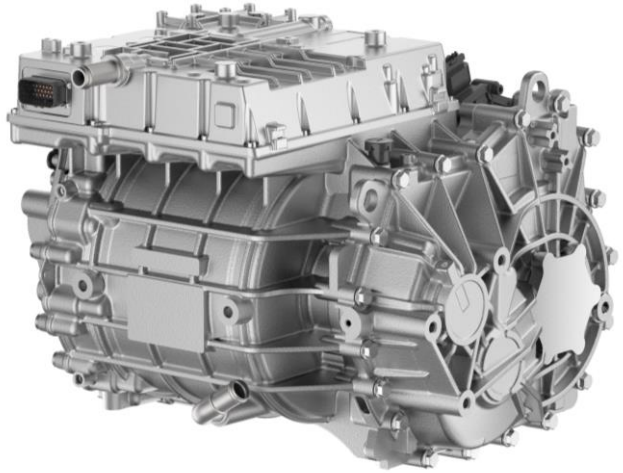
November 18, 2022

Welcome

Dr. Stefan Wolf | CEO

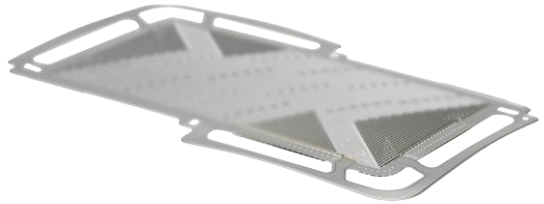
Next Generation Products @ elringklinger

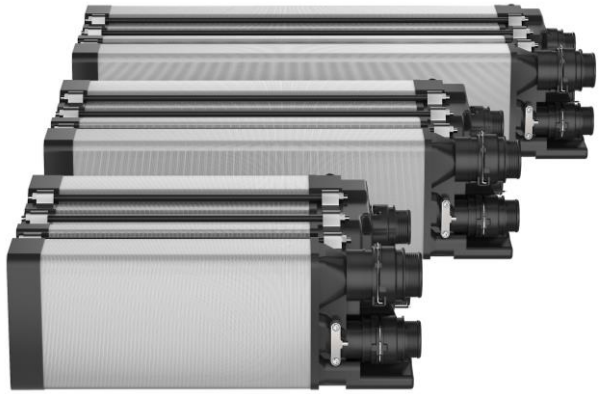
Drivetrain Technology



Battery Technology

Fuel Cell Technology





Lightweighting/ Elastomer Technology

Capital Markets Day 2022

Agenda

09:00	Welcome	Dr. Stefan Wolf
09:15	The ElringKlinger Story	Dr. Stefan Wolf
10:00	ElringKlinger: Established Supplier for E-Mobility Products	Jürgen Weingärtner
10:40	Coffee Break	
10:50	EKPO: Driving Hydrogen Solutions for a Sustainable Future	Dr. Gernot Stellberger
11:30	Guided Tour – Production EKPO	
12:15	Lunch and Transfer to Plant 2	
13:45	Lightweighting/Elastomer Technology: Leading in Design, Weight, and Production	Klaus Bendl
14:30	Guided Tour – Production Lightweighting and Logistics	
15:20	Coffee Break	
15:30	Strategy Implications for Key Performance Indicators	Thomas Jessulat
16:15	Wrap-up	Dr. Stefan Wolf

Capital Markets Day

November 18, 2022

The ElringKlinger Story

Dr. Stefan Wolf | CEO

Megatrends trigger technological transformation process


Urbanization


Scarcity of resources


Globalization


Technological progress


Climate change

Global megatrends transform the automotive industry

Safety systems

Autonomous driving

Efficient propulsion

Connectivity

Shared mobility

Three major fields of activity

1

Product portfolio

- Acting in a growing and transforming market
- Strong backbone in classical business while positioned for future through transformed portfolio

2

Digitization and process optimization

- Implementing a comprehensive approach in administration and production
- Gaining efficiency and contributing to group's targets

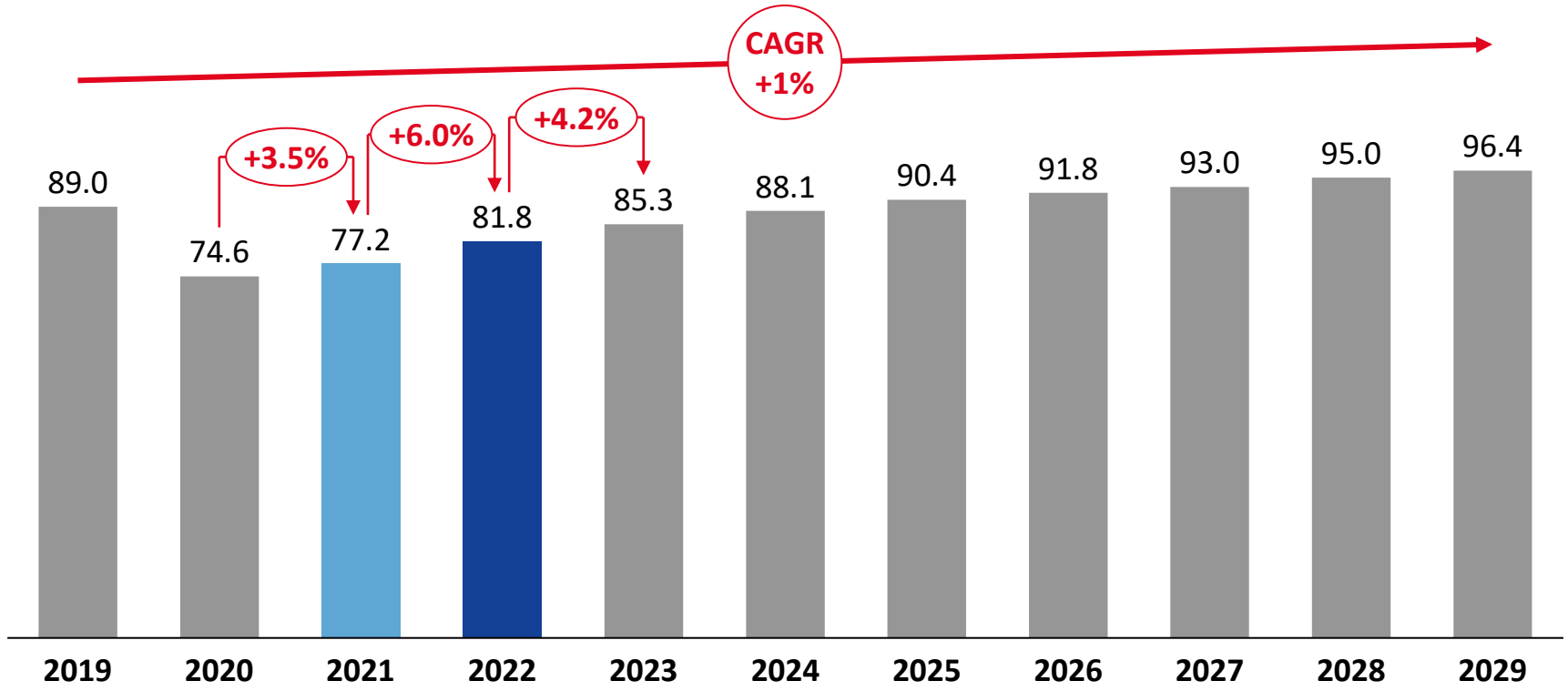
3

Sustainability

- Product portfolio strongly supporting reduction of – or even avoiding – CO_2 emission
- Sustainable commitment by fixed action plan

Automotive remains a growing market

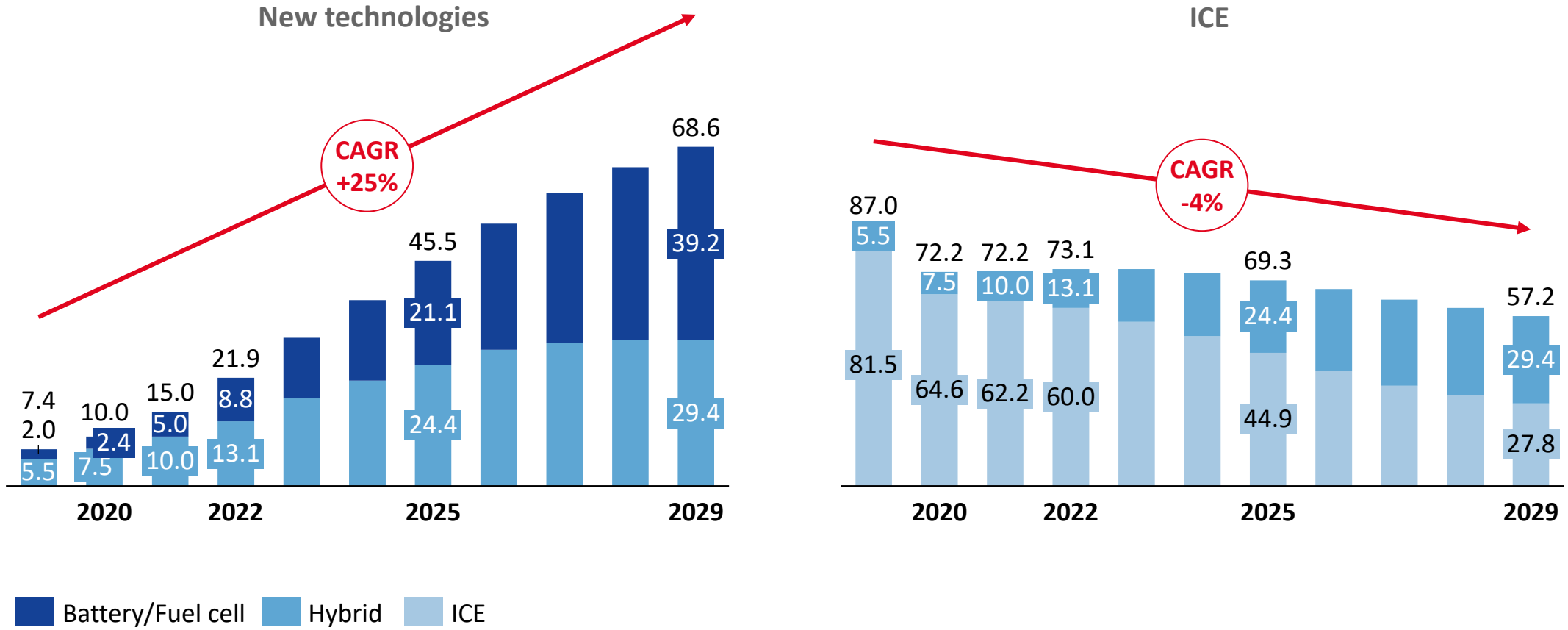
Global light vehicle production – in million units



Source: IHS (10/2022)

Strong growth in new technologies, slow decrease in ICE

Global light vehicle production by powertrain – in million units

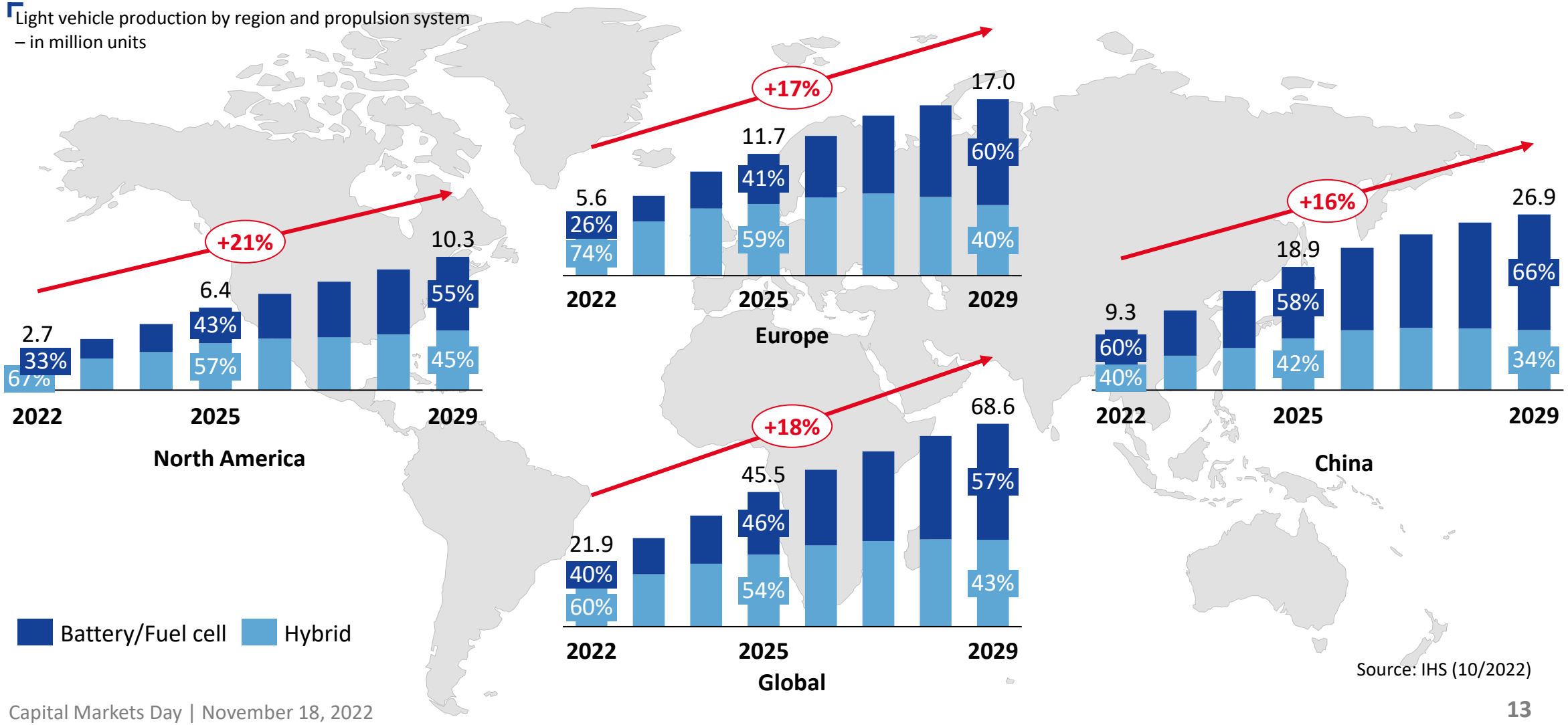


Differences due to rounding

Source: IHS (10/2022)

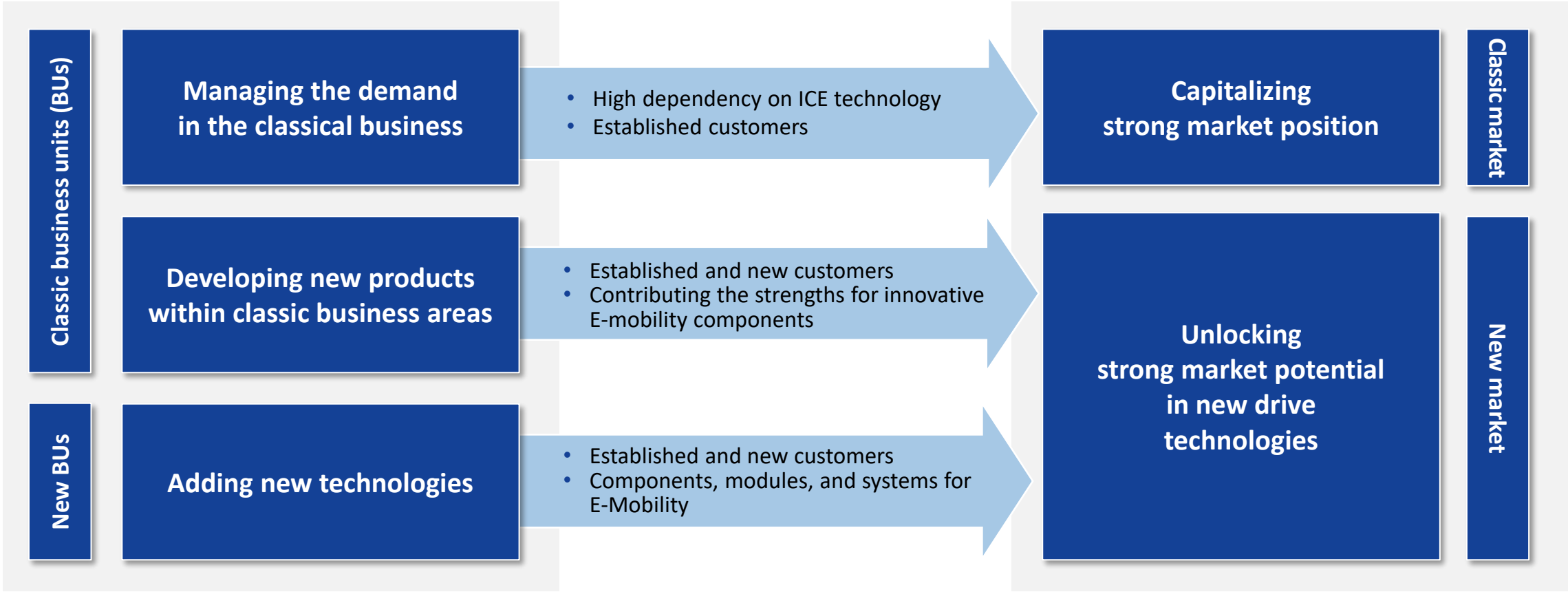
Electrification in major auto regions throughout the decade

Light vehicle production by region and propulsion system – in million units



Source: IHS (10/2022)

Strategic approach corresponds to market demand



Capitalizing strong market position in ICE business

Cylinder-head Gaskets

Special Gaskets

Heat Shielding Systems

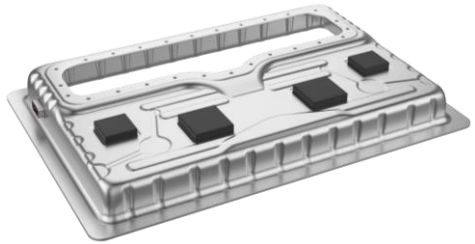
Lightweighting

- Strong market position of already proven products
- High expertise as a result of long-term experience in R&D and production over past decades: profound product, material and process know-how
- Long-term customer relationships
- Global network of production sites

Transformation through products for mobility of future

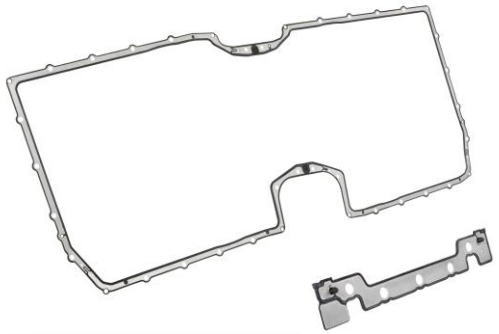
Gaskets

- Cover with integrated gasket applied for high voltage service lid, battery and box cover, and inverter cover
- Based on established material and process know-how



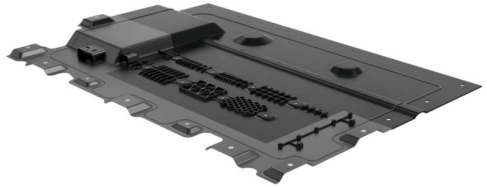
Shielding Technology

- R&D activities for inno-vative battery cover (thermal propagation)
- Lightweight design for inverter cover with noise tuning capabilities
- Based on metal forming expertise



Elastomer Technology

- Sealing of battery housing through metal-elastomer design gaskets
- Providing advantages of established technology



Lightweighting

- New products around fuel cell and battery, such as media module, frame for cell contacting systems etc.
- System functions and interfaces can be integrated

Key areas for future mobility in innovative technologies

Structural Lightweighting

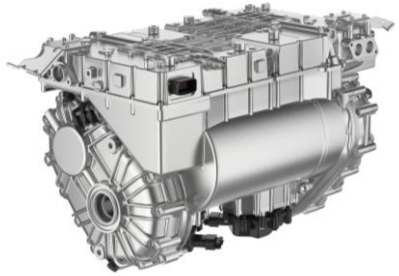
- Strong development over past years
- Identifying and developing new products to extend footprint
- New site in Texas

Fuel Cell Technology

- Joint company with Plastic Omnium
- New orders received
- Ramp-up of serial production in late 2022
- Additional R&D activities at JV with Airbus

Battery Technology

- New center of competence in Neuffen
- High-volume order for cell contacting systems soon ramping up
- Prototype of battery system for high-end sports car

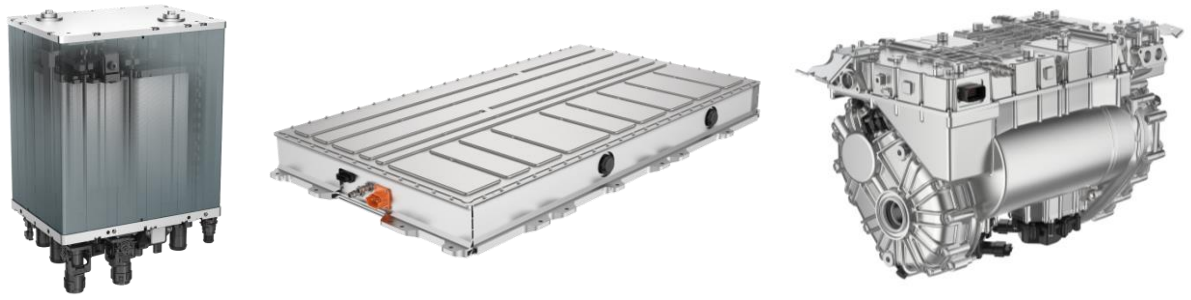


Drivetrain

- Addressing particularly high-end sports and luxury car segment
- Ramp-up of new business

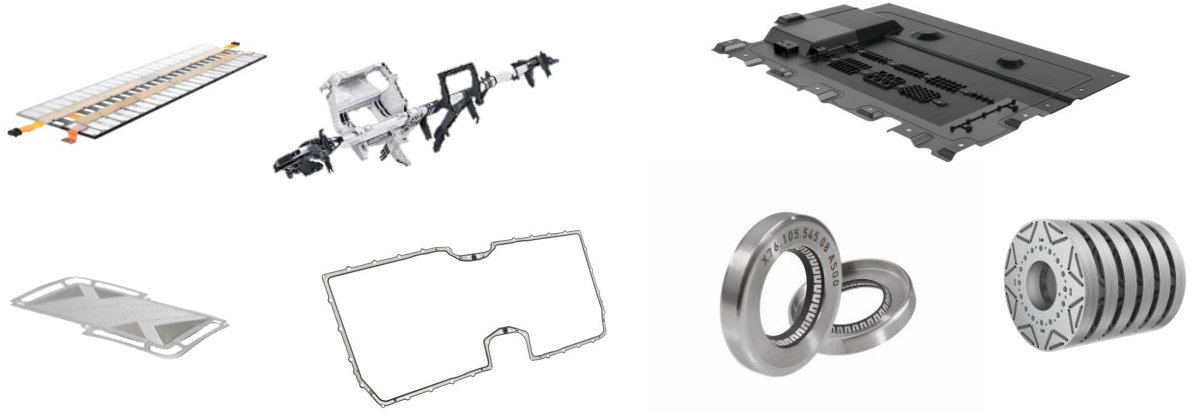
Two growth tracks for new mobility: systems and components

Stacks and systems



- **Developed** over the past decades
- **Mass market** production in fuel cell business, **niche markets** for battery systems and electric drive units
- Mainly in **ramp-up** phase
- Recognized in sales of E-Mobility business units

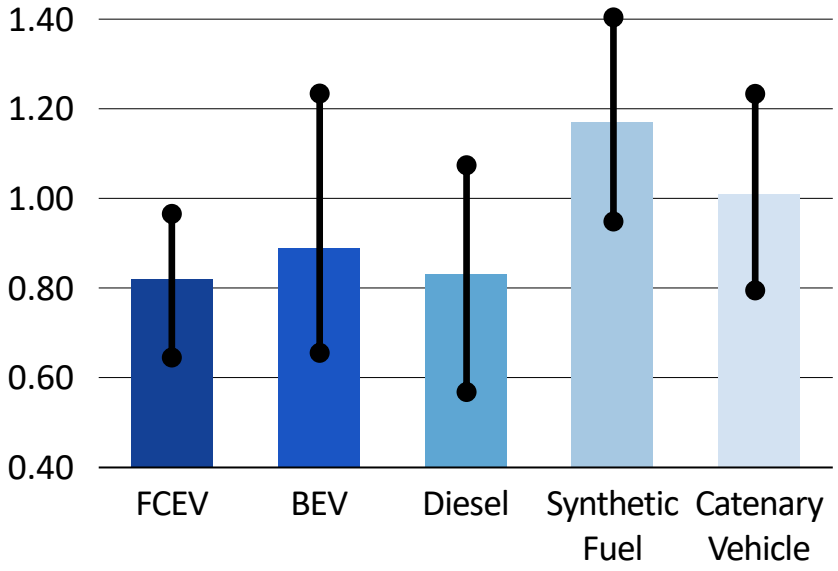
Components



- Based on the **core competencies** of established ICE products
- Already **in serial production** for the most part
- Realizing **further growth** potential
- Recognized in sales of established as well as E-Mobility business units

Fuel cell technology is essential for mobility of the future

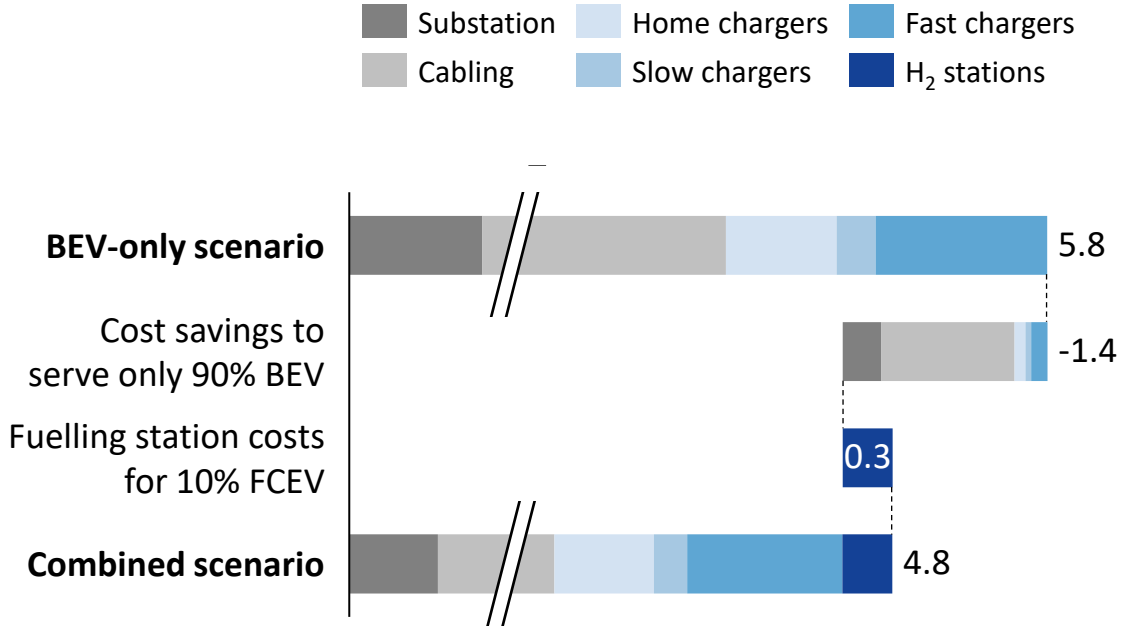
Total Cost of Ownership for Long Haul Truck in 2030 – in EUR/km



Fuel cell and battery are cost-efficient technologies.

Source: VDI/VDE (2022), S. 27.

Comparison of incremental recharging vs. refuelling investment (Illustrative scenario)
(Capex to serve 1,000 passenger vehicles, USD million, 2050)



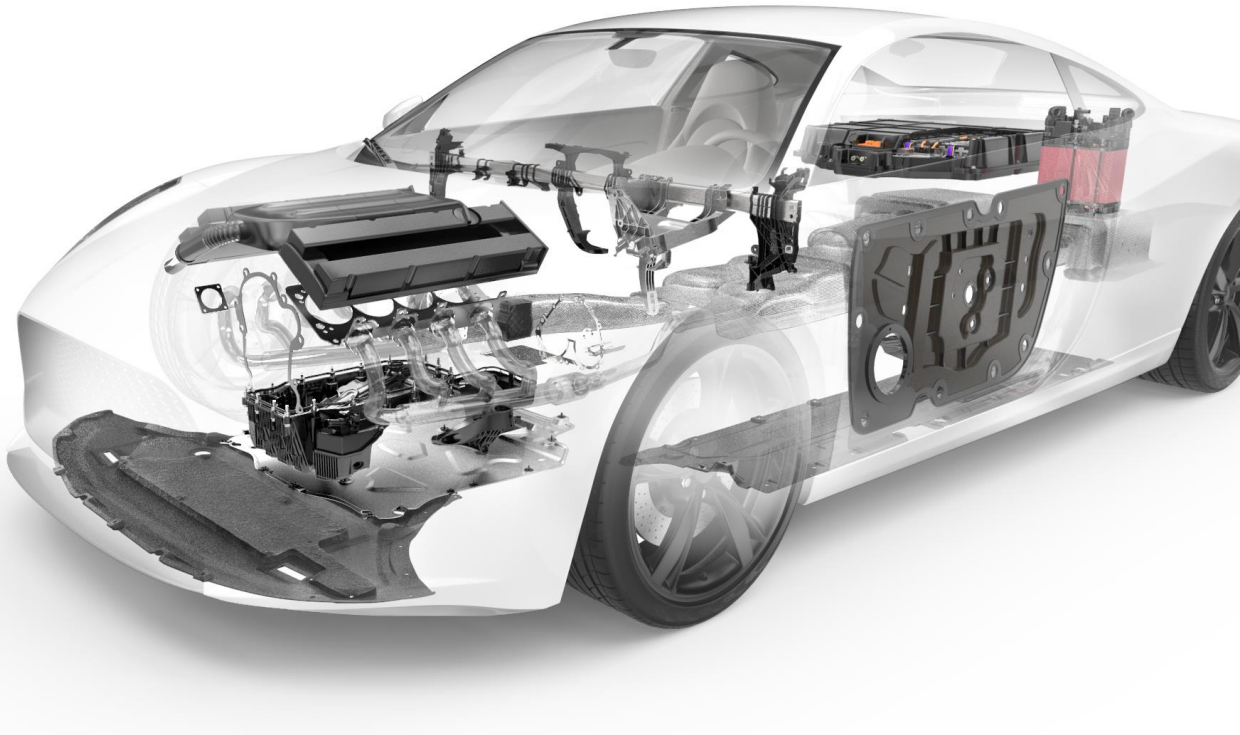
A combination of battery and fuel cell is cost efficient.

Source: Hydrogen Council (2021), S. 23.

Transformation and innovations push content per car

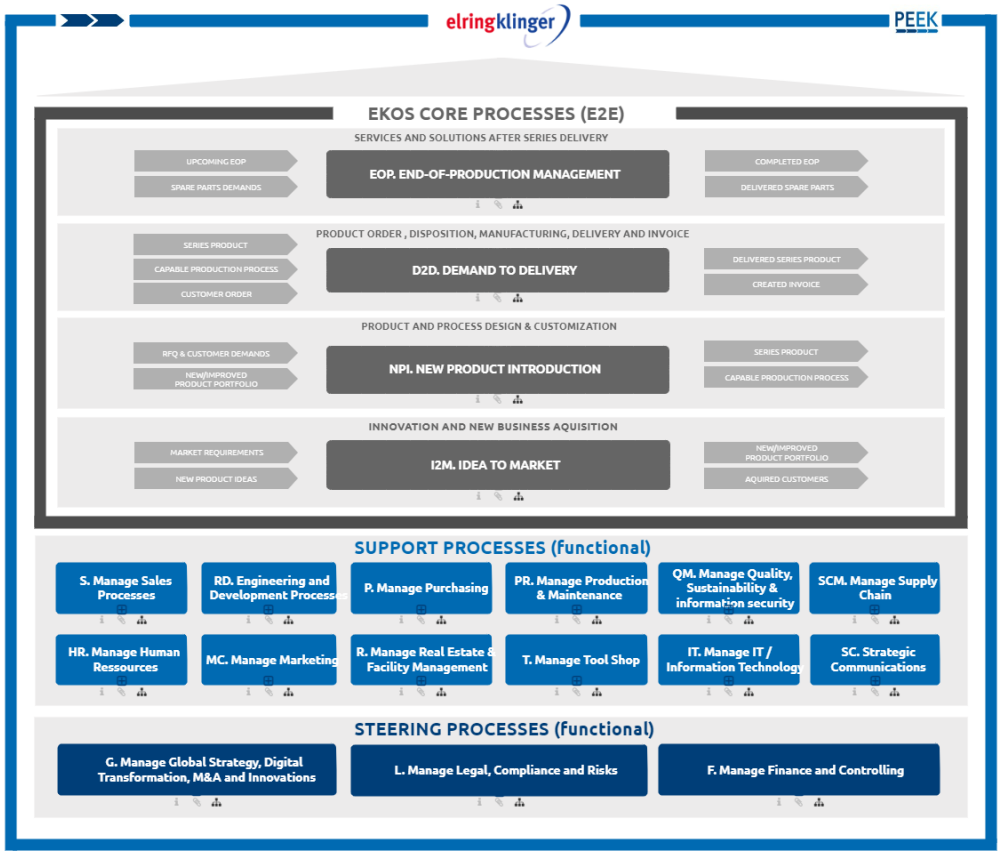
Selective indicative examples for ElringKlinger's rising content per vehicle – in EUR

ICE		NON-ICE	
Cylinder-head gasket	3 - 9	Cell contacting system	100 - 300
Cylinder-head gasket	3 - 9	Bipolar plates*	350 - 600
Exhaust gas underbody shield	20 - 50	Underbody battery protection shield	100 - 200
[No similar product]	n.a.	Transmission disc carrier system	60 - 120
[No similar product]	n.a.	Electric drive unit*	1,000 - 4,000
[No similar product]	n.a.	Battery system*	2,000 - 10,000
[No similar product]	n.a.	Fuel cell stack*	2,000 - 10,000



*Based on estimates for serial production in the second half of the decade

Changing the mindset by internal transformation

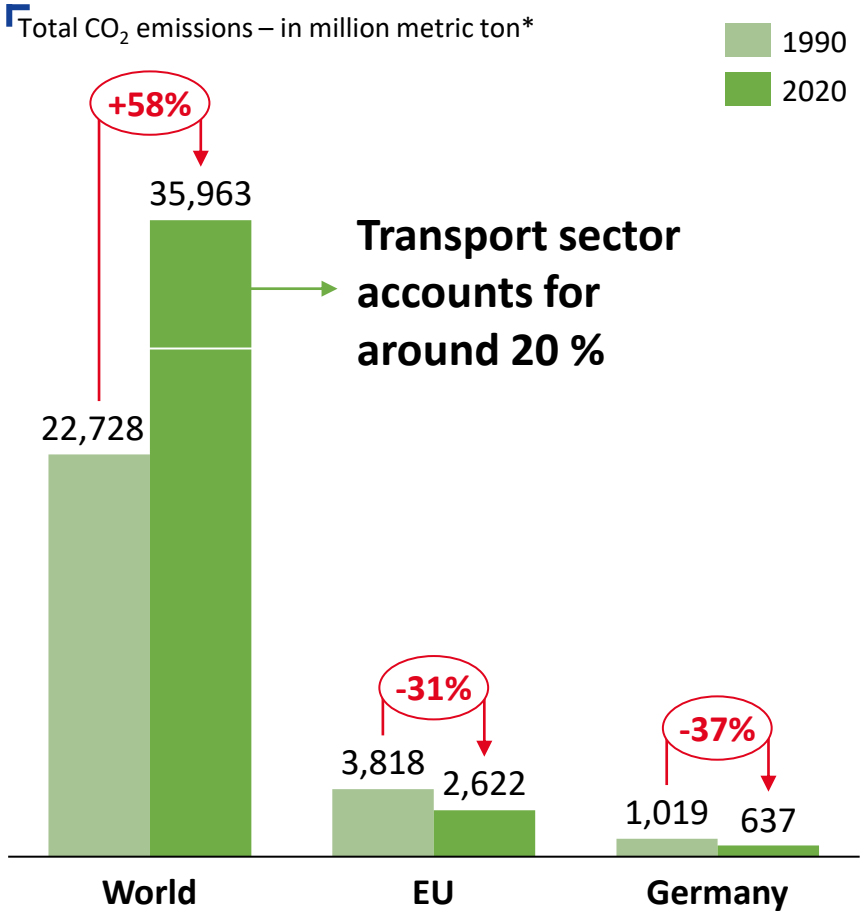


- Optimization of processes with main directions:
  - Robustness of production
  - Global harmonization and standardization
  - Automation
- Defining roles, responsibilities and workflows
- Method: Defining processes, designing processes measurably and enhancing processes continuously
- Goal: Contributing to the achievement of company’s targets by stable, reliable and transparent processes

Internal transformation driven by digitization

- Cross-sectional digitization approach for developing a holistic implementation strategy
- Three main tasks:
  - Being more efficient in existing scope of activities
  - Improving value of products
  - Exploring new opportunities
- Based on a flexible and scalable IT infrastructure
- Roadmap includes:
  - Aiming at a “smart” digital factory with connected machinery
  - Implementing new version of ERP system
- Goal: Raising additional potential and increasing efficiency

Sustainability is a key priority for ElringKlinger

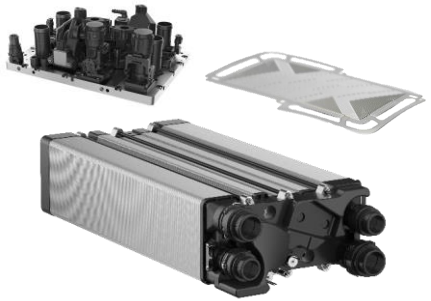
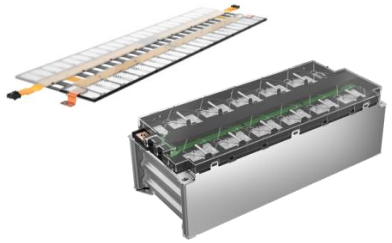
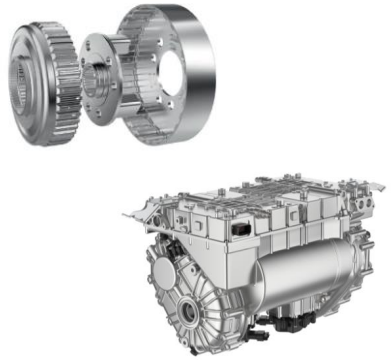


- Limitation of global heating is key for **protecting the environment**
- European Green Deal with clear target to make **Europe climate-neutral by 2050**
- ElringKlinger supporting Green Deal goals and **committed** via a **clear roadmap towards climate neutrality** by:
  - Offering an already transformed product portfolio which enables emission-free mobility
  - Continuously reducing emissions at all production sites
  - Taking a holistic view on entire value chain in order to bring Scope-3 emissions to a minimum

* Emissions Database for Global Atmospheric Research (EDGAR) of the EU Commission

Broad product portfolio enabling green mobility



ICE Parts (e.g. Gaskets & Shields)	Lightweighting Components		Fuel Cell Technology	Battery Technology	Drivetrain Technology
Higher temperature and/or higher pressure (ICE)	Less weight (ICE)	Higher range (HEV/NEV)	Alternative technology (HEV/NEV)	Alternative technology (HEV/NEV)	Alternative technology (HEV/NEV)

Less fuel consumption

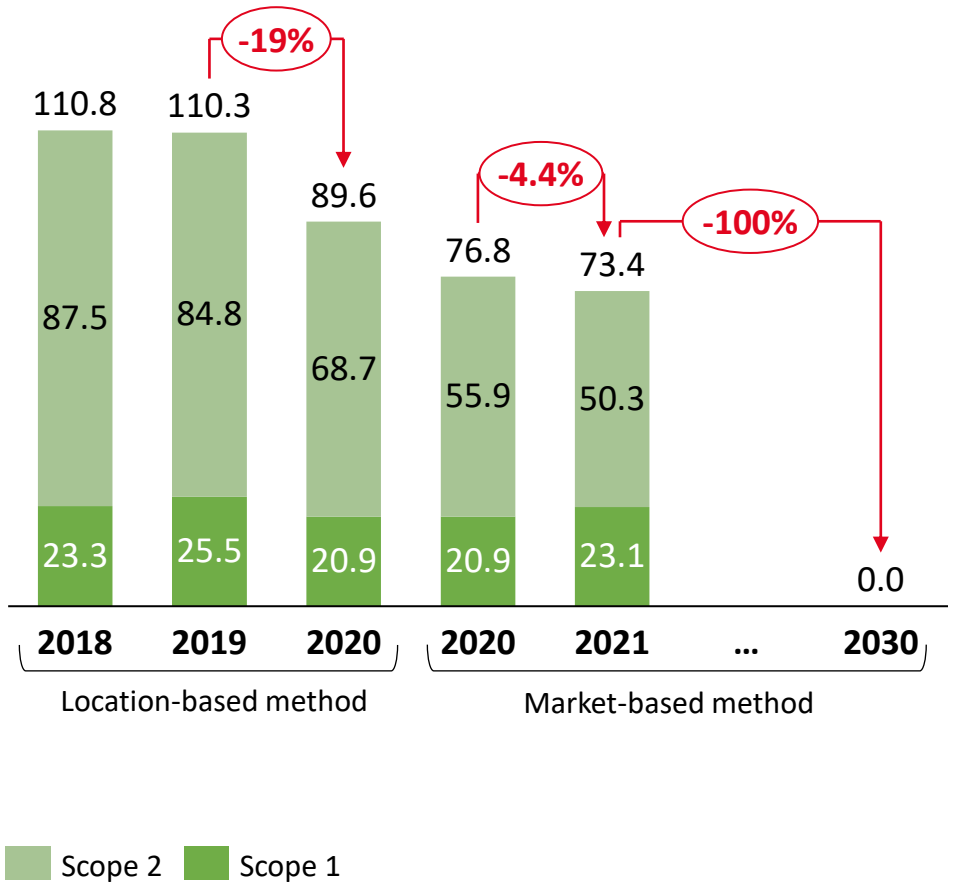
Reduction of CO_2 emission

Zero-CO_2 emission mobility*

* If using energy from renewable sources

On track to be CO_2-neutral by 2030

Scope-1 and Scope-2 emissions – in metric tons



Reduction of CO_2 and energy efficiency

-2.5 % CO_2 emissions p.a. at every production site (base: 2019)

- Increase energy efficiency of buildings and machines
- Optimize existing processes

New clean power

Investing in the production of own renewable energy

- 2021: PV installation in Karawang, India
- 2022: PV installation in Changchun, China

Green power

Switching electricity contracts to green electricity:

- Until 2025 European sites (German sites switched in 2021)
- Until 2030 worldwide

Offsetting

Offset unavoidable CO_2 emissions through investments in climate protection projects.

Three major segments, one of them leading in size

79%
of Group sales

Original Equipment

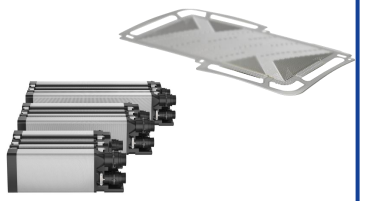
Sales: EUR 1,280 million
Employees: 8,204

Lightweighting/ Elastomer Technology

Metal Sealing Systems & Drivetrain Components

Shielding Technology

Fuel Cell Technology (EKPO)



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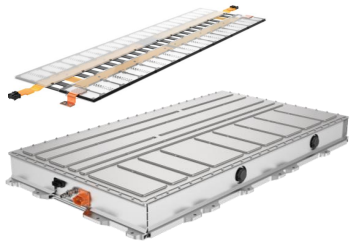

Drivetrain Technology

13%
of Group sales

Aftermarket

Sales: EUR 215 million
Employees: 286

8%
of Group sales

Engineered Plastics

Sales: EUR 125 million
Employees: 785

<1%
of Group sales

Others

Sales: EUR 4 million
Employees: 191

All figures refer to FY 2021

Aftermarket: successful segment independent of cycles

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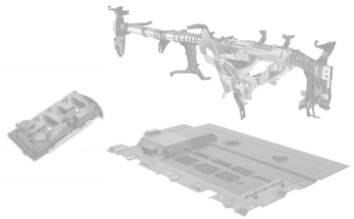
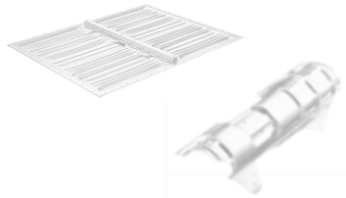


Metal Sealing Systems & Drivetrain Components

Shielding Technology



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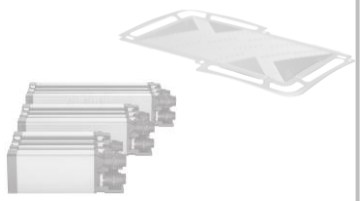

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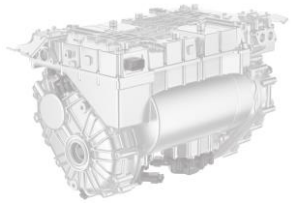

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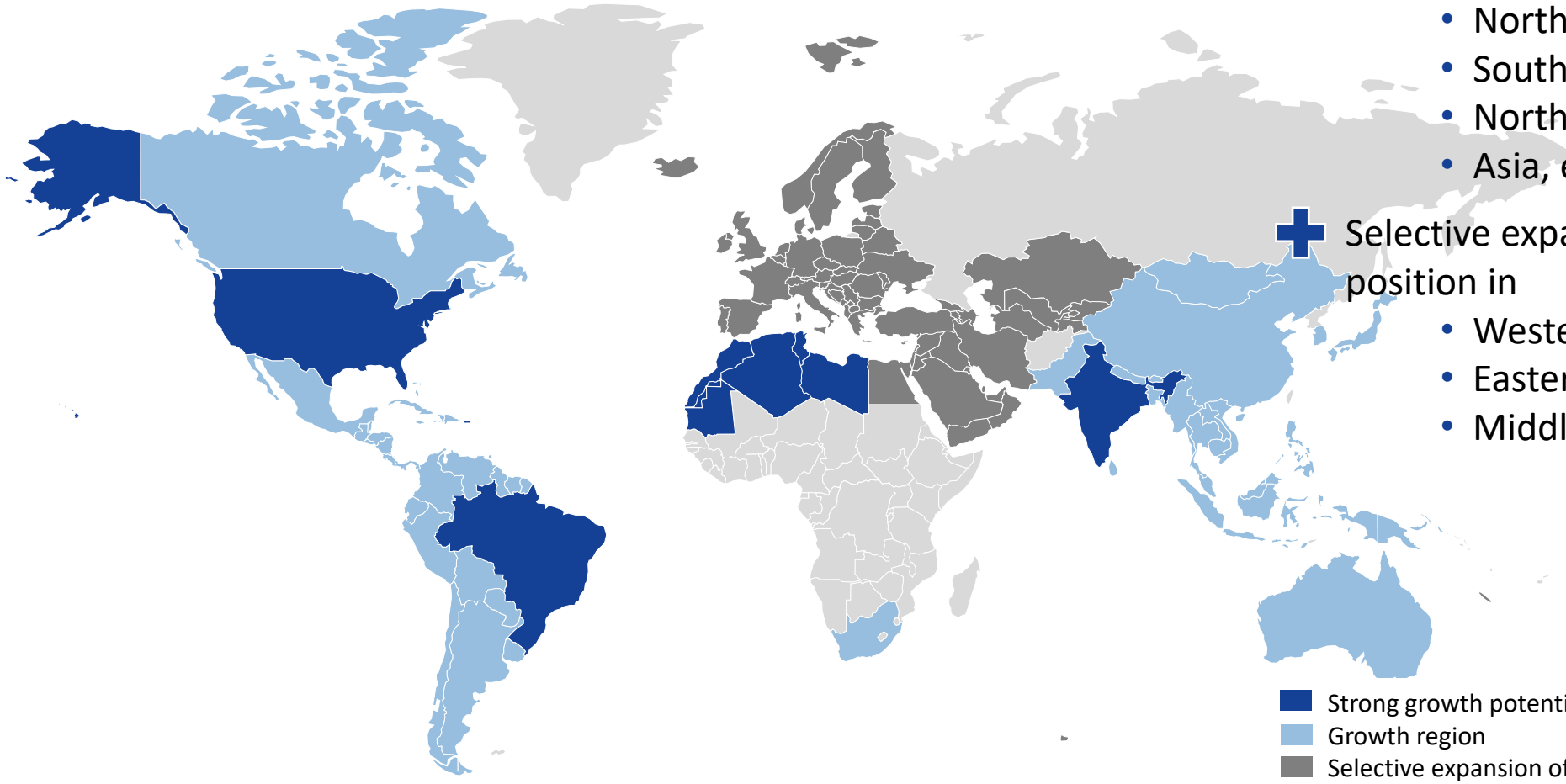
Aftermarket segment

Leveraging the growth potential



- Tapping the growth potential in
  - North America, esp. USA
  - South America, esp. Brazil
  - Northern Africa
  - Asia, esp. India
- Selective expansion of strong market position in
  - Western Europe incl. Germany
  - Eastern Europe
  - Middle East

Aftermarket segment

Cost discipline and optimization are key success factors

- Optimizing existing product portfolio
- Broadening product range for new technologies in line with market expansion
- Enhancing supply chain through regional warehouse locations and optimization of stocks
- Continuing cost discipline
- Pushing digitization of the segment
- Targeted recruitment and training of employees

Engineered Plastics: Innovations in high-performance plastics

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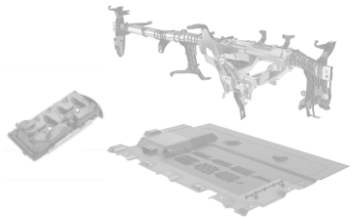
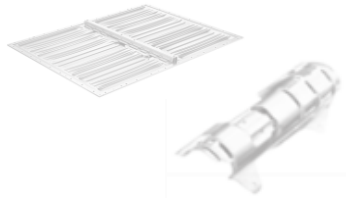


Metal Sealing Systems & Drivetrain Components

Shielding Technology



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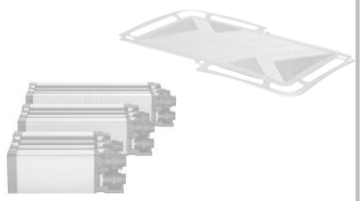

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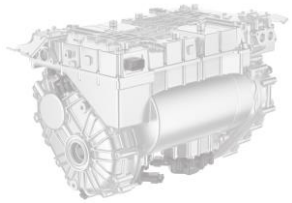

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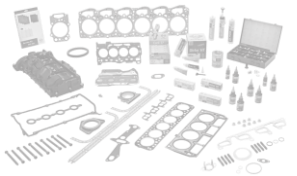

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Engineered Plastics segment

Strong sales and earnings contribution across cycles

- **Different characteristics**: short-term orders, small lot sizes, broad range of market segments
- **Securing future growth** by
  - Expanding into **new market segments**, e.g. hydrogen sector
  - Further developing **new markets**, e.g. China and North America
  - Opening up **new customer segments**
- **Increasing the depth of value added**, e.g. tubes in Medical & Life Science segment
- **Intensifying business** with existing products, e.g. expanding non-ICE business in Automotive segment

Summarizing

Leveraging the transformed product portfolio

- **Significant** increase in **demand for alternative drive technologies**
- **ElringKlinger with great potential** thanks to already transformed product portfolio, particularly in the strategic future fields of
  - Fuel cell
  - Battery
  - Electric drive unit
  - Structural lightweighting
- ElringKlinger with differentiated approach: product solutions for **components, modules and complete systems**

ElringKlinger has already transformed its product portfolio and continues to tap the market potential.

Upcoming sessions: Strategic future areas for the Group

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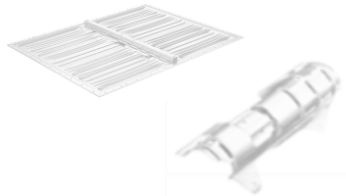

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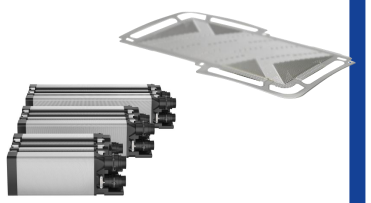

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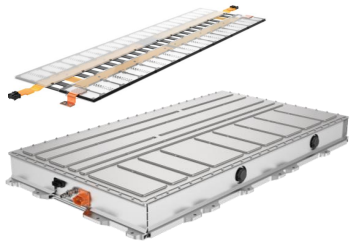

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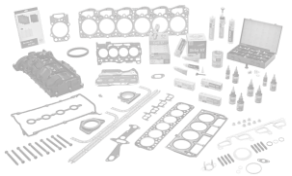
Sales: EUR 215 million
Employees: 286



8%
of Group sales

Engineered Plastics

Sales: EUR 125 million
Employees: 785

<1%
of Group sales

Others

Sales: EUR 4 million
Employees: 191

All figures refer to FY 2021

Capital Markets Day 2022

Agenda

09:00	Welcome	Dr. Stefan Wolf
09:15	The ElringKlinger Story	Dr. Stefan Wolf
10:00	ElringKlinger: Established Supplier for E-Mobility Products	Jürgen Weingärtner
10:40	Coffee Break	
10:50	EKPO: Driving Hydrogen Solutions for a Sustainable Future	Dr. Gernot Stellberger
11:30	Guided Tour – Production EKPO	
12:15	Lunch and Transfer to Plant 2	
13:45	Lightweighting/Elastomer Technology: Leading in Design, Weight, and Production	Klaus Bendl
14:30	Guided Tour – Production Lightweighting and Logistics	
15:20	Coffee Break	
15:30	Strategy Implications for Key Performance Indicators	Thomas Jessulat
16:15	Wrap-up	Dr. Stefan Wolf

Capital Markets Day

November 18, 2022

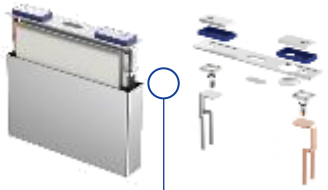
Established supplier in Battery Technology

Jürgen Weingärtner
Vice President Electric Drive & Battery Technology

Product portfolio scaled up from component to systems

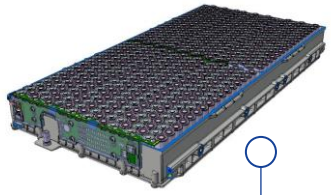
Cell connector
(Start of serial production in 2011)

Cell housing & cap components
(Development program (IPCEI))

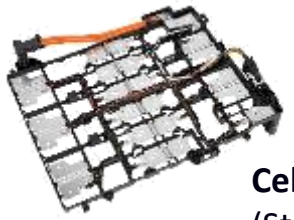


Battery management system (BMS)

Battery Module (Cylindric cells)

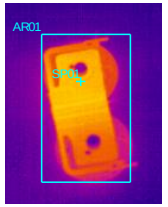


Battery pack (Cylindric cells)



Cell contacting system
(Start of serial production in 2013)

Simulation, testing & validation

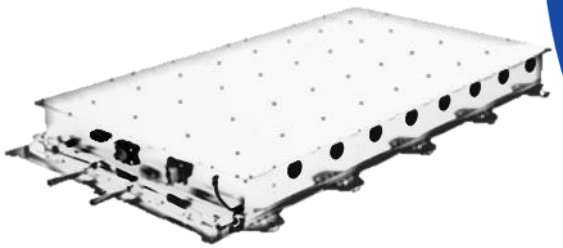


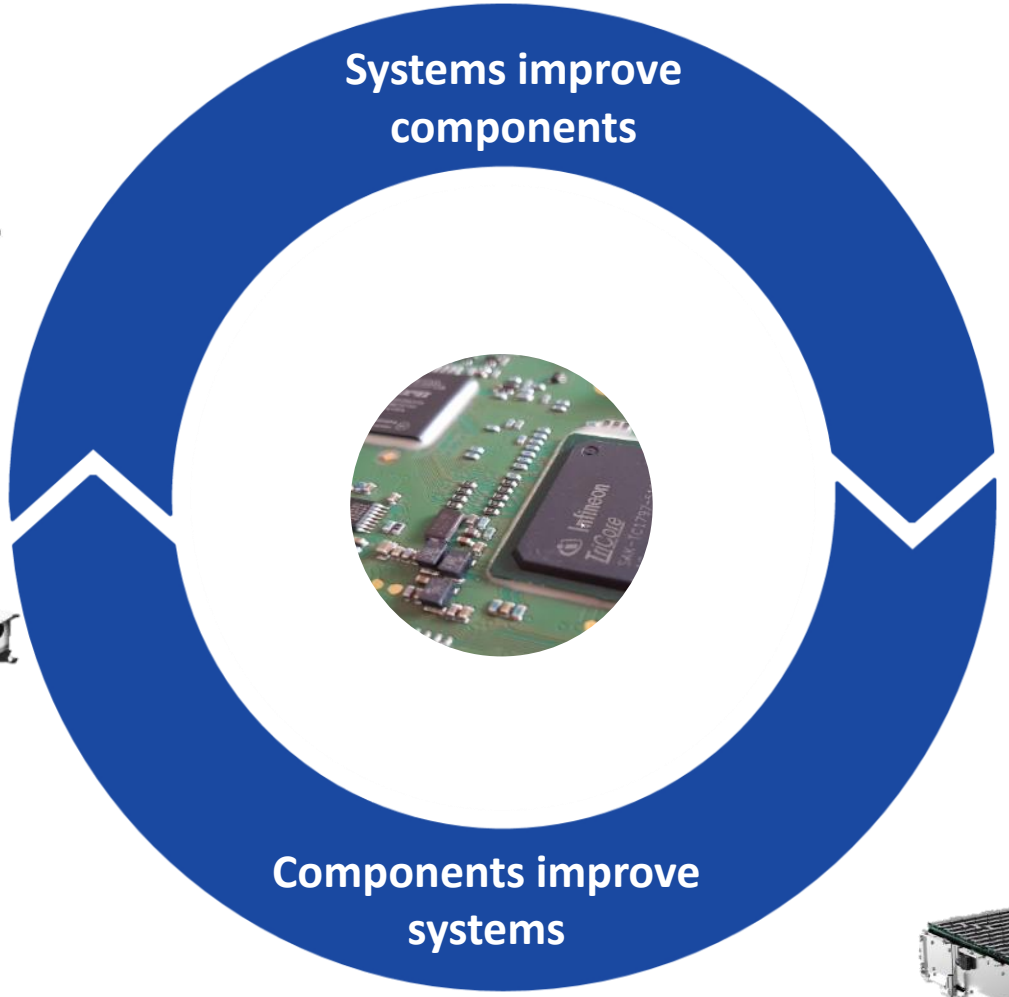
Battery Module (Prismatic cells)

Battery Pack (Prismatic cells)

Battery Technology

A cycle of continuous improvement

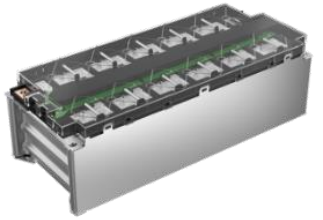




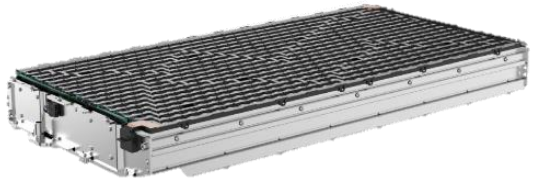
Pressure Equalizing Units

Battery Lid

Cell Contacting System



PHEV Modul



21,700 Modul

Battery Technology

Full vertical integration of R&D department

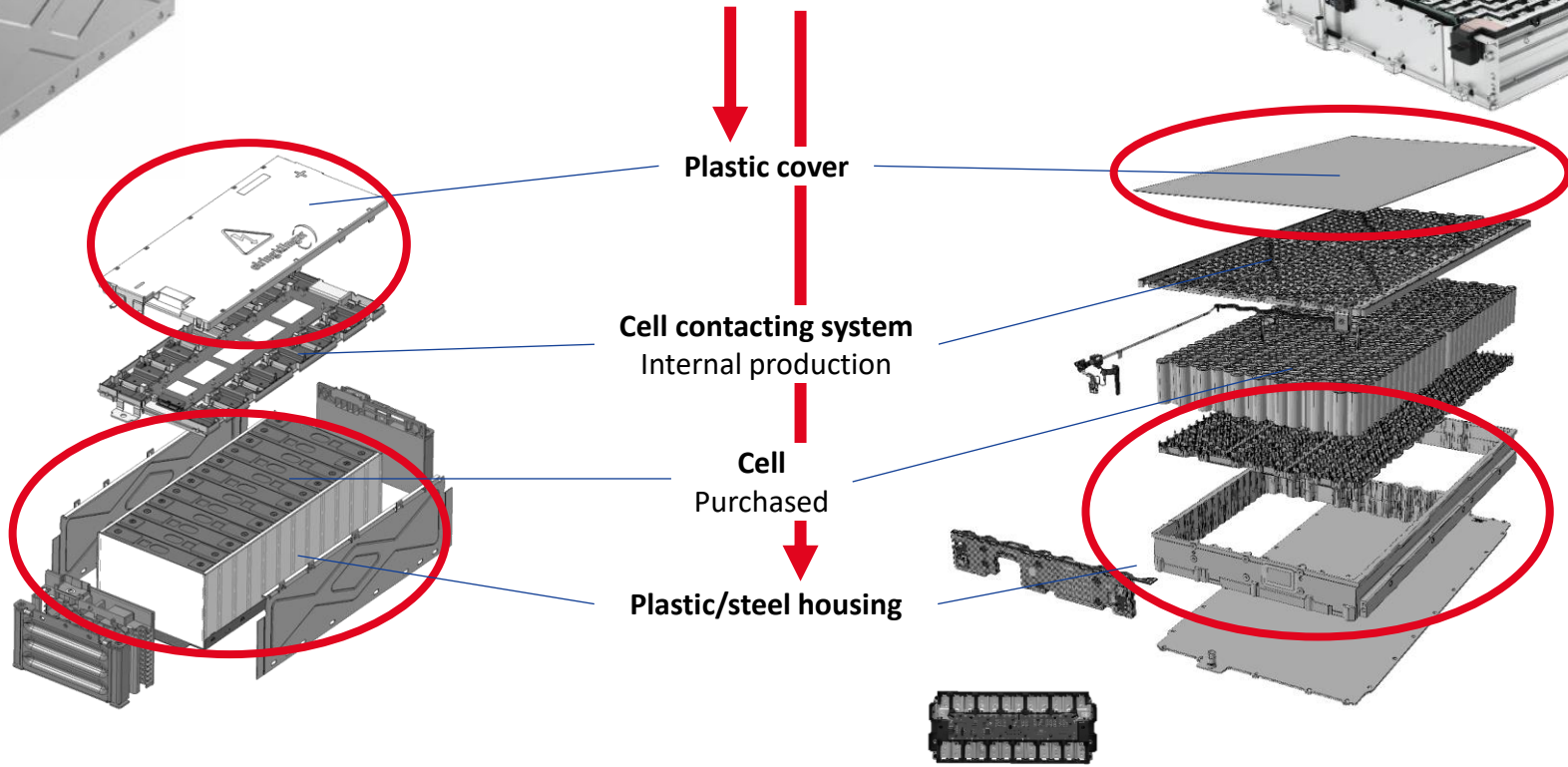
- Complete advanced research and development team
- Complete product development team
- Full testing capabilities (advance and product testing) on all levels from cell to pack
- Full prototype capabilities

Opportunities to deepen value chain in modules

Prismatic cell format

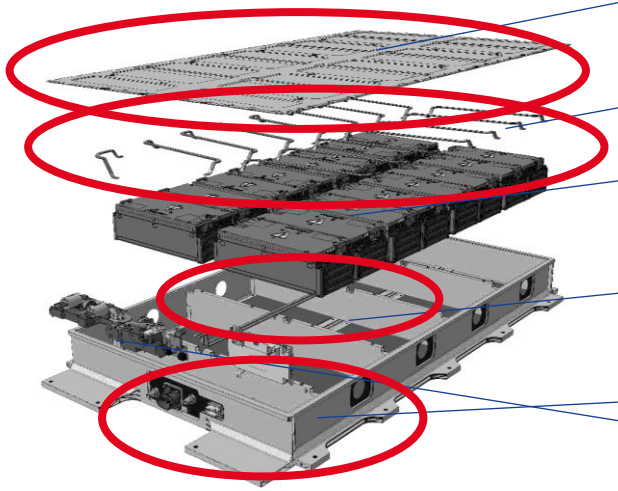
Components to be covered by other business units (Lightweighting/Elastomer Technology and Shielding Technology)

Cylindric cell format



Opportunities to deepen value chain in systems

Components to be covered by other business units (Lightweighting/Elastomer Technology and Shielding Technology)



Stainless steel cover

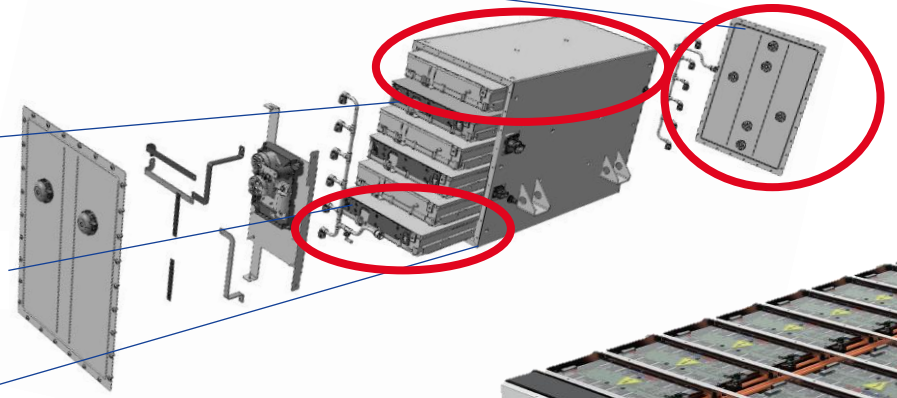
Copper busbars

Modules
Internal production

Cooling
(Aluminum/stainless steel)

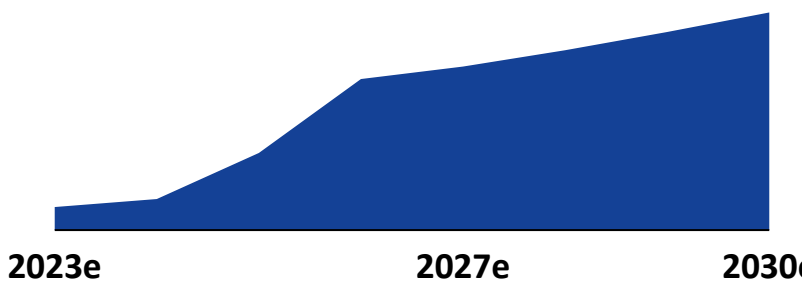
Aluminum/stainless steel housing

Switching unit
Purchased



Modules & systems in pouch, prismatic, and cylindric format

- **Production in new Center of Excellence** in Neuffen, close to Dettingen/Erms, opened in January 2021
- **Targeting niche markets**
- **New contract for** prototypes of **battery systems** received in 2021
  - Including development, supply and testing
  - Initial volume in single-digit million-euro range
  - Designated for all-electric sports car model engineered by Swiss-German manufacturer Piëch
  - Pack with 400 pouch cells with ability to switch voltage from 800 V (charging) to 400 V (driving operations)
  - Targeting a range of 500 km at a capacity of more than 70 kWh

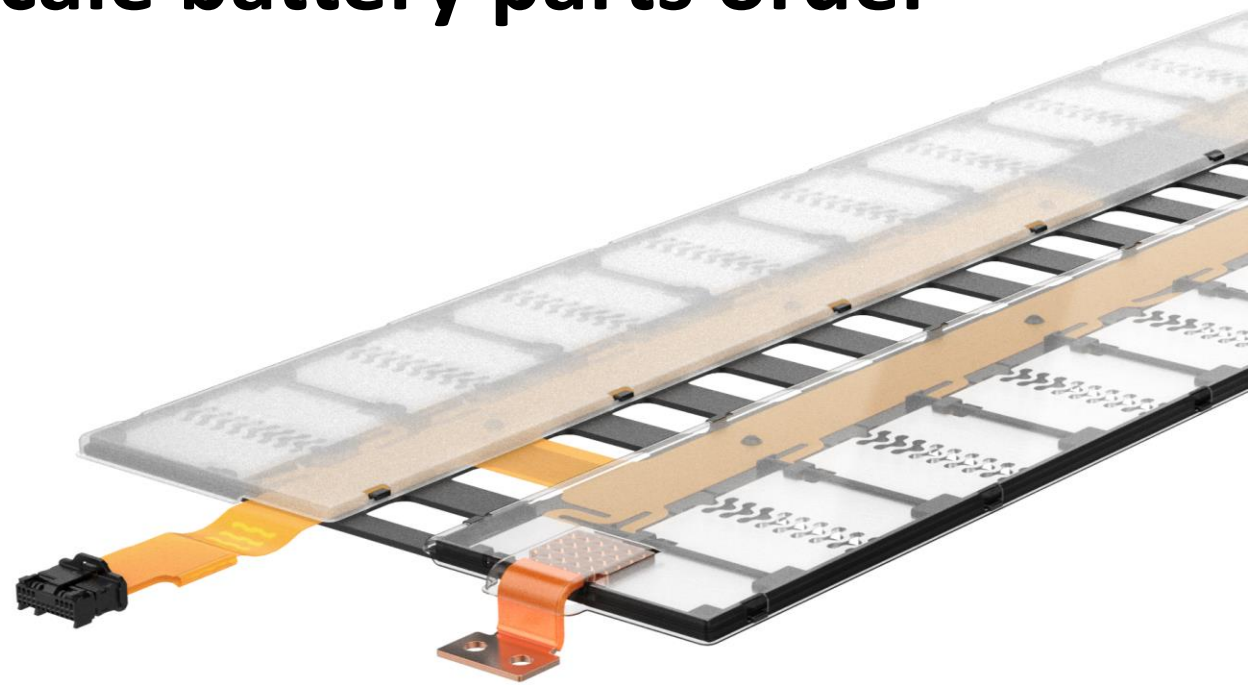


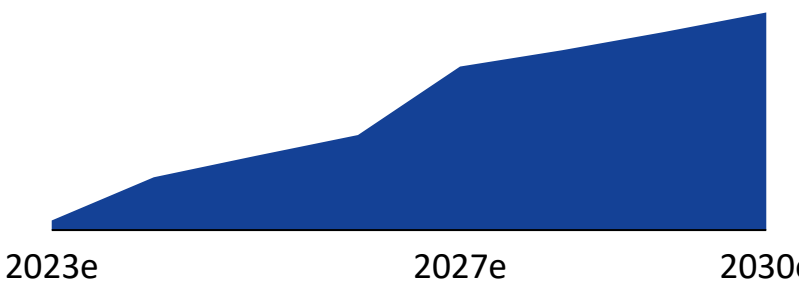
Annual sales in modules and systems to grow into low triple-digit million-euro area

Data after 2027 based on growth assumptions.

ElringKlinger awarded large-scale battery parts order

- Initially **based on core competencies** gained in ICE technologies, e.g. plastic injection molding, metal treatment
- **First serial production** of E-Mobility components started **in 2012**
- **Targeting mass market**
- **New large scale contract** for cell contacting systems received in 2021
  - Over a term of 9 years
  - Total volume in mid-triple-digit million-euro range
  - Customer: global battery manufacturer with a factory in Germany
  - End customer: German premium OEM
  - Currently in preparation for ramp-up phase

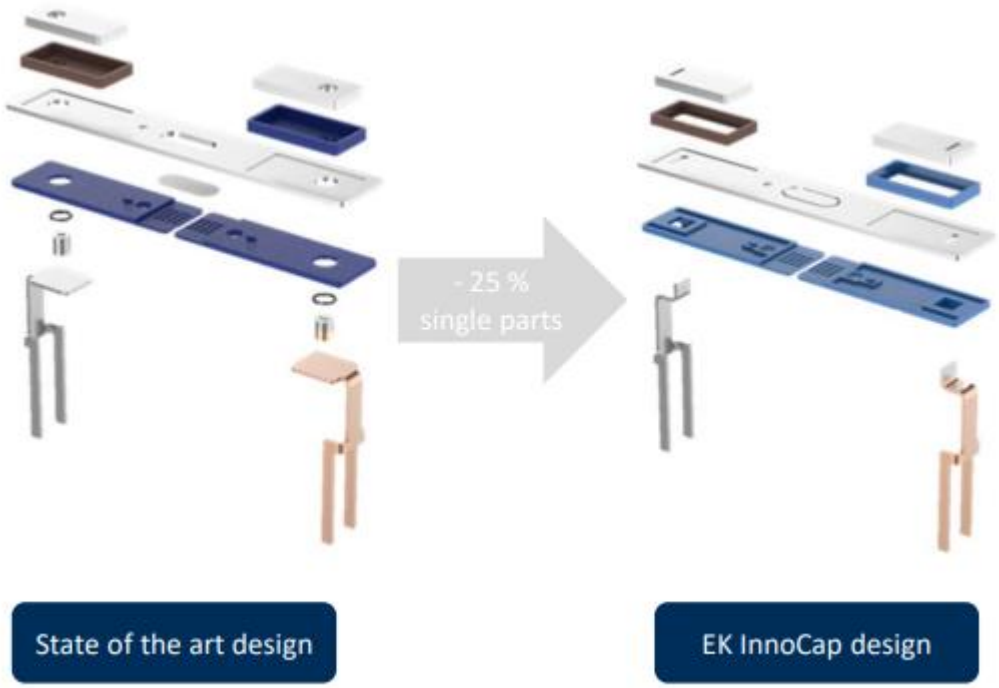




Annual components sales to grow into low to mid triple-digit million-euro range

Data after 2027 based on growth assumptions.

Innovative cell housing design as part of European IPCEI



- **IPCEI funding*** for innovative battery cell house design
- **Total funding volume of EUR 33.8m by end of 2026**
- Some **key technological facts:**
  - Innovative sealing with potting material, in addition simpler geometries of single parts
  - Lean production concept
  - In the end, cell housing with up to 25% less components, less materials required and thus shrinking carbon footprint by 40%

IPCEI = Important Project of Common European Interest

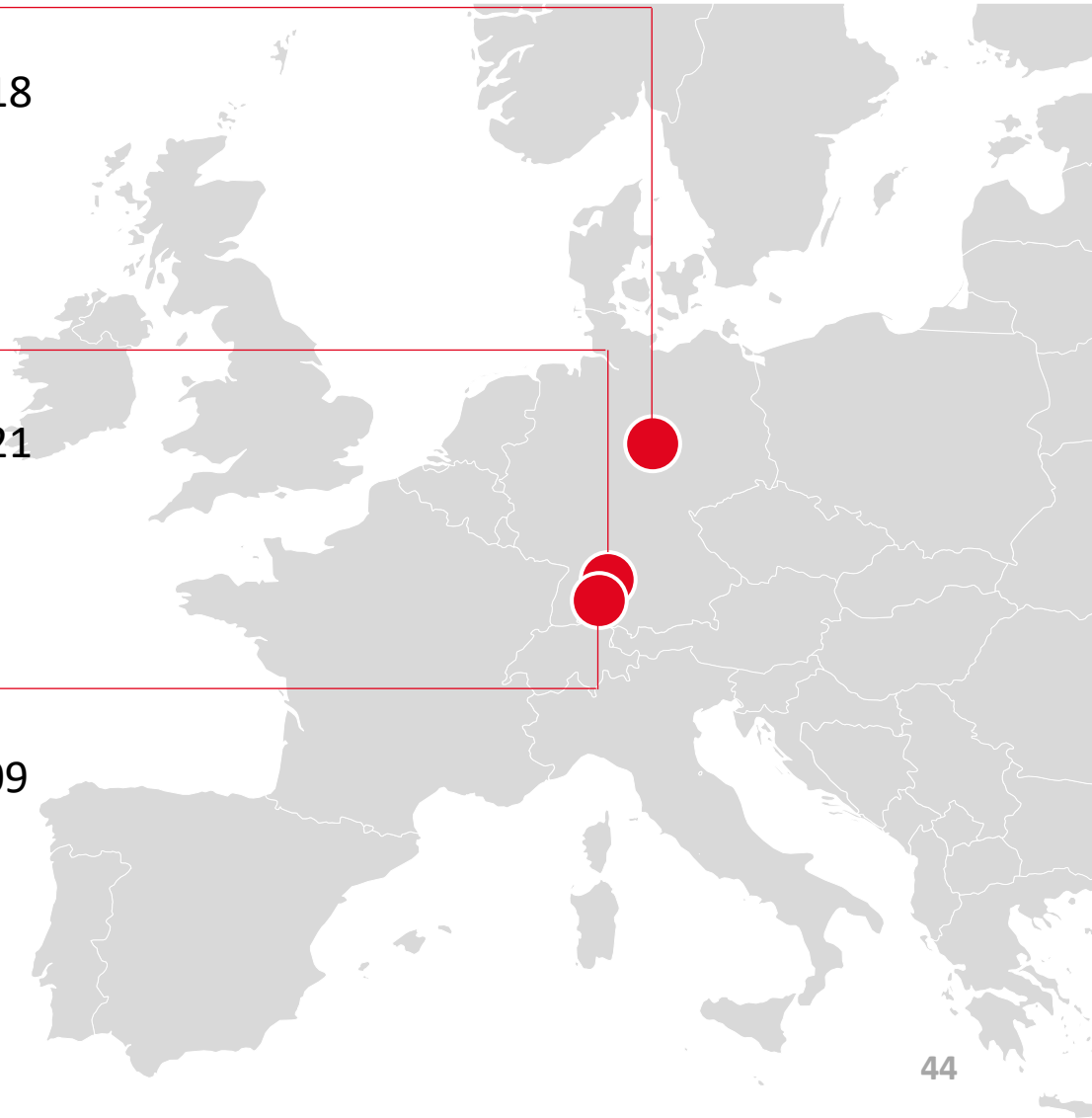
* By Federal Ministry of Economic Affairs and Energy as well as Ministry of Economic Affairs of the State of Baden-Württemberg

Location structure with Central European focus

Thale
- Battery Technology established in 2018
- Production area of 5,000 m²
- 60 employees

Neuffen
- Battery Technology established in 2021
- Production area of 14,000 m²
- Testing area of 2,000 m²
- Approx. 150 employees

Dettingen/Erms
- Battery Technology established in 2009
- Production area of 1,200 m²
- 20 employees



Battery Technology

Inside Thale

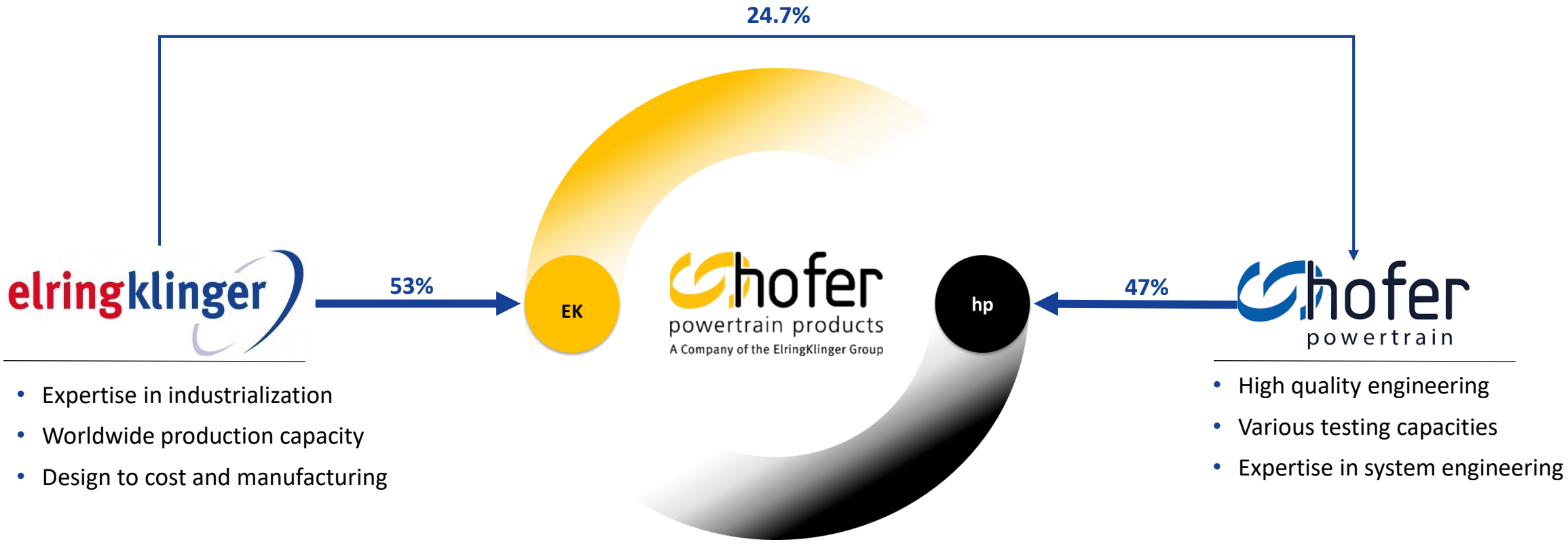
Capital Markets Day

November 18, 2022

High-performance Drivetrain Technology

Jürgen Weingärtner
Vice President Electric Drive & Battery Technology

Using the joint power of two strong partners

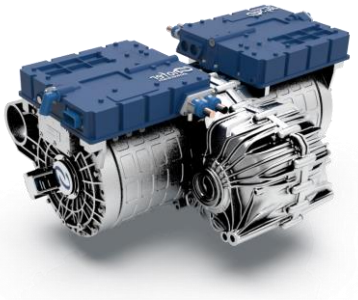
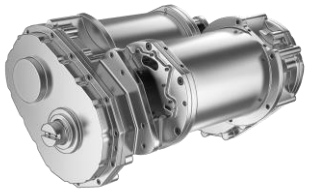
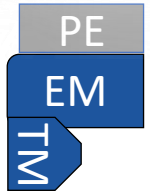
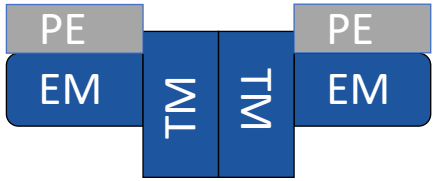
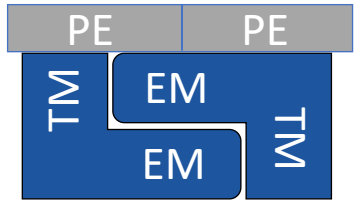


- Expertise in industrialization
- Worldwide production capacity
- Design to cost and manufacturing

- High quality engineering
- Various testing capacities
- Expertise in system engineering

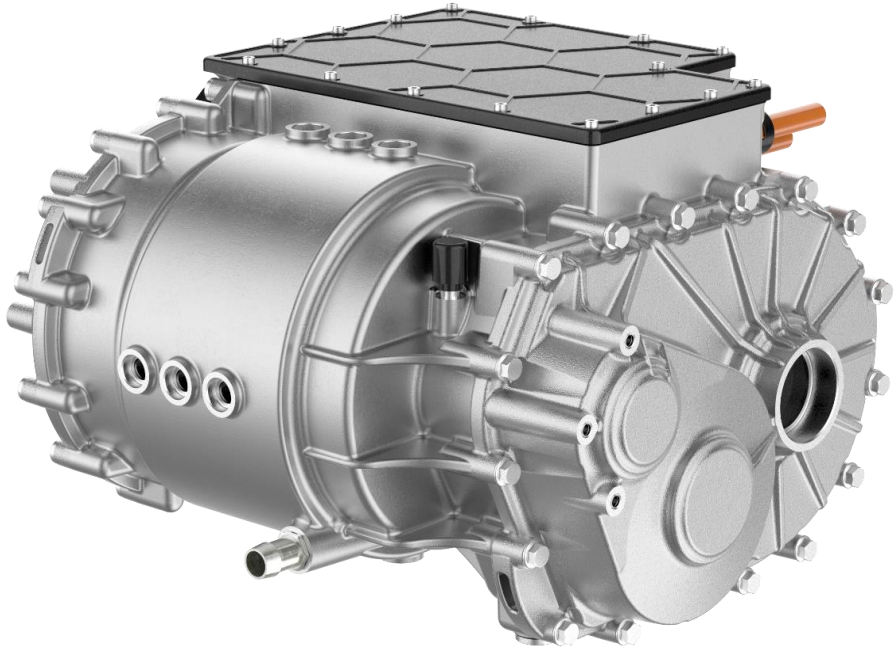
- High flexibility with small quantities
- Professionally competent partnerships

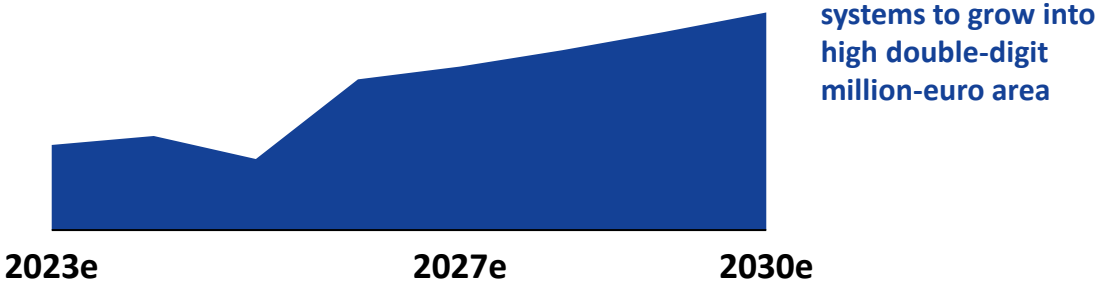
Clearly defined product portfolio

	Coaxial	Offset	2x High-Performance Torque Vectoring EDU	2x High-Compact Torque Vectoring EDU
Images				
Schematics				
Advantages	• Modular devices • Planetary gear box • Disconnect clutch can be integrated	• Modular devices • 2 stage spur gear and differential • mechanical parking lock	• Modular devices • Two independent drives • Torque vectoring • High power output	• Modular devices • Two independent drives • Torque vectoring • High power output • Very compact

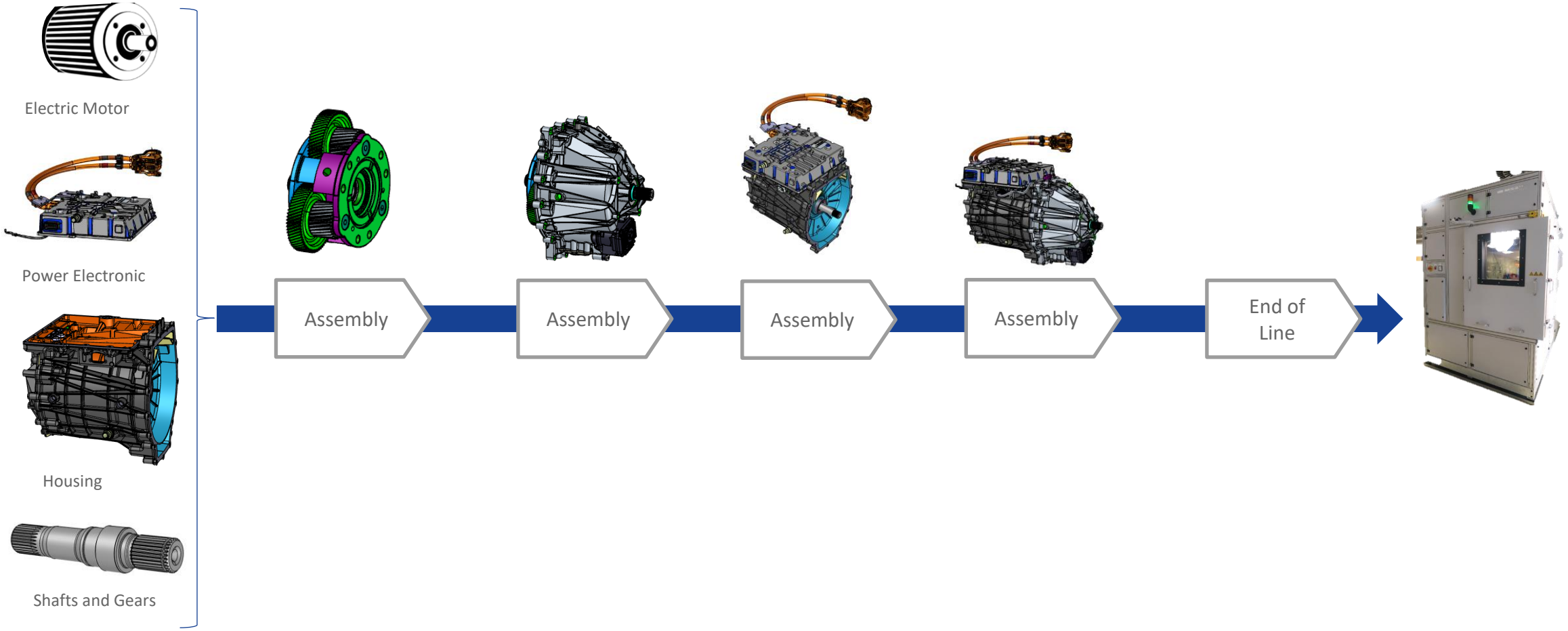
Drivetrain business unit in production ramp-up phase

- Based on **strategic cooperation with hofer powertrain** since 2017
  - Minority stake in parent company hofer powertrain
  - Majority stake in producing entities („hofer powertrain products“)
- **Targeting high-end sports and luxury car segment**
- **Order** for European all-electric sports car model **received**
  - Development and supply of electric drive units
  - New plant in UK for production
  - Production started in 2021

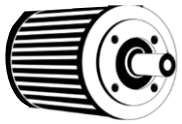




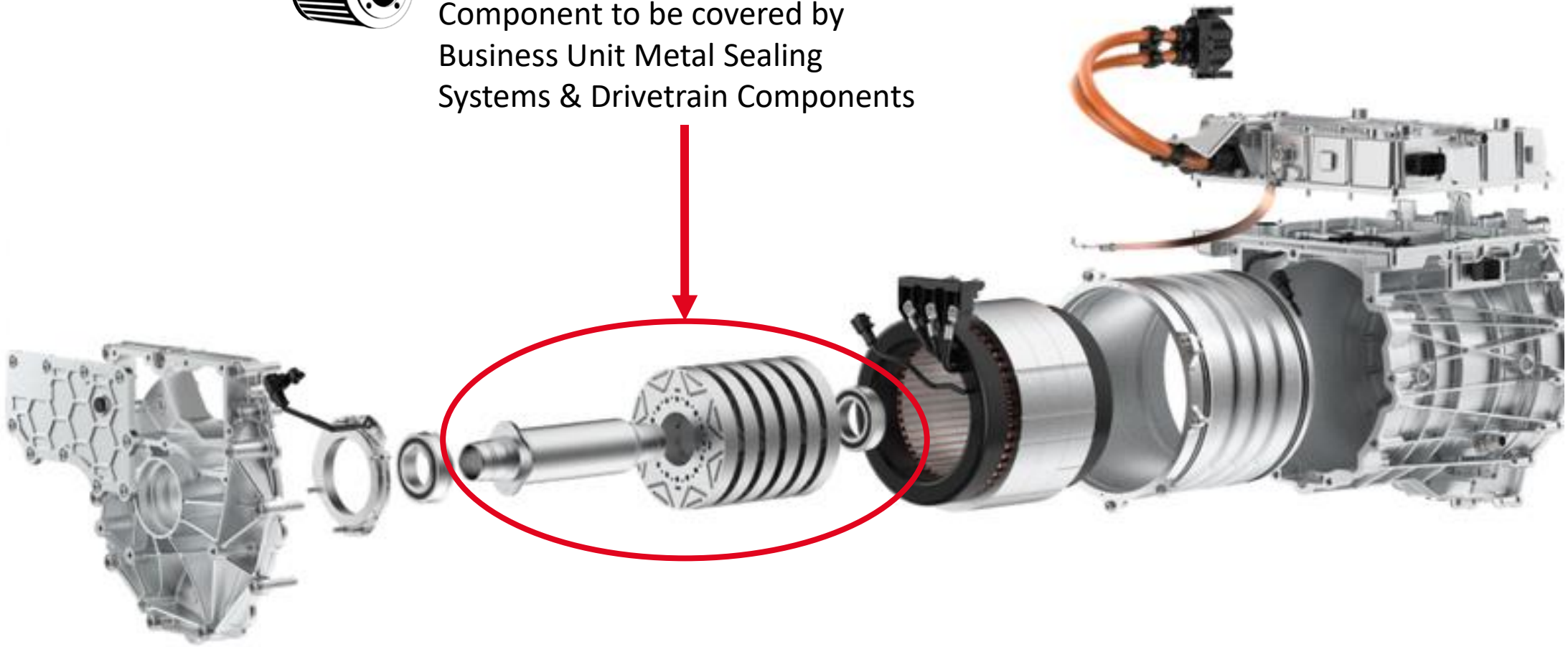
Value chain approach: Drivetrain System



Opportunity to deepen value chain within the Group



Rotor/stator
Component to be covered by
Business Unit Metal Sealing
Systems & Drivetrain Components



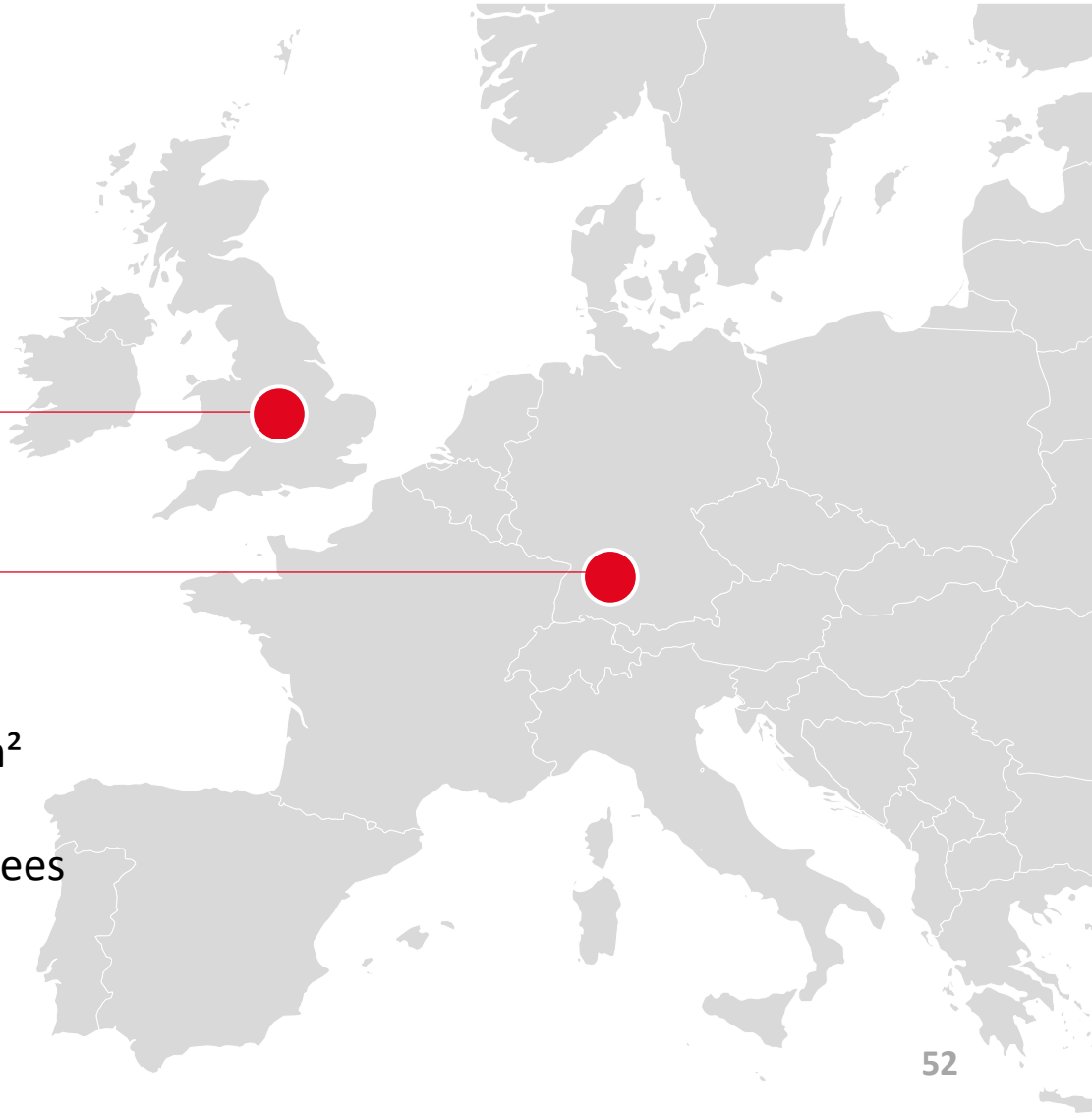
Location structure with European focus

Solihull

- Production area of 1,200 m²
- 38 employees

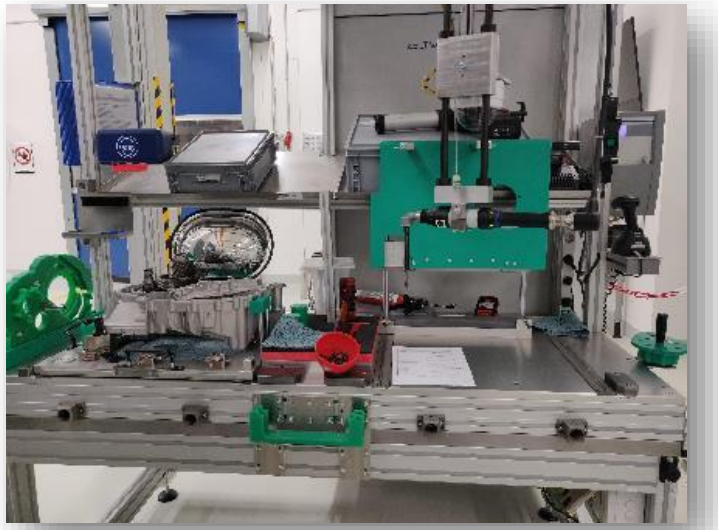
Neuffen

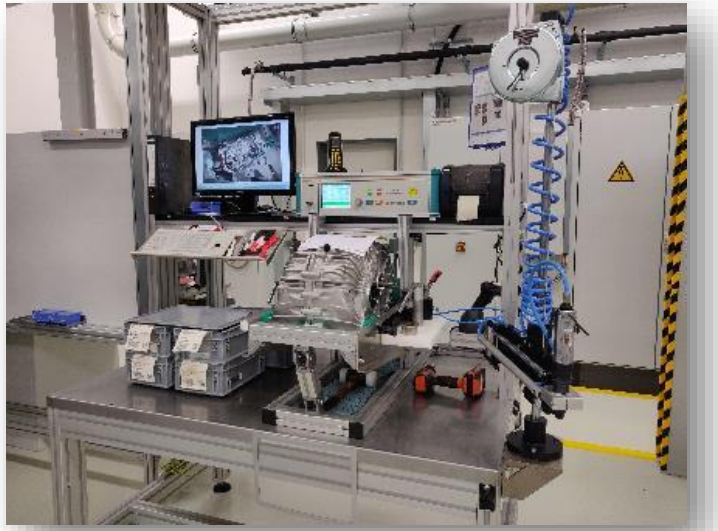
- Production area of 14,000 m²
- Testing area of 2,000 m²
- Office area with 400 employees
- Approx. 150 employees

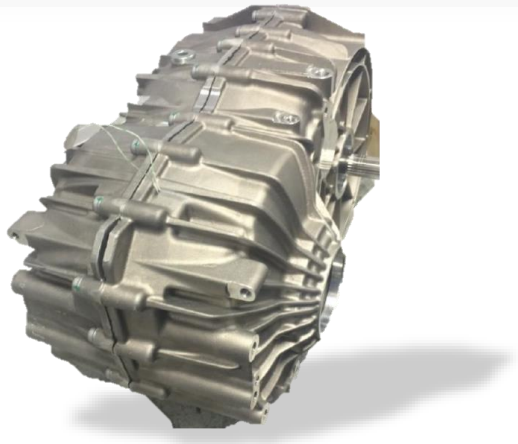


Drivetrain Technology

Inside Neuffen







E-Mobility: Battery & Drivetrain Technology

In the middle of ramp-up phase

Today

- Business unit with innovative products for e-mobility in **start-up situation**
- Focus on **Europe**
- Future-oriented **components for large-scale production**, e.g. cell contacting systems
- Targeting **niche markets for systems** solutions

Tomorrow

- **Established player** for new drive technologies with strong sales and earnings contribution
- **Global** positioning
- **Realized growth in** sales for **components and systems**

Capital Markets Day 2022

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Capital Markets Day

November 18, 2022

EKPO: Driving hydrogen solutions for a sustainable future

Dr. Gernot Stellberger
Managing Director EKPO Fuel Cell Technologies

EKPO Fuel Cell Technologies

At a glance

Headquartered close to Stuttgart in
Dettingen/Erms

More than
190 employees

Focus on
global fuel cell business

Production capacity of up to
10,000 units p.a. available

More than
160 patents

EKPO Fuel Cell Technologies

A leading position in fuel cell technology

elringklinger 60% → EKPO FUEL CELL TECHNOLOGIES ← 40% PLASTIC OMNIUM

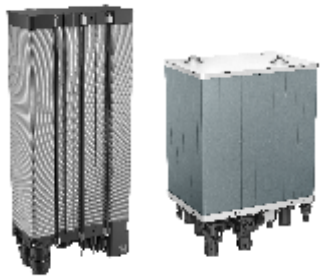
A German-French joint venture of strong partners,
headquartered in the center of Europe

- Sales >1.6 bn EUR*
- 45 factories
- ~10,000 employees
- Founded in 1879

Technology leadership for fuel cell stacks and components

Components

Assembly



Stack modules

- Sales >8 bn EUR*
- 131 factories
- ~31,000 employees
- Founded in 1946

* All figures refer to FY2021.

Early move based on core competencies

Component | Product

Customer | Field

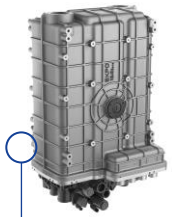
Customized development of metallic bipolar plate

Start of fuel cell stack development (graphitic bipolar plate)

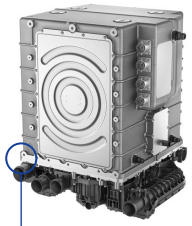
Start of stack development NM5 (> 50 kW) (metallic BPP)

Start of stack development NM12 (> 120 kW) (metallic BPP)

SOP NM5evo (76 kW)



SOP NM12 single (123 kW)



SOP NM12 twin (205 kW)

2000 2010 2012 2014 2016 2018 2020 2022 2024 2030

First field application of EK FC-Stacks (Forklift)

Customized development of Media Supply ASM

Joint Venture between ElringKlinger and Airbus

AEROSTACK

Joint Venture between ElringKlinger and Plastic Omnium

EKPO FUEL CELL TECHNOLOGIES

High-volume series orders for NM5evo stack module

AE ALTERNATIVE ENERGY DRIVEN SOLUTIONS

Globe

NM5evo System integration in HD Truck

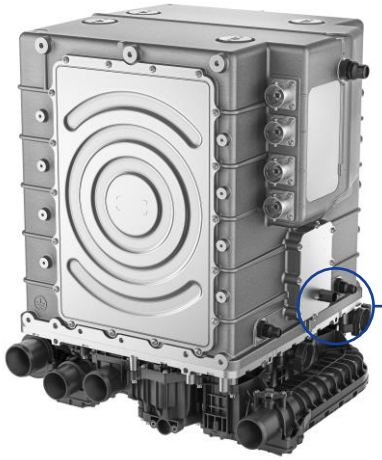
H2HAUL

Resulting in a technically leading product portfolio

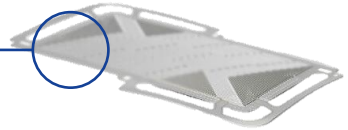
NM5-EVO

NM12

Media modules



NM12-TWIN



Bipolar plates

EKPO offers innovative, production-ready fuel cell solutions and meets the requirements of a wide range of markets in both mobile and stationary sector.

Emission-free mobility for every industry

Passenger Cars

- Small installation spaces
- Need for high volumes
- Everyday usability of the vehicles

Light Commercial Vehicles

- Long-distance capability essential
- Short refueling time required
- Heavy use of vehicles

Trucks

- High CO_2 emissions
- Frequent use on long distances
- Long ranges required

Buses

- Compliance with emission limits
- Fast refueling required due to multi-shift operations
- Long-distance suitability in urban areas

Off-highway

- Difficult operating conditions
- Continuous or multiple shift operation necessary

Trains

- Long-distance operation
- Fast refueling time required
- Climate-friendly alternative on non-electrified route sections

Marine

- High CO_2 emissions
- High power requirements for variety of ship types

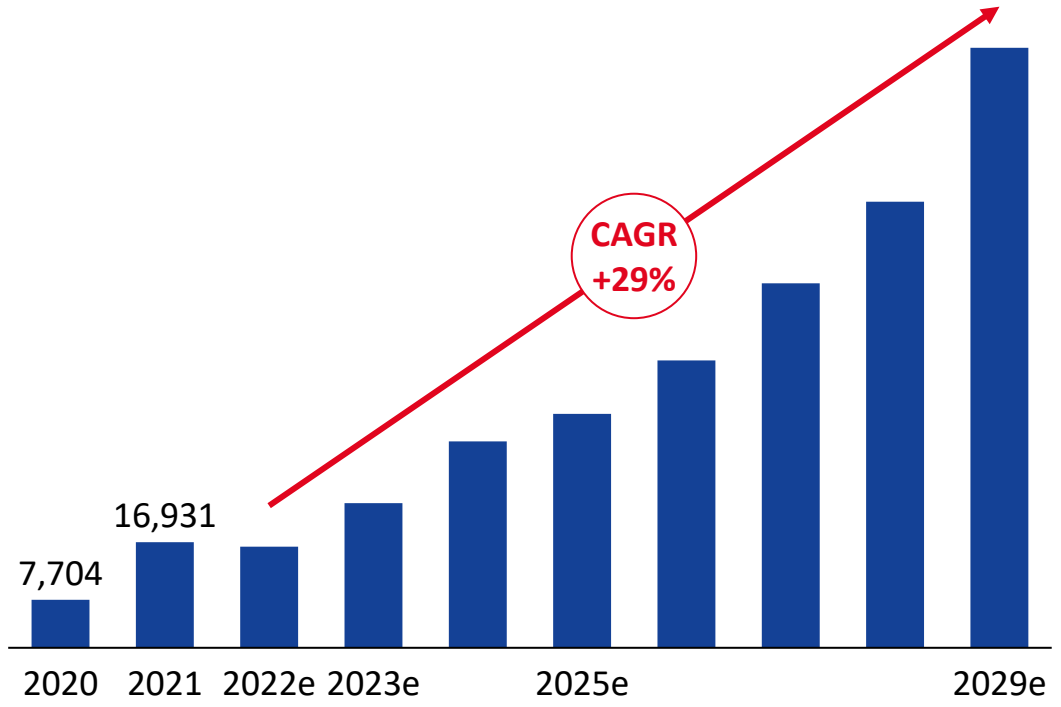
System integrators

- Limited installation spaces for structure of system
- High complexity due to large number of components
- High tuning requirement for optimal system performance

Rising number of fuel cell vehicles expected

Source: BMW

Market potential of fuel cells in light vehicle segment – in units p.a.

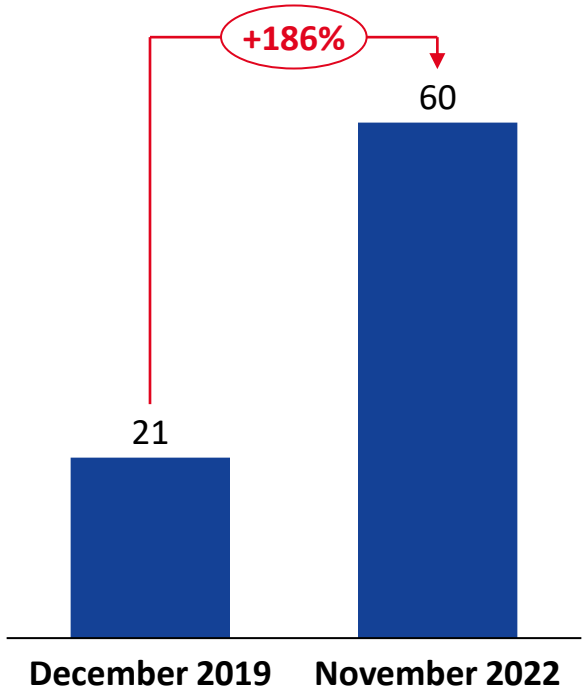


Source: IHS (10/2022)

Truck sector turns its attention to fuel cell drives

Source: DAF

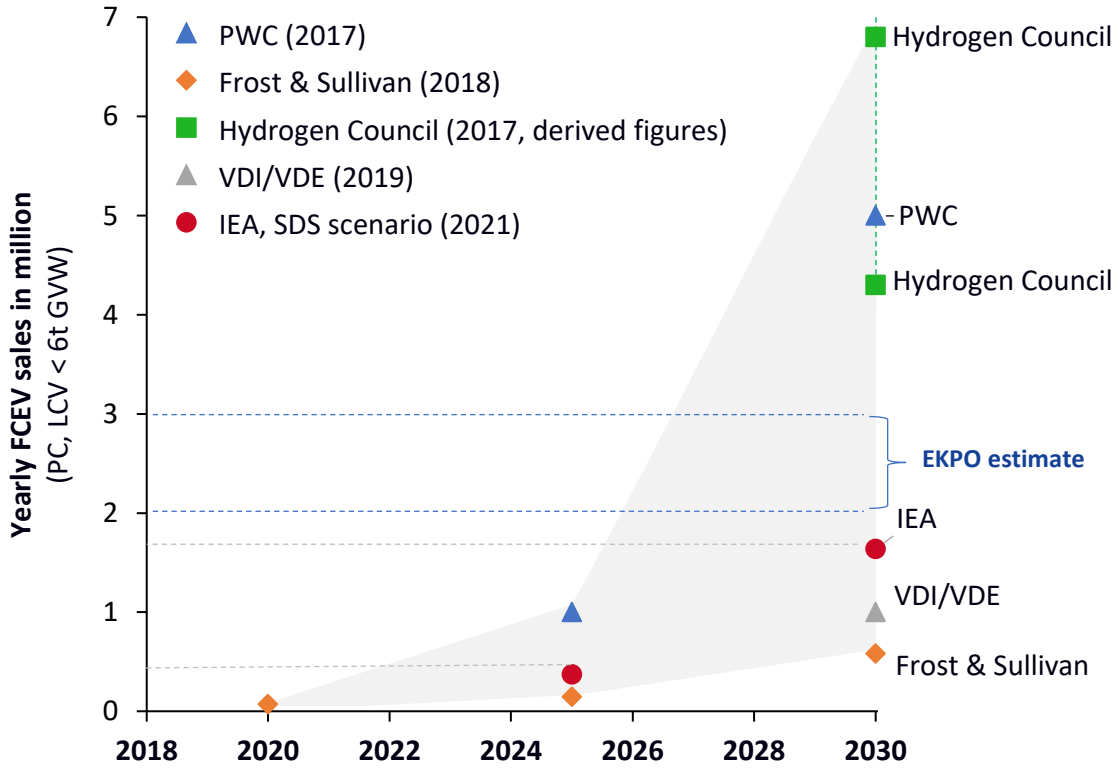
Publicly announced medium & heavy-duty fuel cell truck projects



Source: ElringKlinger Research Team

Growth of fuel cell light vehicles from mid of decade onward

Market potential of light vehicle segment – in thousand units p.a.

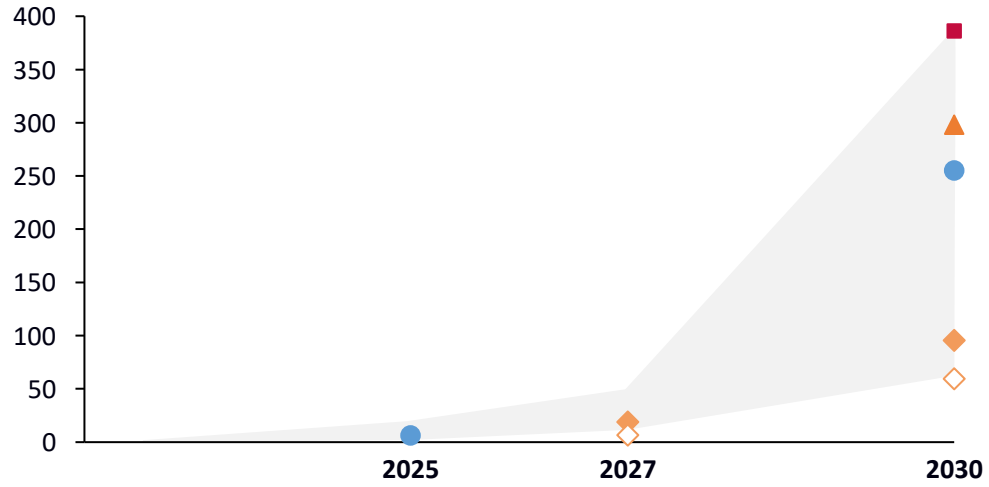


- Scenario analysis shows potential for more than 5 million fuel cell passenger cars and light commercial vehicles per year by 2030
- To meet the projected demand from the TOP 4 states with FCEV deployment targets, annual production would need to reach at least 1.6 million fuel cell vehicles in 2030
- In its sustainable development scenario (Global EV Outlook 2021), the IEA has projected 1.6 million fuel cell cars and vans by 2030 as well
- The long-term outlook to 2050 indicates an important role for FCEVs in the zero-emission end game

FCEV = Fuel Cell Electric Vehicle | IEA = International Energy Agency

Strong increase of fuel cell trucks in second half of decade

Market potential of medium and heady-duty truck segment – in thousand units p.a.

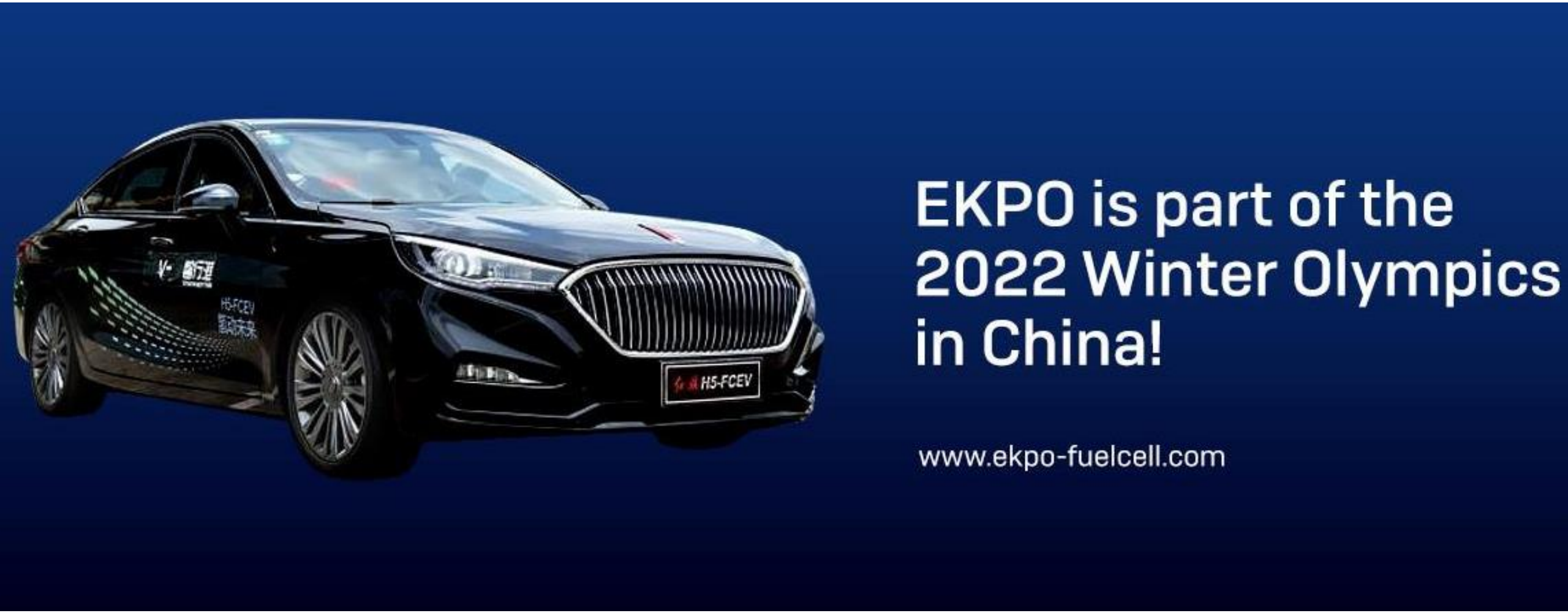


- Derived from BCG (2019), referring to Europe, USA and China
- FCHJU / Roland Berger (2020): Europe only, heavy-duty >15t, optimistic scenario
- FCHJU / Roland Berger (2020): Europe only, heavy-duty >15t, baseline scenario
- IEA (2021), worldwide, sustainable development scenario
- **EKPO analysis, optimistic case, worldwide (Top 5 markets)**

- Analysis based on a BCG study results in market size of about 300,000 fuel cell trucks by 2030 in China, Europe and USA
- Additional potential in Japan, South Korea and other countries with a dedicated H_2 strategy
- In Europe, sales could amount to 95.000 heavy-duty fuel cell trucks by 2030
- US market shows strong tailwind on H_2 activities

Applications

EKPO technology already proven in passenger cars



Applications

Enabling emission-free driving over long distances

Source: H2Haul

Applications

Especially suitable for buses with high frequency of use

Source: Safra

Applications

Clean technology for flexible use in commercial vehicles

Applications

High emission-free performance in motor racing

Source: GCK

Applications

Off-road in continuous operation, e.g. in logistics at ports

Source: Terberg

Applications

High power density as differentiating factor

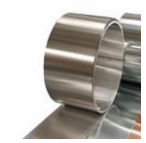
Source: Airbus

Applications

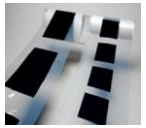
Marine solutions for boats and ships

Production

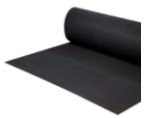
Deep value creation along the value chain



Coated coil



CCM



GDL

Plastic granules

Manufacturing SoGDL

Manufacturing Bipolar plate

Assembly of MEA

Automated stacking

Completion of stack module

PEM Stack Shipment

Pre-Process

Injection molding plastic components

Pre-Assembly

Pre-Assembly end plates

Stack Assembly

Stack Compression

Automated compression

Final Assembly

Completion of media supply ASM

End of Line

End of Line Testing

Production

A difference: capacities for serial production already installed

Expertise in industrial-scale production

- Highly efficient, automated manufacturing processes
- Reproduceable quality through 100% inline quality control and 100% traceability
- Industrialized design of stack module and components
- High added value along the entire manufacturing process chain

Production

Moving from prototype to serial production

Industry Mainstream

Manual process

100-1000 pts/yr

Low quality control

Breakthrough

EKPO Current

State of the Art

Automated process

10,000 pts/yr

Automotive standard

Breakthrough

EKPO Next Gen

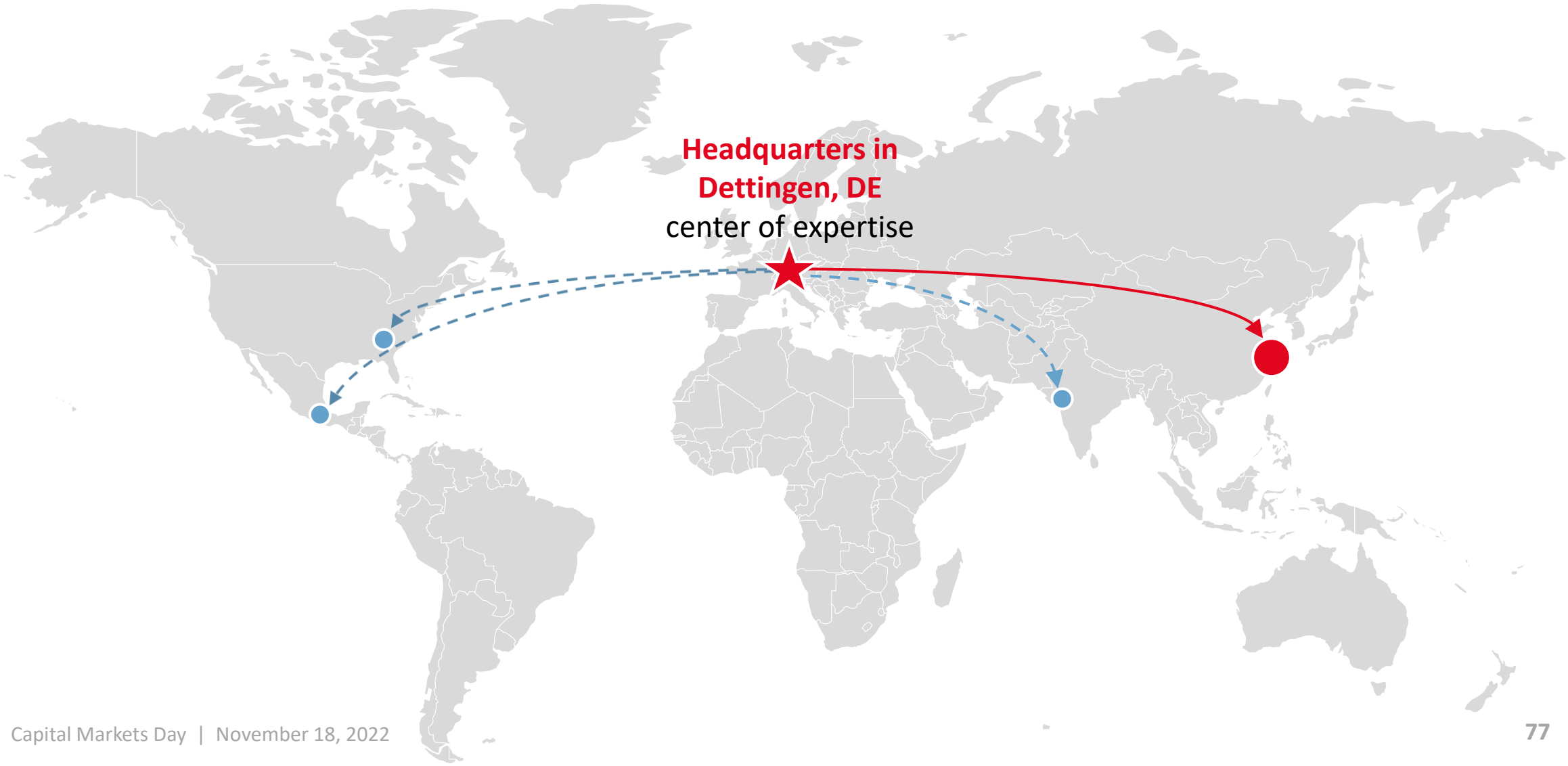
Next Stage

Fully Automated line

100,000 pts/yr

Automotive standard

Global industrialization for tapping the growth potential



First step: successful establishment of EKPOCI

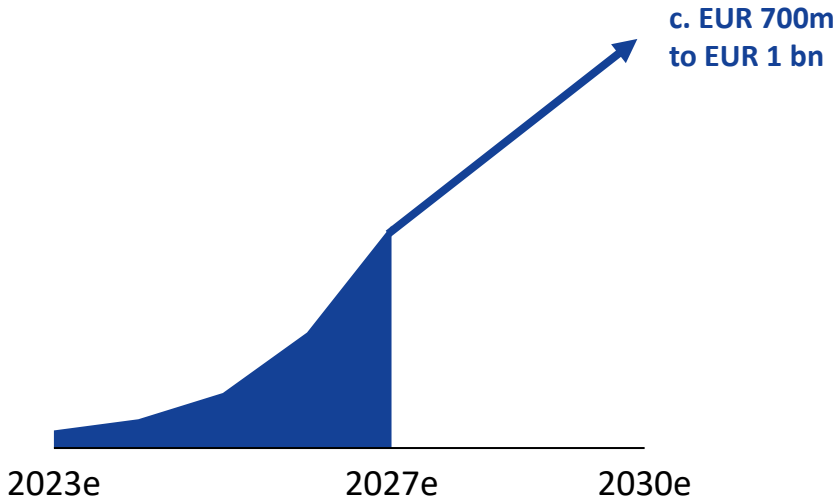
On May 24th, 2022 – Signing Ceremony EKPO China

On July 28th, 2022 – Signing of Investment Agreement

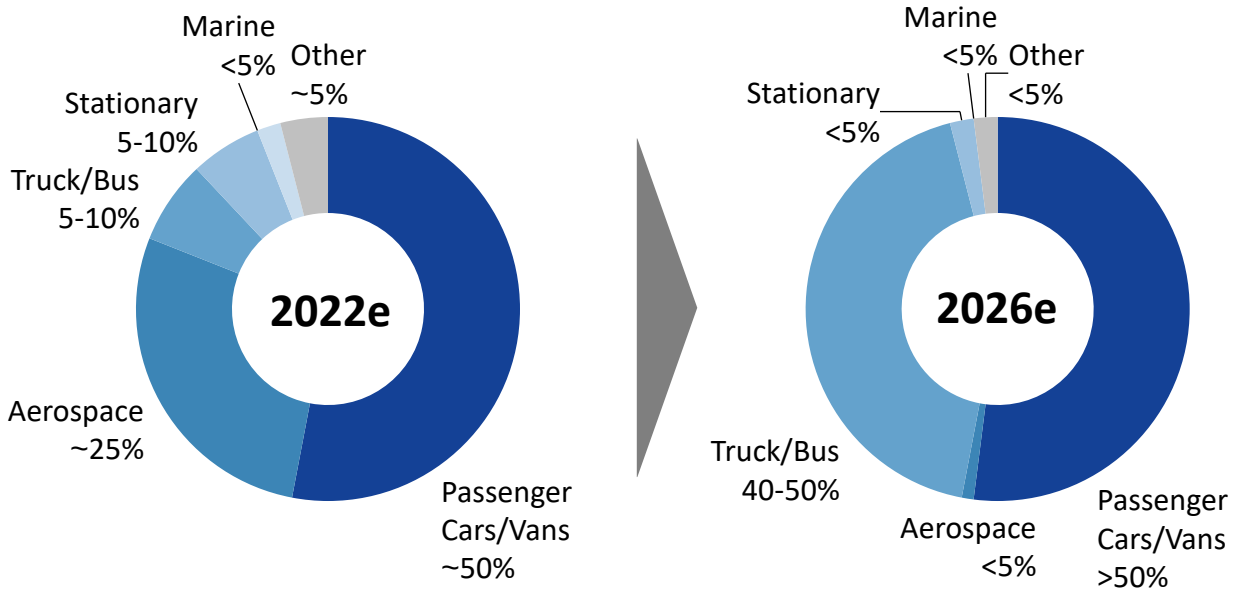
Key figures

Further growth expected, especially in truck & bus segment

Projection of sales – in EUR million



Sales split by market segment – in % of sales



EKPO expects strong growth of sales particularly in the second half of the decade.
Commercial vehicles (incl. vans, trucks, and buses) represent more than 90% of sales in 2026.

Data after 2027 based on growth assumptions.

EKPO Fuel Cell Technologies

Leading in technology

Today

- **Best-in-class fuel cell stacks** with high power density and sophisticated bipolar plate design
- Industrialized **production capacity of up to 10,000 stacks p.a.** in accordance with automotive standards already available
- **Project-driven approach**, batch-driven production
- **Focus on Europe with expansion to China** and a view to North America as well

Tomorrow

- **Established provider for fuel cell solutions** in mobile and stationary hydrogen applications
- Generating **considerable sales volumes** in a broad field of on-road and industrial applications
- **Serial manufacturing fully implemented**, serial business dominates customer projects
- **Globally positioned** with sales, engineering, and production capacities in all major automotive markets


EKPO

Capital Markets Day 2022

Agenda

09:00	Welcome	Dr. Stefan Wolf
09:15	The ElringKlinger Story	Dr. Stefan Wolf
10:00	ElringKlinger: Established Supplier for E-Mobility Products	Jürgen Weingärtner
10:40	Coffee Break	
10:50	EKPO: Driving Hydrogen Solutions for a Sustainable Future	Dr. Gernot Stellberger
11:30	Guided Tour – Production EKPO	
12:15	Lunch and Transfer to Plant 2	
13:45	Lightweighting/Elastomer Technology: Leading in Design, Weight, and Production	Klaus Bendl
14:30	Guided Tour – Production Lightweighting and Logistics	
15:20	Coffee Break	
15:30	Strategy Implications for Key Performance Indicators	Thomas Jessulat
16:15	Wrap-up	Dr. Stefan Wolf

Capital Markets Day

November 18, 2022

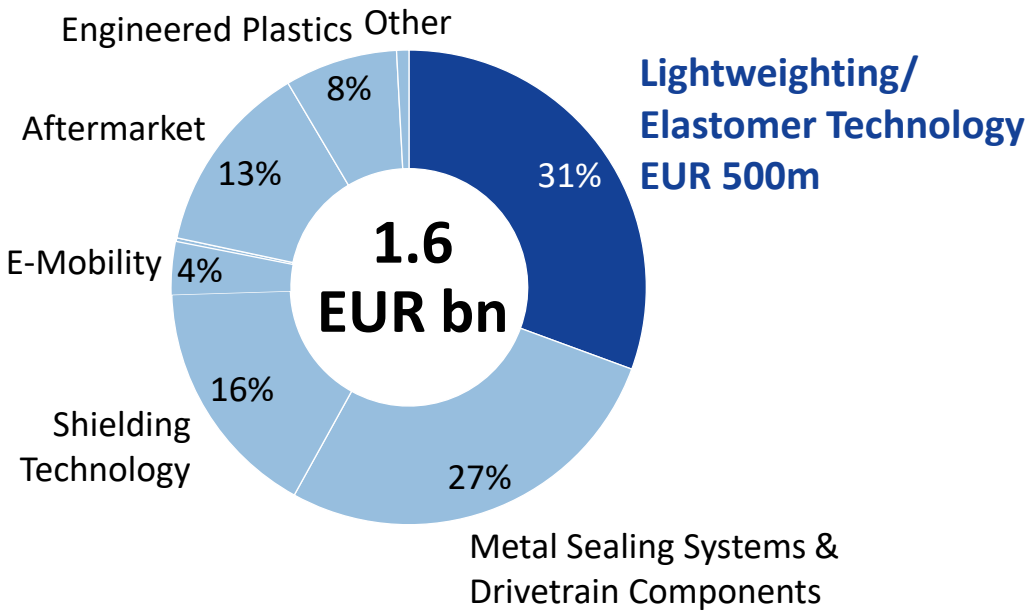
Lightweighting: Leading in Design, Weight and Production

Klaus Bendl
Vice President Lightweighting/Elastomer Technology

Lightweighting/Elastomer Technology

Representing largest share of sales within the Group

Sales split by business unit FY 2021– in % of total sales



Global locations of the Lightweighting/Elastomer Technology business unit

Lightweighting/Elastomer Technology

Comprehensive approach in development

- Multi material components (e.g. plastic, aluminum, organo sheet material)
- In-house material laboratories and material development

Product Development

Process Development

- Plastic injection molding technology (JoinMelt, MuCell)
- Hybrid technology
- Pressing and forming technology
- Connecting and joining technology

- In-house toolmaking for forming and injection molding tools
- Prototype and series tools

Tool Competence

Production Competence

- From prototyping to series production
- From small to large series production
- From manual to fully automated production

Lightweighting/Elastomer Technology

Product portfolio ready for next generation of mobility

1 Lightweighting Solutions

Metal forming hybrids

Composite hybrids

Structural plastics parts

Structural underbody parts

2 Plastic injection Molding

Structural brackets

Intake manifolds/resonators

Oil pans & housings

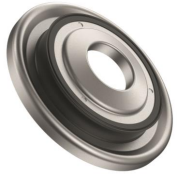
Cam cover & oil separators

3 Gasket Technology

Elastomer gaskets

Metal-elastomer gaskets

Bonded pistons



Cylinder-head gaskets

Solutions for EV platforms

Broad offer for reducing weight and emissions

Hydro-forming-hybrid/ structural components

Thermoplastic composite hybrid

Structural plastic parts

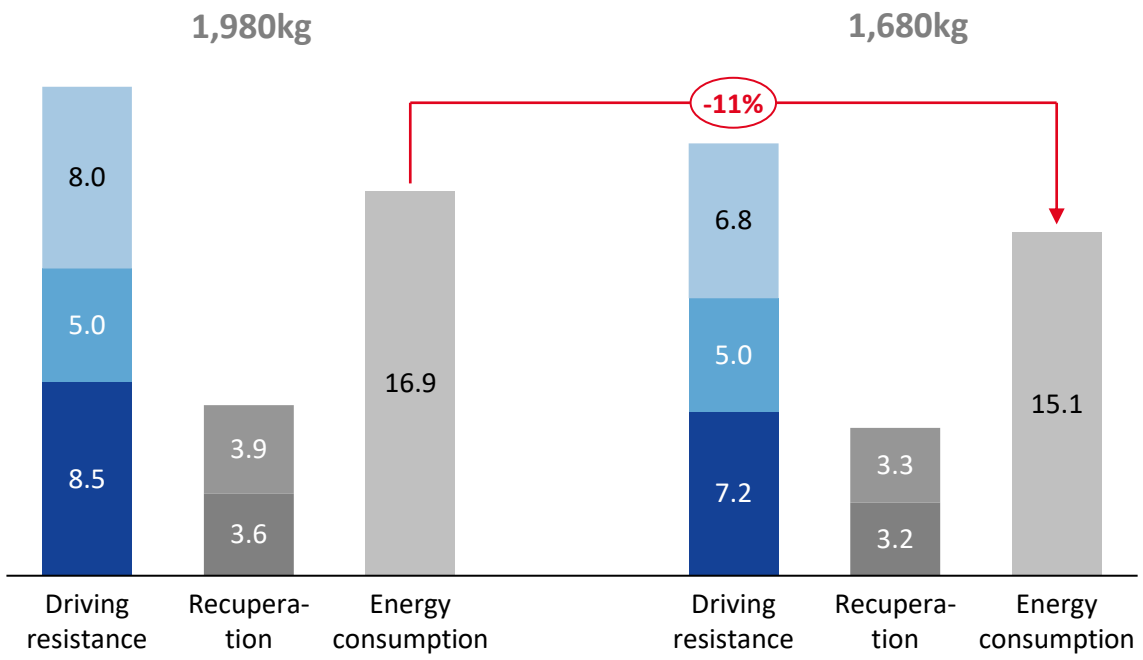
Composite sandwich components (incl. ElroSafe)

Lightweighting Solutions

incl. design, FEA/simulation, tooling, prototyping, testing and series production

Weight matters

Simulation results WLTC based on target vehicle (1,980 kg vs. 1,680 kg) – energy consumption in kWh/100km



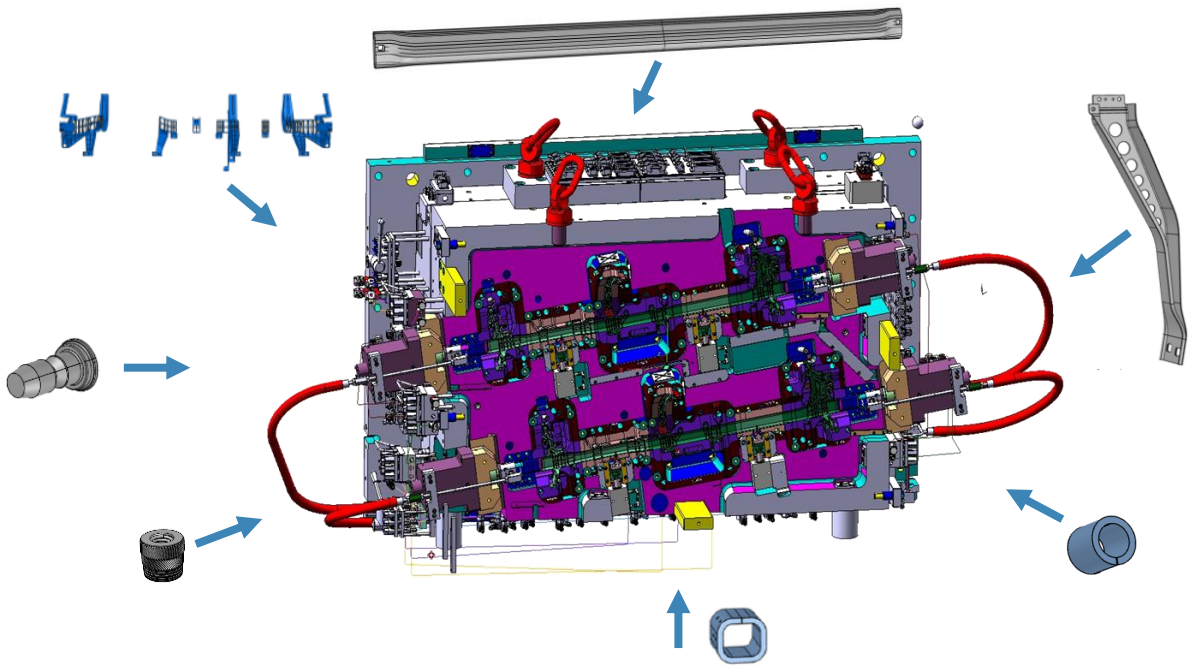
→ Weight reduction is an important factor for battery electric vehicles
- ✓ Reduced energy consumption
- ✓ Reduced wearing
- ✓ Higher payload especially for commercial vehicles

Weight reduction by 300kg leads to about 11% less consumed energy.

Source: Henning/Gauterin/Dollinger/Burgert, Leichtbau für die Elektromobilität (n.d.)

Production philosophy: “one single step”

Single step tool approach – example



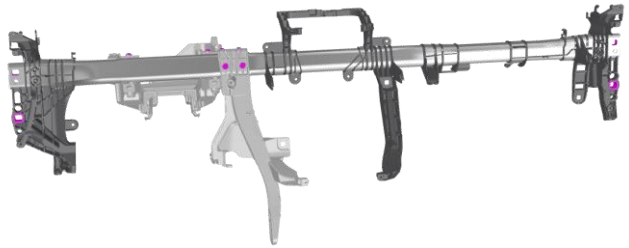
Advantages

- Minimum post processing
- Improved processing quality
- Better technical performance
- Less machine equipment (Capex)
- Better cost efficiency

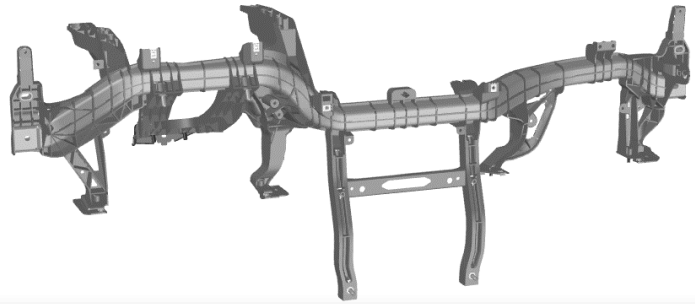
Shaping further development of cross-car beam technology

1st gen Magnesium/Steel/ Aluminum cross car beam

2nd gen Hydro-formed-hybrid cross car beam



3rd gen C-Profile hybrid cross car beam

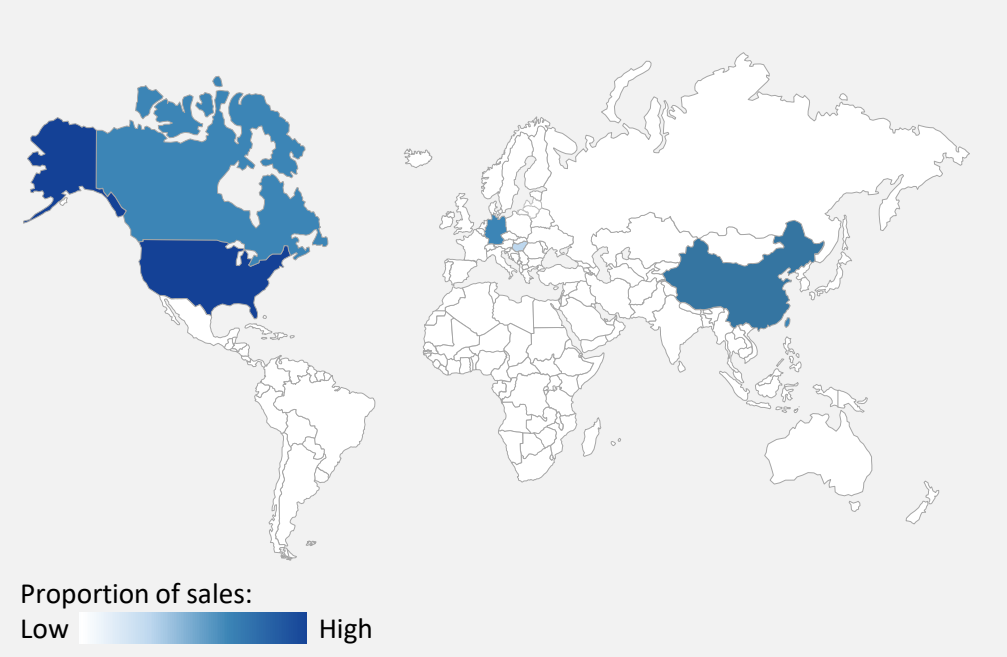


Hybrid cross car beam technology evolution

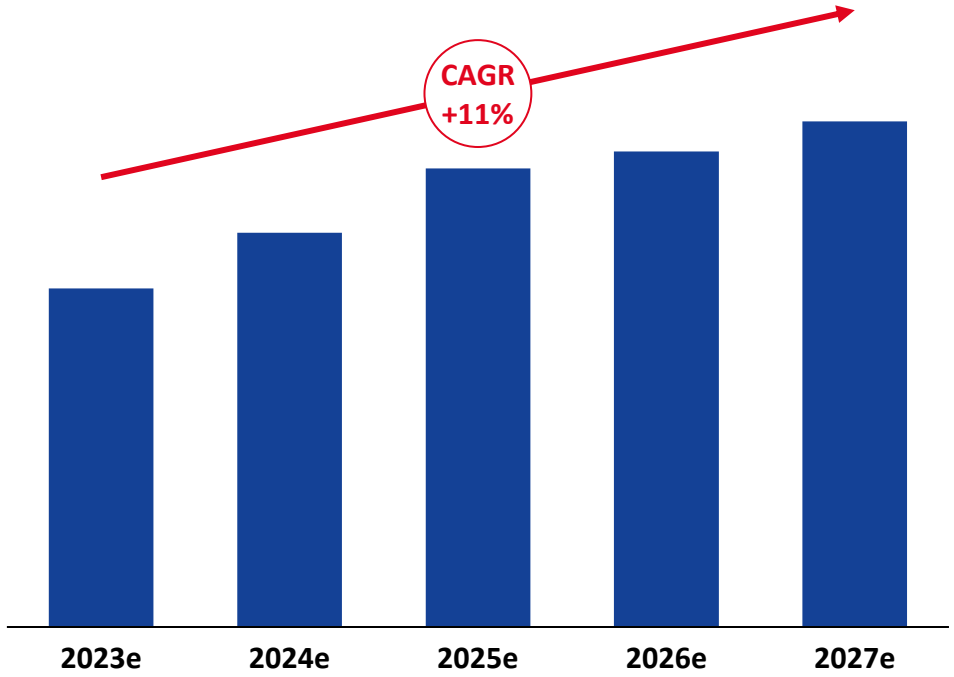
- ✓ The **latest evolution of metal hybrid cross car beams** further **improved the cost/weight ratio** by keeping **a high functional performance**.
- ✓ Additionally, **most recent tooling and process technology** reduces process and equipment cost significantly (**one-single-step process technology**).
- ✓ The design has been steadily improved by **lowering the share of metal and increasing the plastic content**.

Global sales increase with focus on North America

Projection of Lightweighting product sales footprint 2027



Projection of Lightweighting sales in North America

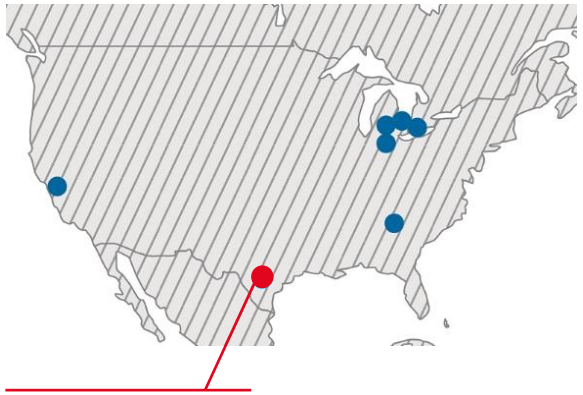


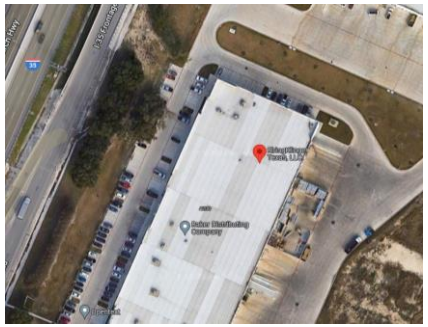
There are business opportunities for Lightweighting across several regions – with a strong focus on North America. CAGR significantly above light vehicle production forecast for North America 2023e-2027e (+1,5%)

Source: IHS (10/2022)

New ElringKlinger plant in San Antonio opened in 2021

ElringKlinger locations in the United States

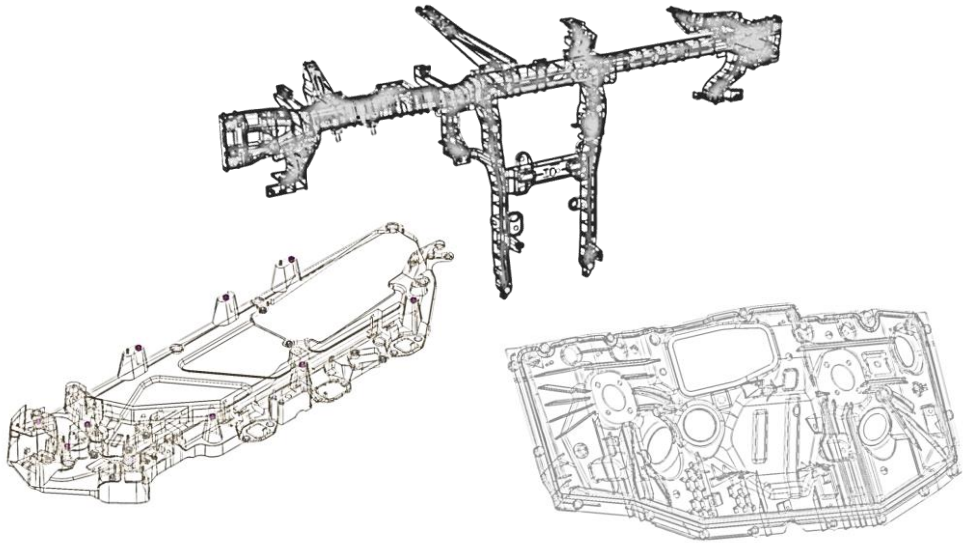




ElringKlinger Texas, LLC.

Ridgeview 35
4210 IH-35
San Antonio, TX 78218
USA

Exemplary Lightweighting components manufactured in North America for local customers



Focus on large-scale structural lightweighting components for the local market

① Lightweighting Solutions

Broad offer for reducing weight and emissions

Hydro-Forming-Hybrid/ Structural Hybrid Components

Thermoplastic Composite Hybrid

Structural plastic parts

Example ElroSafe™ on next slides

Composite sandwich components (incl. ElroSafe™)

Lightweighting solutions

incl. design, FEA/simulation, tooling, prototyping, testing and series production

Reliable ElroSafe™ parts replace heavy parts and structures

Application

Replacement of **aluminum and steel** deep drawn parts, **aluminum die casting** structures and thermoset parts **by composite sandwiches**

→ battery bases and covers

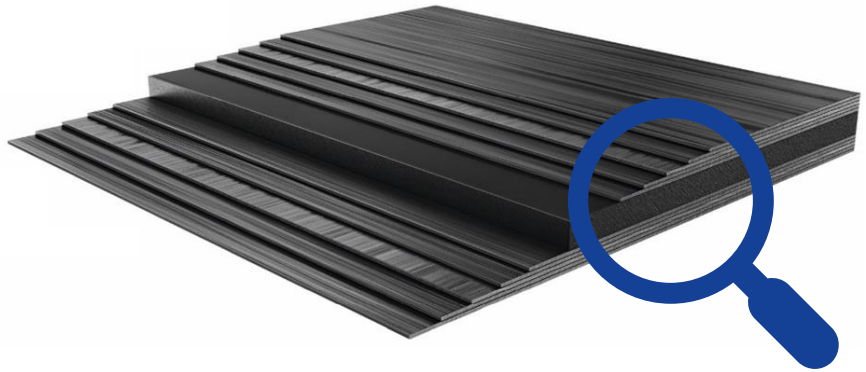
→ underbody floor protection especially for PHEV, BEV, FCEV

→ rear seat backs

→ rear bumper beams

Technology

- ElroSafe™ panels are manufactured by using two surface layers made of unidirectional (UD) thermoplastic tapes with glass or carbon fiber reinforcement and a solid core which is also a fiber reinforced (DLFT) thermoplastic material
- **In-house developed** high modules UD-Tapes
- **Sandwich design** instead of monolithic structures to get **high structural stiffness at low cost**

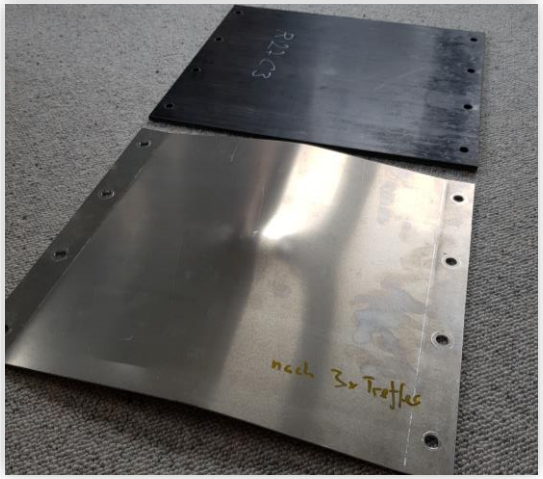


Proven underride protection by ElroSafe™

Bollard test device

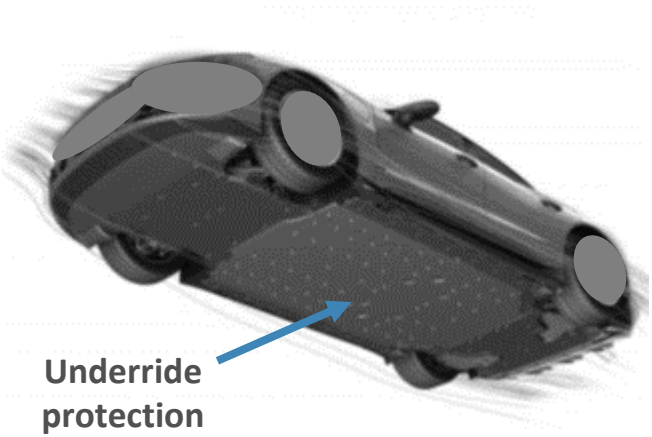
Standardized and controllable lab test conditions

Samples from ElroSafe™ and aluminum after bollard test[1]



ElroSafe™ samples achieve convincing test results

Developments with 7 OEM´s part dimensions

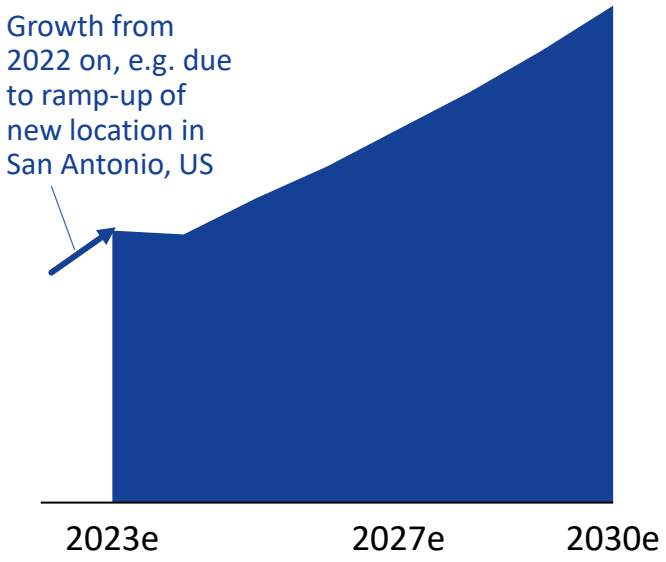


Part dimensions up to 2.4 x 1.6m
Part weight: 25 to 30kg

[1]Identical area weight

Strong sales growth following high demand

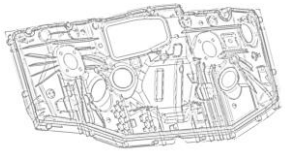
Projection of sales for Lightweighting solutions – share of ICE / non-ICE revenue



Annual sales on high level in low to mid triple-digit million-euro area with strong growth

Selective orders for non-ICE business in Lightweighting Solutions

Cross-car beam
Global OEM
Volume: mid double-digit million-euro area p.a.
Production from 2023 onwards



Structural plastic component
Global OEM
Volume: low double-digit million-euro area p.a.
Production from 2023 onward

Front-end
American OEM
Volume: mid single-digit million-euro area p.a.
Production in ramp-up phase

Lightweighting products are highly demanded in the electric vehicle market and will contribute to further sales growth.

Data after 2027 based on growth assumptions.

Innovative award-winning Lightweighting solutions

Society of Plastic Engineers (SPE) Award

(SPE Central Europe 2021)

" 1st Place " – Front end module carrier

- Most innovative part: category Chassis Unit / Structural Components
- Multifunctional process integration
- Single-shot injection molding process
- Lower energy consumption in production

"The Coolest German Thing Made in the USA"

(German American Chamber of Commerce 2021)

Cockpit cross-car beam (CCB)

- Cross-car beam combines maximum functionality with minimum weight
- Unique tooling technology
- "One single step"-production

Plastic injection with broad range of use cases / products

Plastic injection engine mounts + brackets

Plastic injection intake manifolds

Plastic injection oil pans and oil tanks

Plastic injection cam cover + oil separator

Plastic injection pressure equalizing unit

Plastic injection molding modules

with a wide range of applications in BEV, Hybrid and ICE

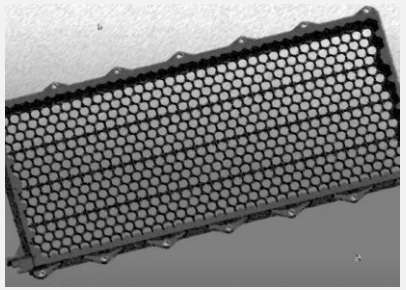
② Plastic Injection Molding

Transition in the field of injection molding components

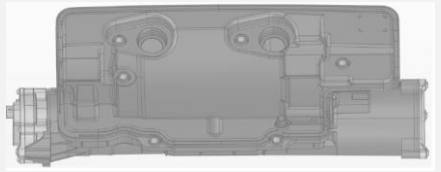
Basis for transition: many years of experience in injection molding up to big scale products

Development of new applications for lightweight components

Battery module housings



Oil supply modules



Oil and coolant manifolds

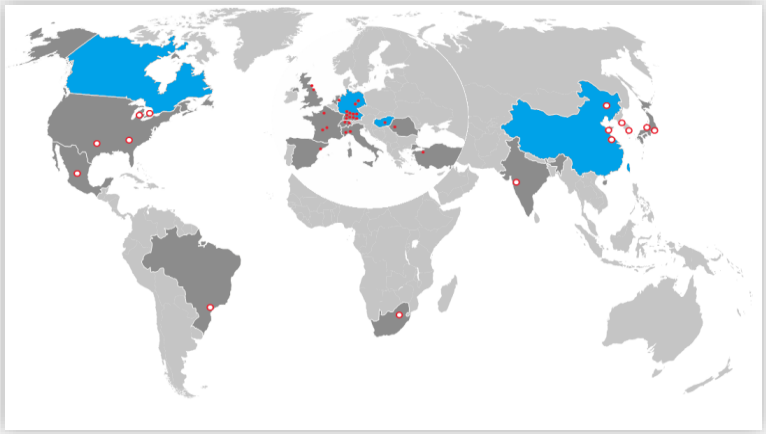
Solutions for cell integration

② Plastic Injection Molding

Product example: Pressure equalizing unit

ElringKlinger's latest development for pressure equalizing systems offers a double functional product:

- It ensures a smooth breathing of the battery housings.
- It has a fail-safe venting function in case of a failure of the battery system.

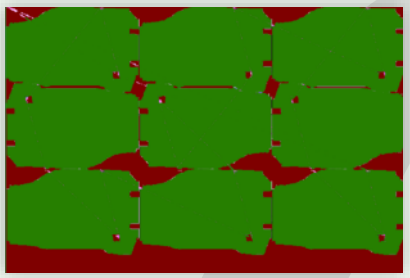


→ **Production in every region conceivable**

→ **Smart manufacturing** concepts ensure **flexibility, high efficiency and quality**

Excursus: Recycling of Thermoplastic Parts

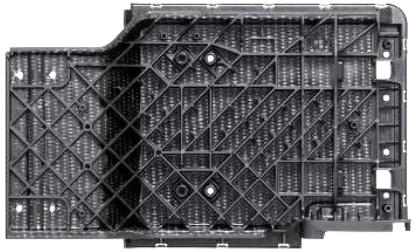
Early mover in dealing with sustainability issues

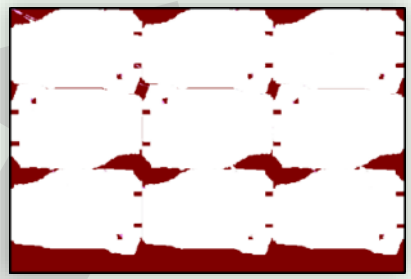


Organo sheet / PP-GF70

Blank / Insert

Rear seat structure Land Rover Discovery >2017s





Production waste (25%)

Chopped scrap & field return parts

Neat PP

Master-batch

Direct Com-pounding: PP-GF30

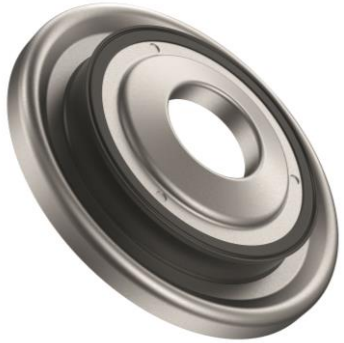
Advantage: Scrap-free process
Scrap is used in the same part
→ „Closed-Loop Recycling“

Source: Joint research project of German Federal Ministry of Education and Research with TH Rosenheim, KraussMaffei, Bond Laminates, Brose and ElringKlinger.

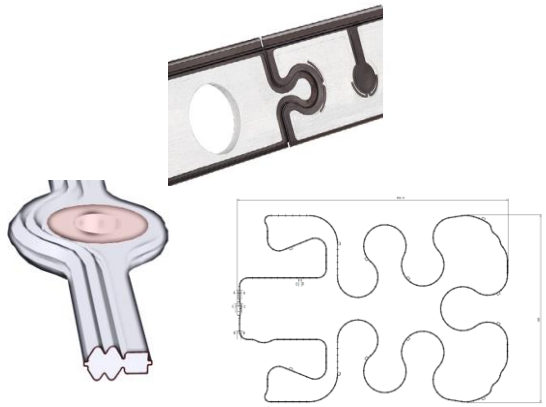
Sealing solutions used in electric vehicles

Elastomer gaskets

Metal-elastomer gaskets



Bonded pistons



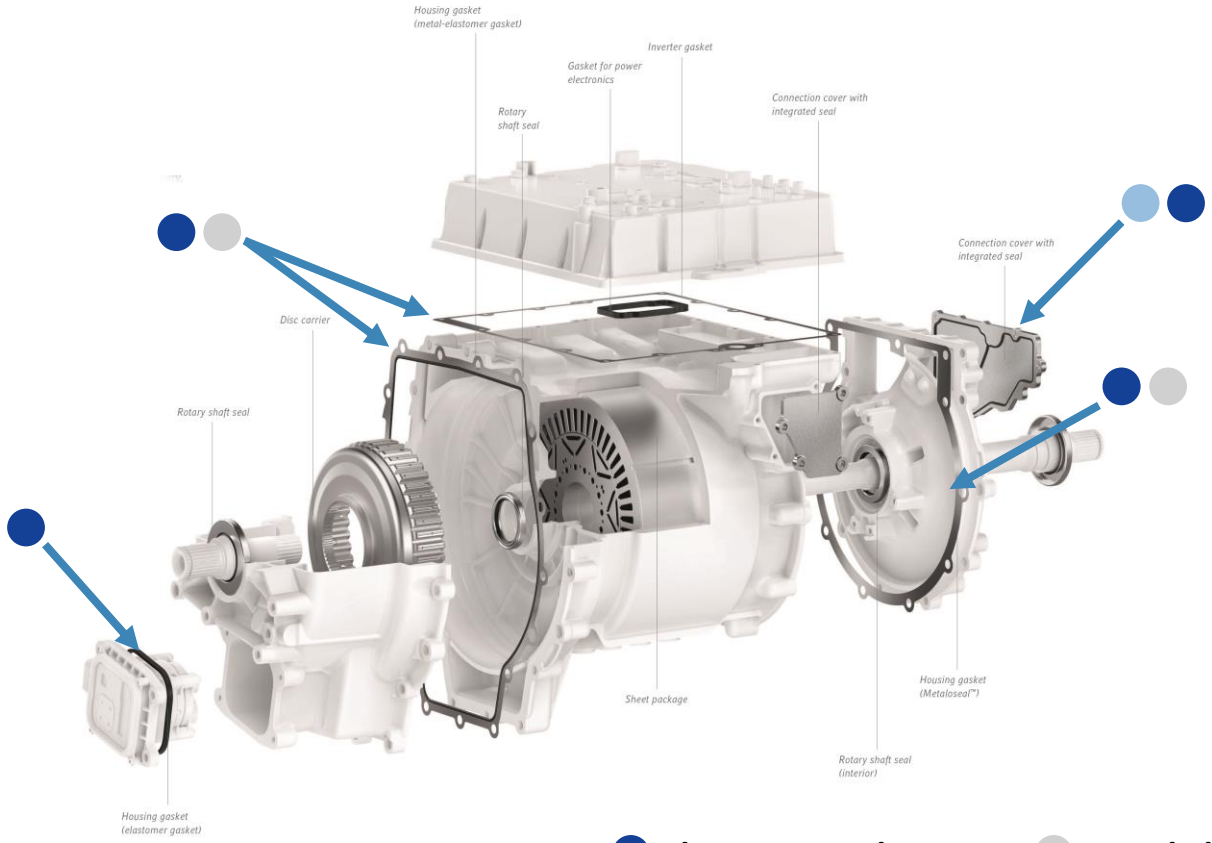
Special solutions for battery housings

Sealing Solutions

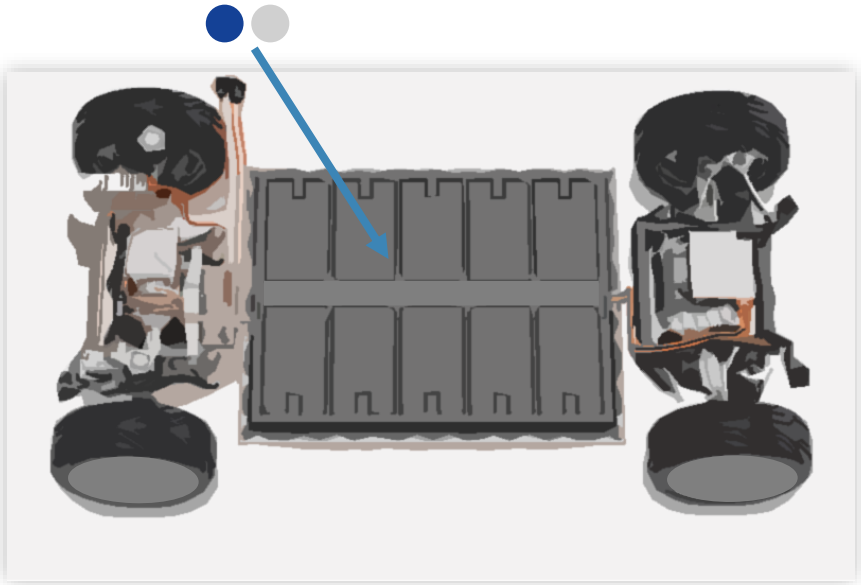
incl. design, FEA/simulation, tooling, prototyping, testing and series production

Business opportunities for gaskets in electric vehicles

Decomposition of electric drive unit (EDU) with selective ElringKlinger components



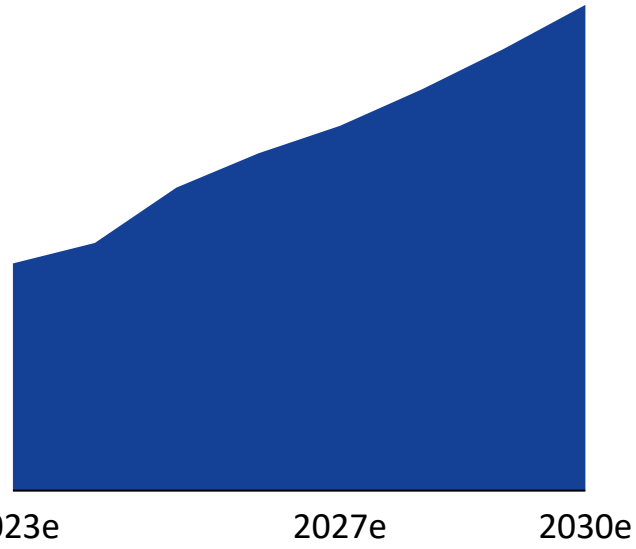
Exemplary battery electric vehicle platform



Elastomer gasket **Metal elastomer gasket** **Plastic modules**

Growing sales due to numerous applications in EV segment

Projection of sales in non-ICE business – in EUR million



Annual sales to grow into high double-digit million-euro area

Selective orders for non-ICE business in Gasket Technology

Metal elastomer gaskets
Global OEM
Volume: low double-digit million-euro area p.a.
Production worldwide since 2019

Elastomer gaskets
German premium OEM
Volume: mid single-digit million-euro area p.a.
Production worldwide from 2025 onward

Metal elastomer gaskets
Truck OEM
Volume: single-digit million-euro area p.a.
Production from 2025 onward

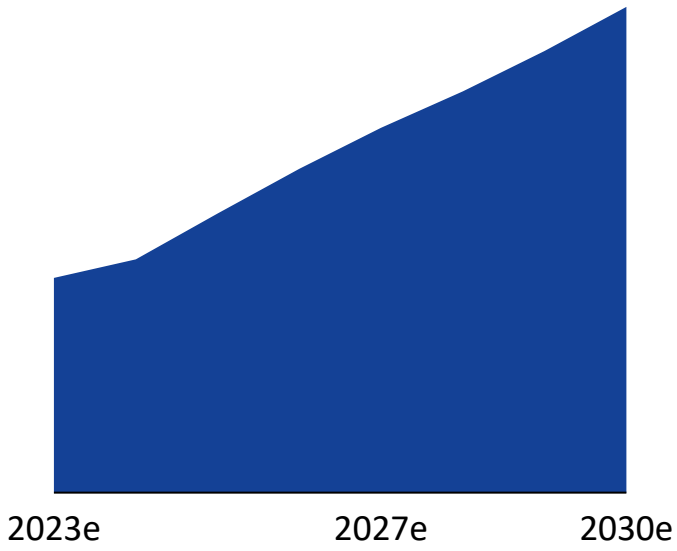
Gasket Technology is a product group with favorable growth expectations.

Data after 2027 based on growth assumptions.

Lightweighting/Elastomer Technology

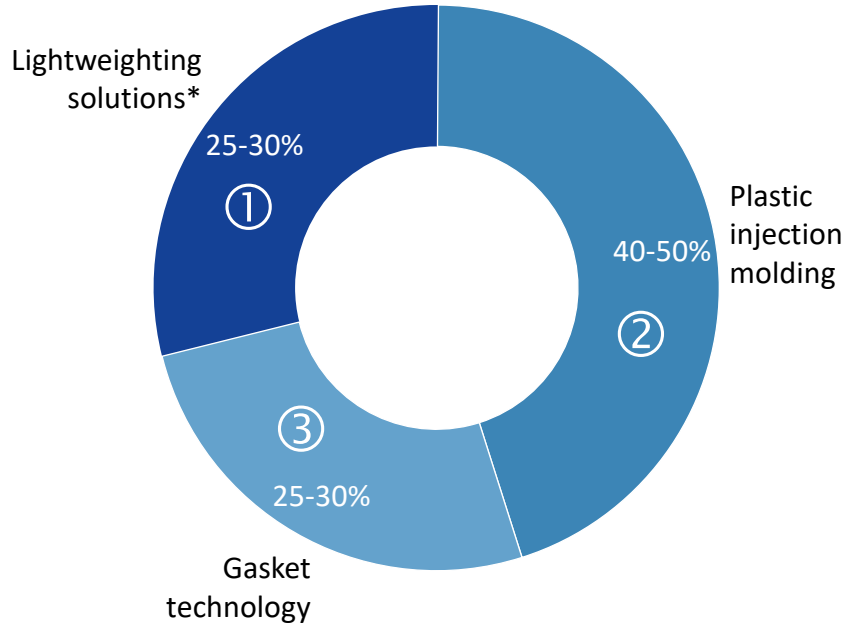
Sales will increase particularly in the non-ICE business

Projection of sales in non-ICE business – in EUR million



Annual sales to grow into mid triple-digit million-euro area

Projection of sales split by product group expected for 2027e (booked business) – in %



In 2027e, more than 50% of sales will be generated for electric vehicles. The split of sales by product group expected for 2027e roughly corresponds to current split.

Data after 2027 based on growth assumptions.

*incl. ElroCoustic™

Transformation of a classical into a new business unit

Today

- **Strong ICE footprint** and already **considerable sales in new drive technologies** or in technologies independent of the drivetrain (i.e. structural lightweighting)
- Group's largest business unit in sales with **growth prospects** in different product groups
- **Global** positioning
- Around 70% of **R&D spent for new drive technologies**

Tomorrow

- **Transformed business unit** with major part of sales in non-ICE business
- **Realized sales growth** roughly on Group level
- **Global** positioning
- Expanding **sustainability** approach with regard to recycling

Capital Markets Day 2022

Agenda

09:00	Welcome	Dr. Stefan Wolf
09:15	The ElringKlinger Story	Dr. Stefan Wolf
10:00	ElringKlinger: Established Supplier for E-Mobility Products	Jürgen Weingärtner
10:40	Coffee Break	
10:50	EKPO: Driving Hydrogen Solutions for a Sustainable Future	Dr. Gernot Stellberger
11:30	Guided Tour – Production EKPO	
12:15	Lunch and Transfer to Plant 2	
13:45	Lightweighting/Elastomer Technology: Leading in Design, Weight, and Production	Klaus Bendl
14:30	Guided Tour – Production Lightweighting and Logistics	
15:20	Coffee Break	
15:30	Strategy Implications for Key Performance Indicators	Thomas Jessulat
16:15	Wrap-up	Dr. Stefan Wolf

Capital Markets Day

November 18, 2022

Strategy Implications for Key Performance Indicators

Thomas Jessulat
CFO

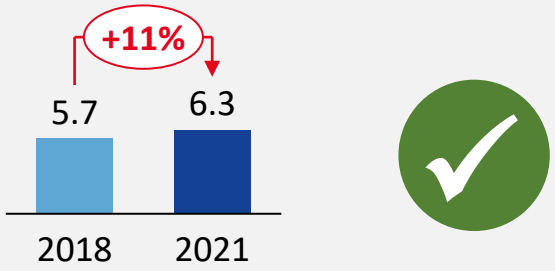
Short review

Global Efficiency Program successfully completed

Profitability strengthened

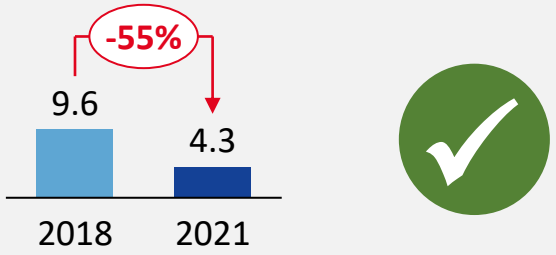
(despite challenges like COVID, raw mats and semiconductors)

EBIT margin – in % of total sales



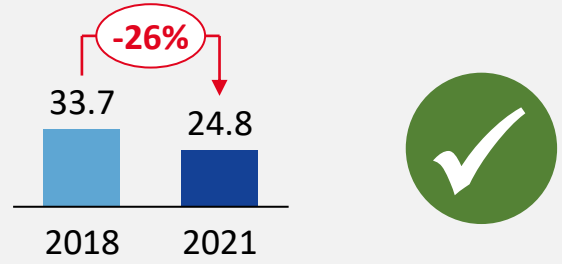
Capex spent in a disciplined way

Capex ratio – in % of total sales



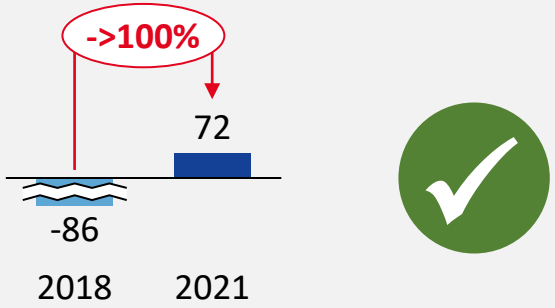
Net working capital optimized

Net working capital ratio – in % of total sales



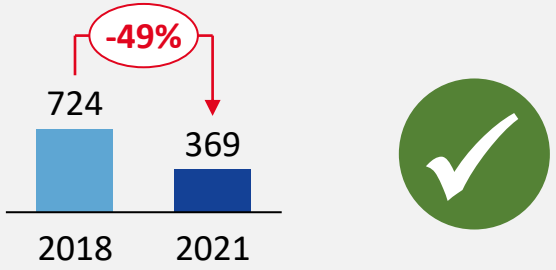
Operating free cash flow improved

Operating free cash flow – in EUR million



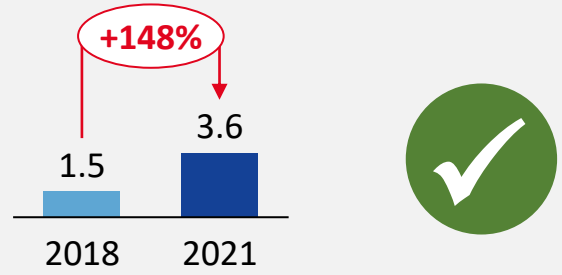
Net debt significantly reduced

Net debt – in EUR million

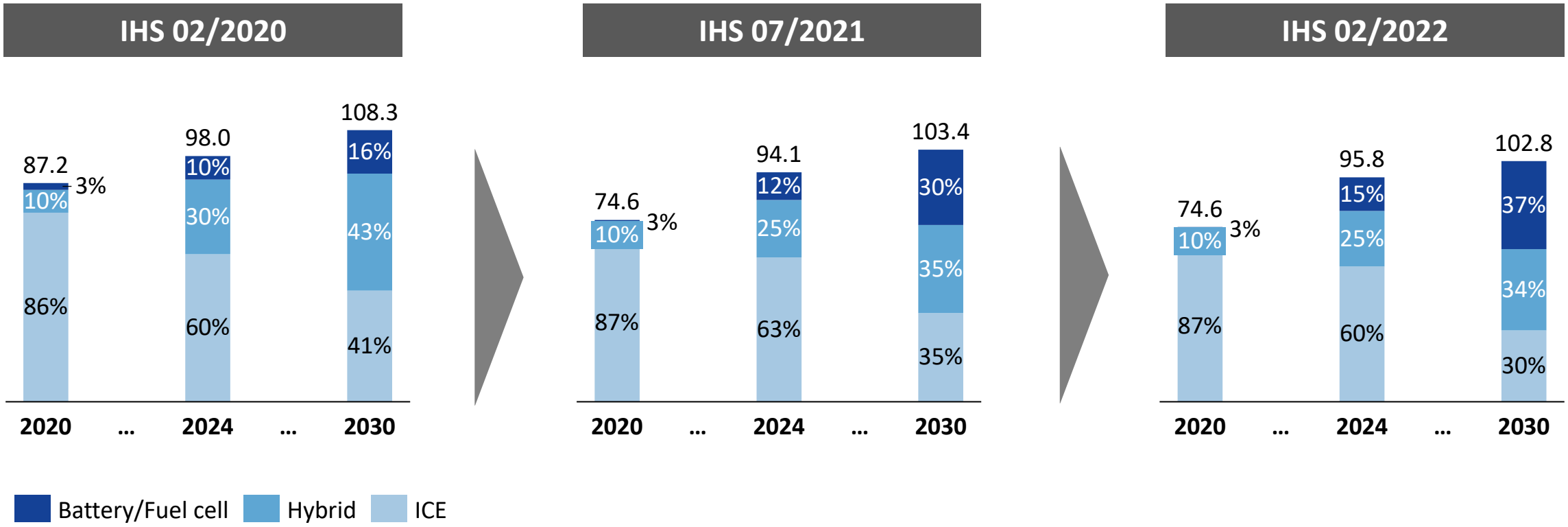


E-mobility footprint extended

Share of E-Mobility sales – in % of total sales



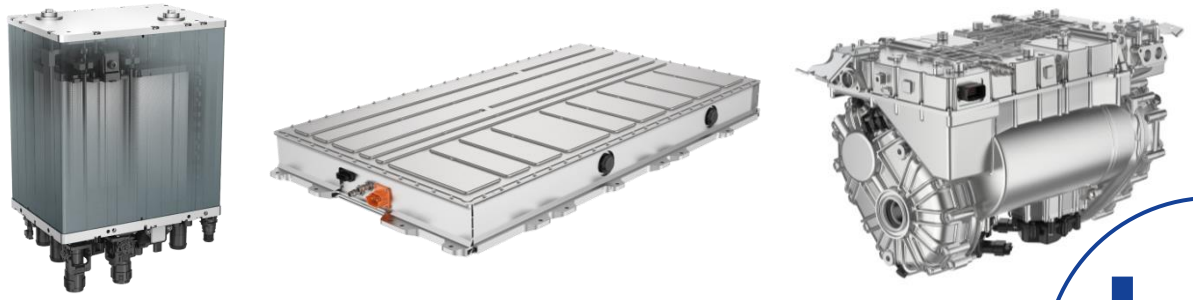
High volatility in market forecasts



1. **Unforeseen exogenous shocks** (e.g. Covid-19, war in Ukraine) lower top line number.
2. There is a clear trend of **stronger electrification** of mobility (incl. fuel cell technology).
3. **Hybrid cars** will play a **less important** role in 2030 compared to prior estimates.

Substantial growth by products for new drive technologies

Stacks and systems



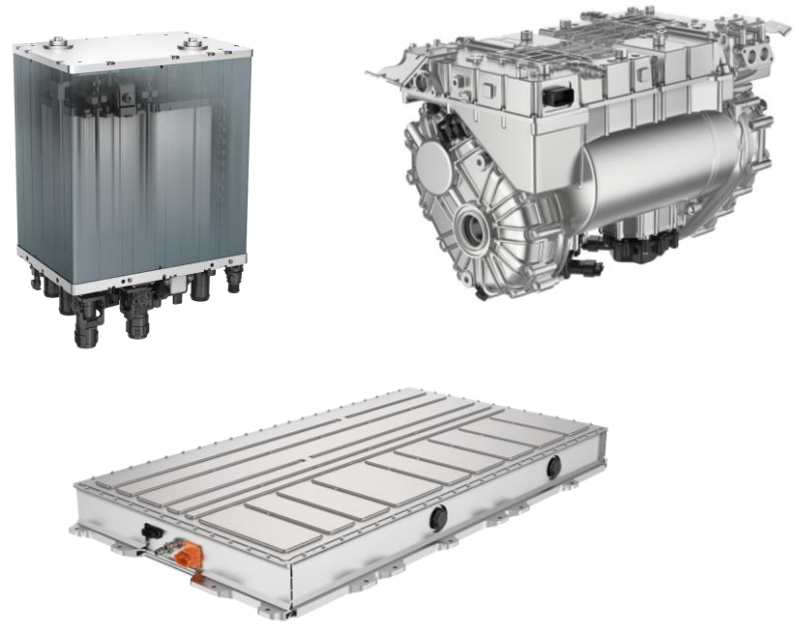
Components

Strong sales growth for the Group expected by both systems and components

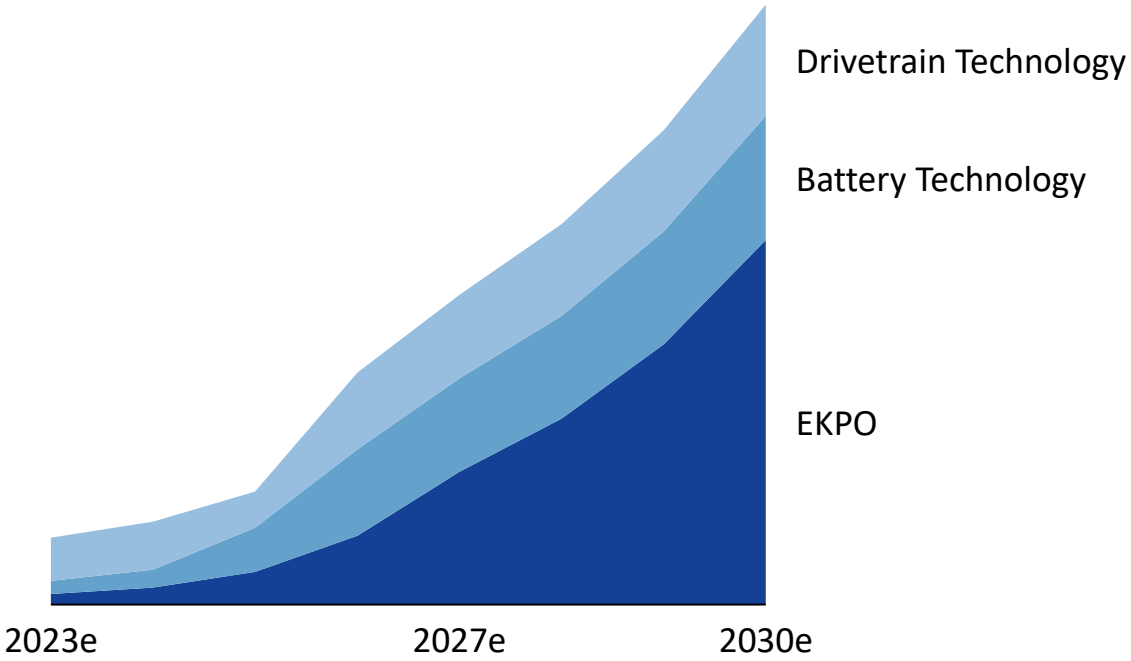
Summarizing prior presentations

Successful realization of ramp-up phase

Stacks and systems for Non-ICE business



Projection of sales in non-ICE stacks/systems business – in EUR million

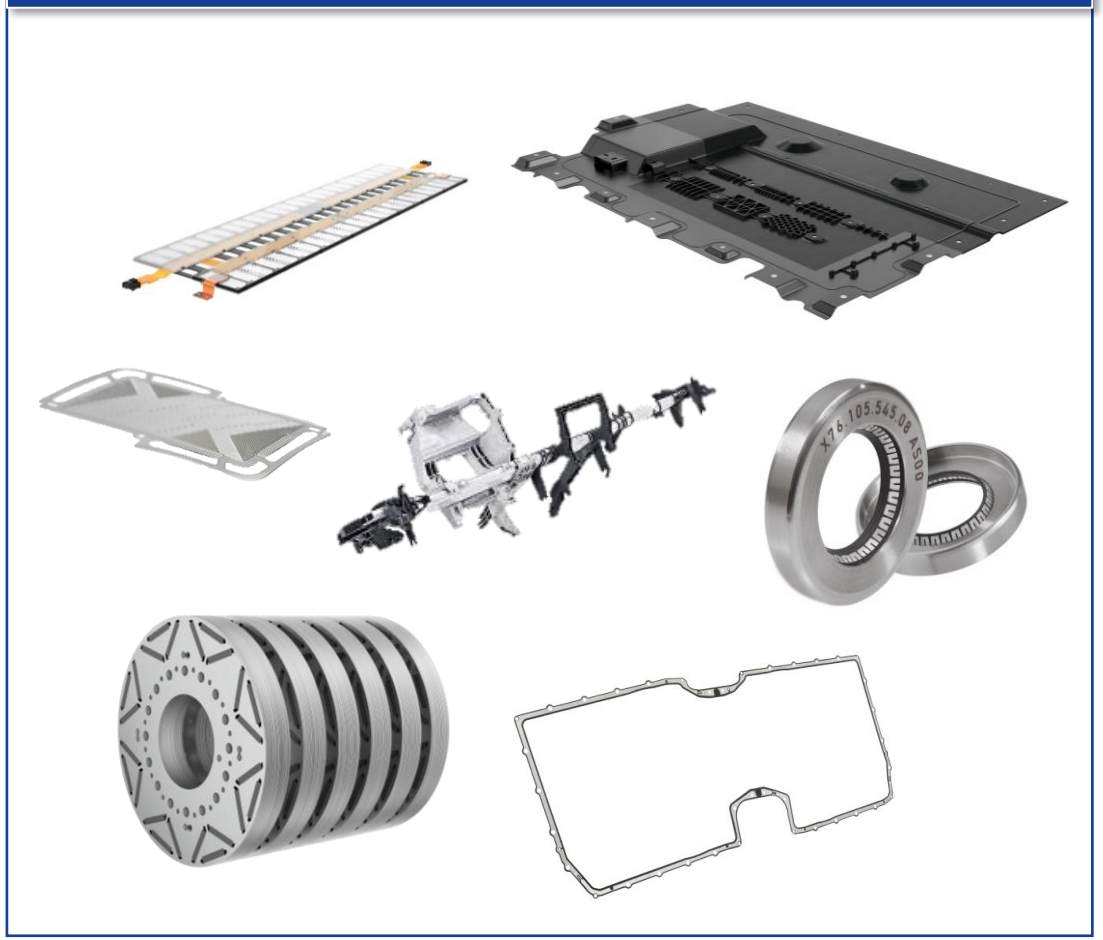


Data after 2027 based on growth assumptions.

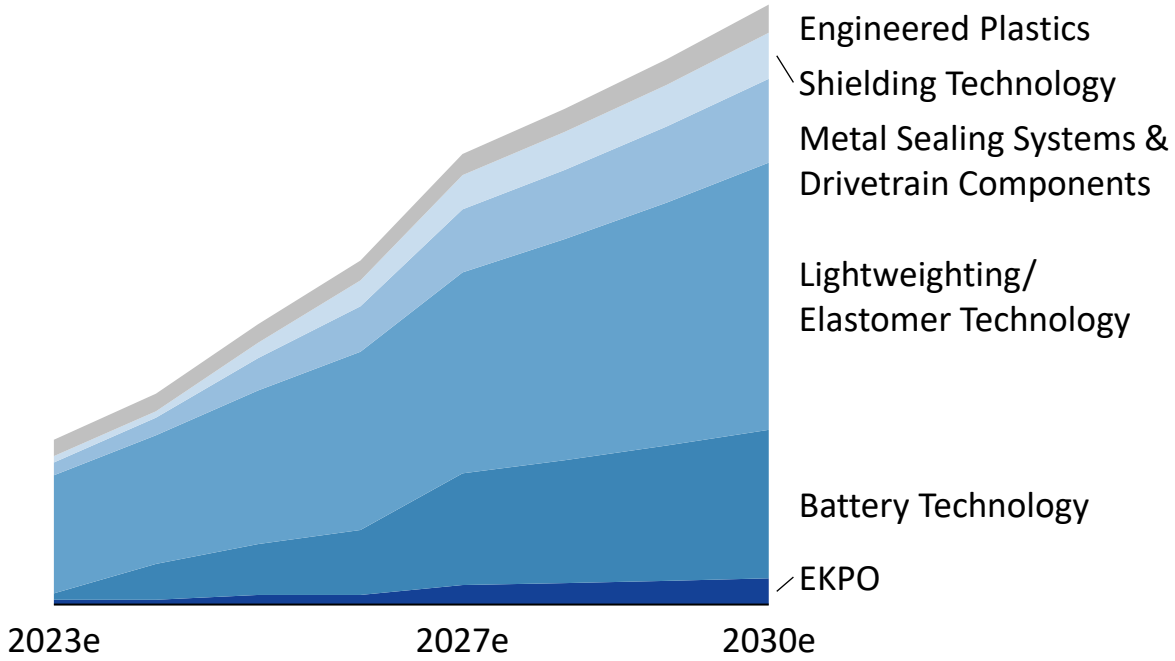
Summarizing prior presentations

Expansion of existing serial production volumes

Components for Non-ICE business



Projection of sales in non-ICE components business – in EUR million

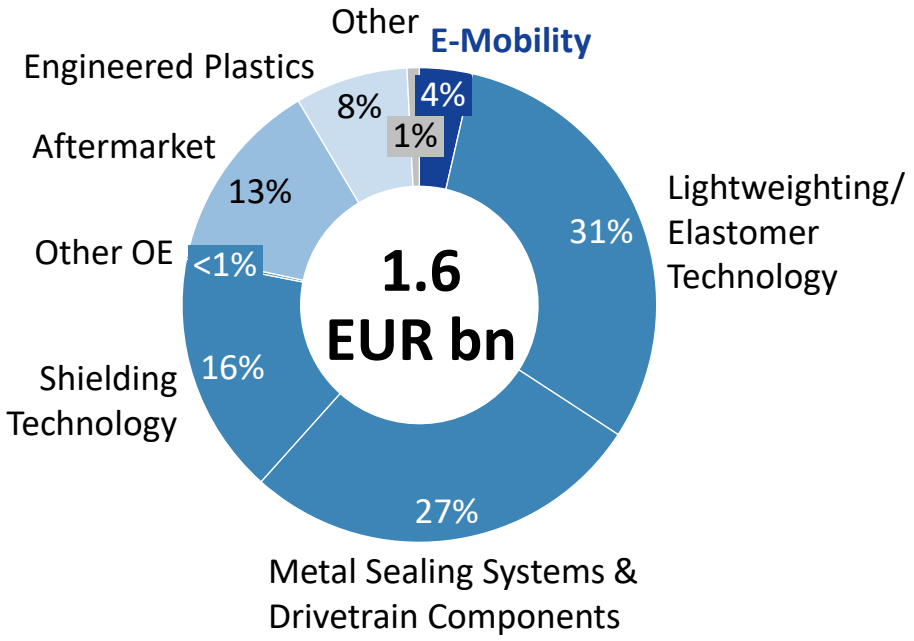


Data after 2027 based on growth assumptions.

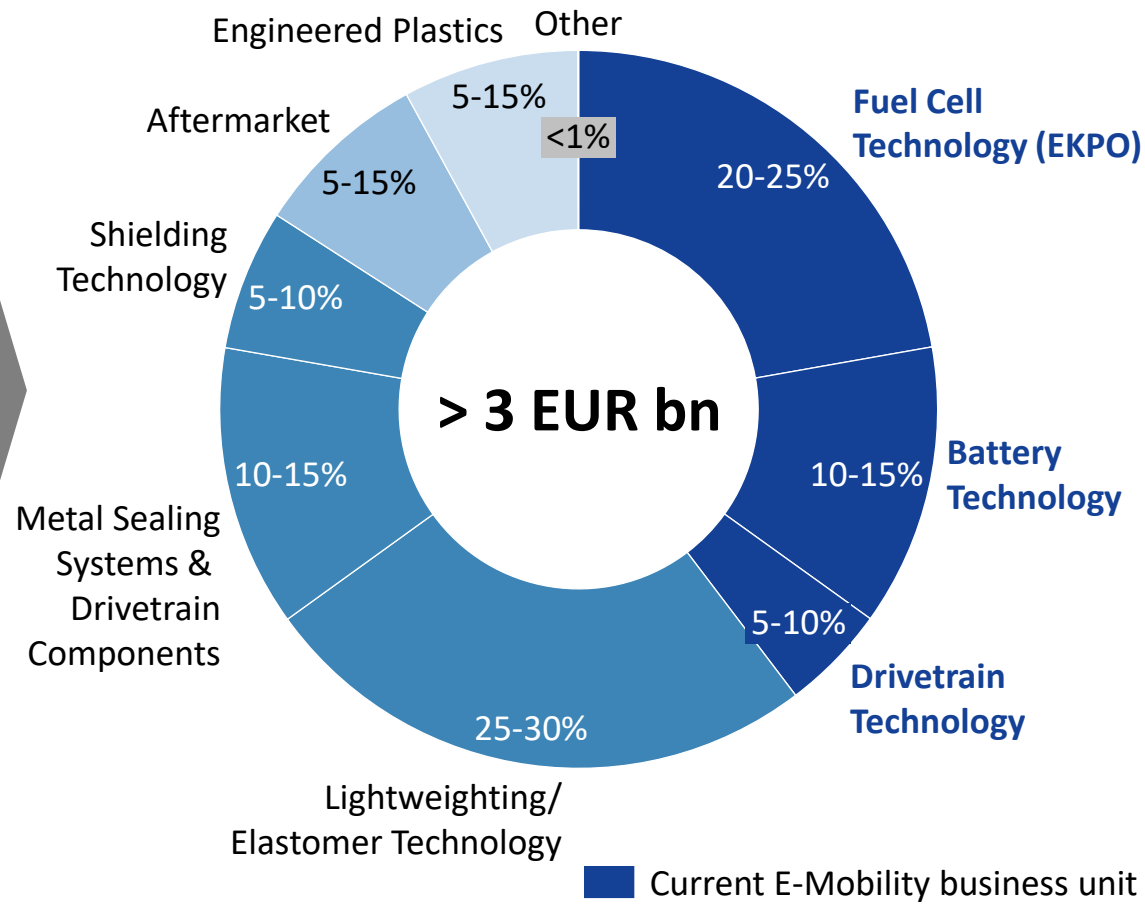
Ambition ElringKlinger 2030

Growth in new technologies across the Group

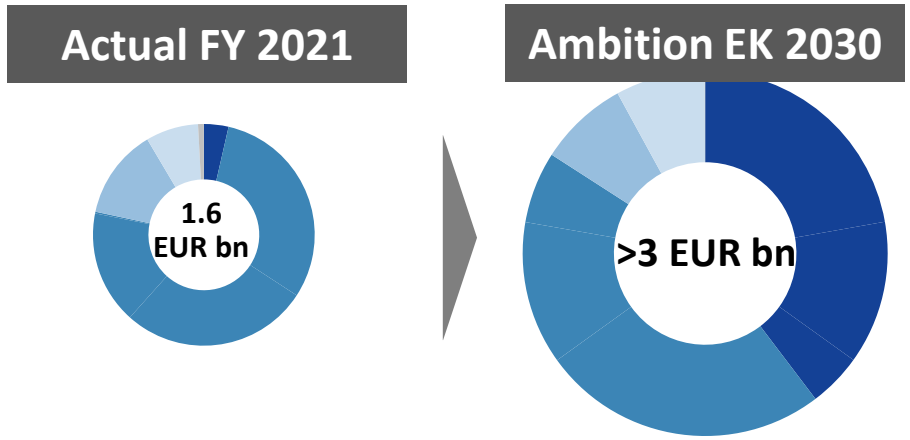
Actual FY 2021



Ambition ElringKlinger 2030



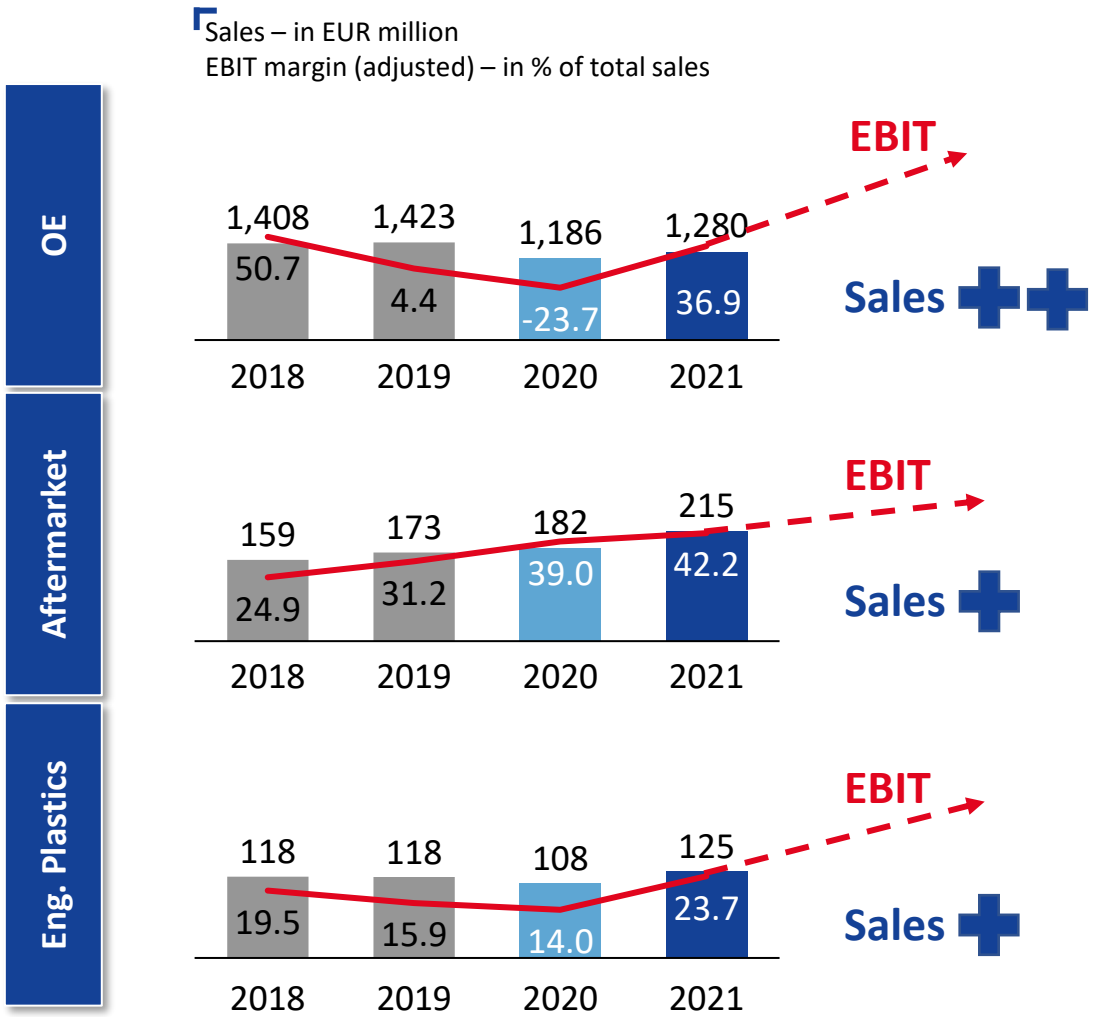
Key success factors to be considered



- There is **strong growth in strategic future areas**: fuel cell, battery, drivetrain, and structural lightweighting as well. By ramping up business, they will also generate **good earnings contribution**.
- **New contracts** have to reflect the technological sophistication of ElringKlinger‘s innovative products.
- The Group will also transform internally by **comprehensive digitization and process optimization** to enable growth and establish a platform for the period beyond 2030.
- **Established business units** will realize **valuable growth** in the course of their internal transformation, but below the high growth rate of the new technologies.
- **Sustainability** is to be understood as a comprehensive approach and is **a key priority** of the Group.
- **Aftermarket** and **Engineered Plastics** remain a strong sales and earnings contributor.

Outlook

Earnings situation expected to steadily improve



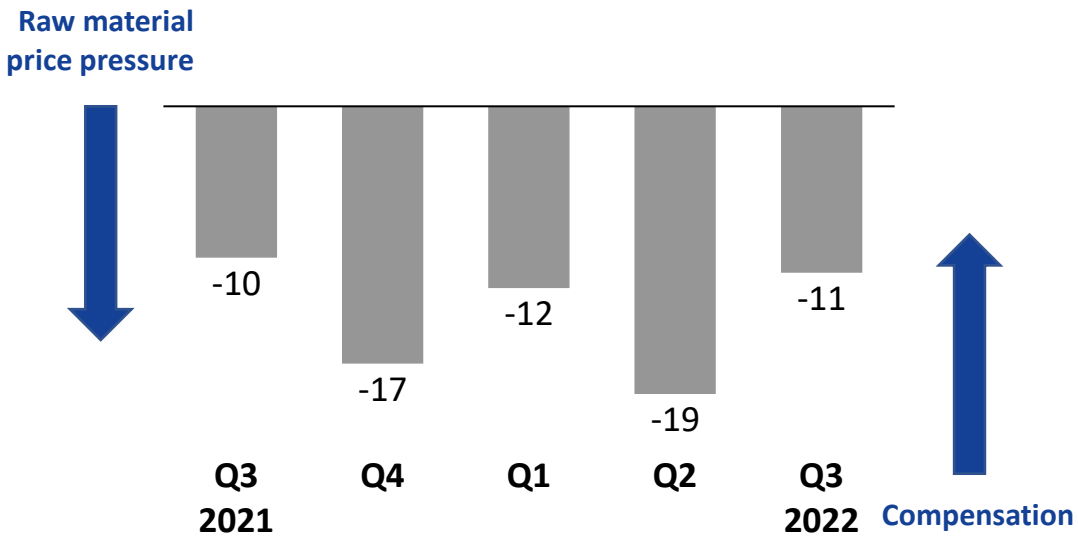
- **Strong growth** in strategic future areas
- Ramp-up of new technologies **covers fixed costs**
- **Optimization** of Shielding Technology
- **Adjusting contract terms** to current price levels when extending existing contracts for ICE products

- Continuing **cost discipline**
- **Leveraging** potential in **growth** regions and selectively expanding strong position in core markets
- **Stabilizing margin** on high level

- Continuing **cost discipline**
- **Realizing growth** by including systems business in product portfolio (e.g. in Medical & Life Science sector)
- **Stabilizing margin** on high level

Compensation counteracts increase of raw material prices

Raw material impact (net) – in EUR million



- Main raw materials for ElringKlinger: aluminum, plastic granules (PA6.6), steel, nickel (coating), elastomer
- Raw material prices for several quarters on high level
- Surge of prices after outbreak of war on Ukraine, now period of normalization
- Compensation either due to price escalation clauses or via negotiations
- Price escalation clauses possible if based on objective reference variables

Volatile and uncertain environment

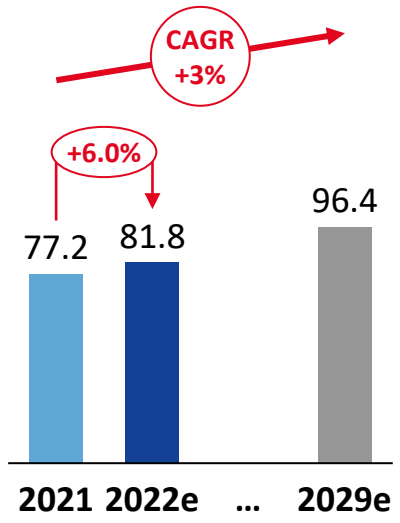
Aluminum	Plastic granules (PA6.6)	(Nickel-coated) steel	Elastomer
High level, impacted by elevated energy costs for aluminum working, esp. Europa, but also Americas	When oil price stable, no major changes	Impacted by elevated energy costs, but some relief due to positive Nickel price trend	Massive undersupply might result in surging prices

Key performance indicators

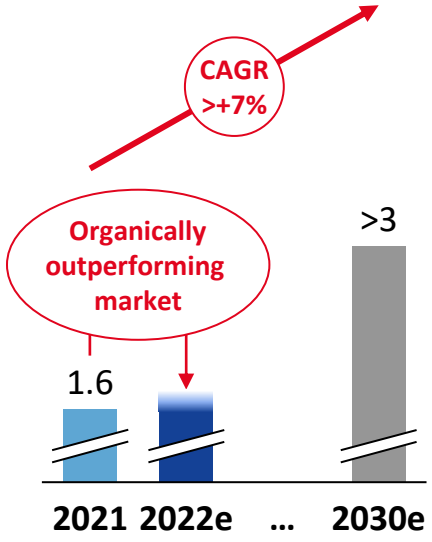
Implication for sales and earnings outlook

Sales

Global LV production – in million units



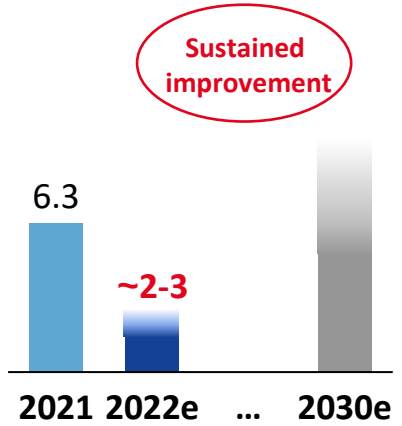
Group sales – in EUR billion



FY 2022	Group will outperform light vehicle production in organic sales growth
Mid-term	

EBIT margin

EBIT margin – in % of total sales

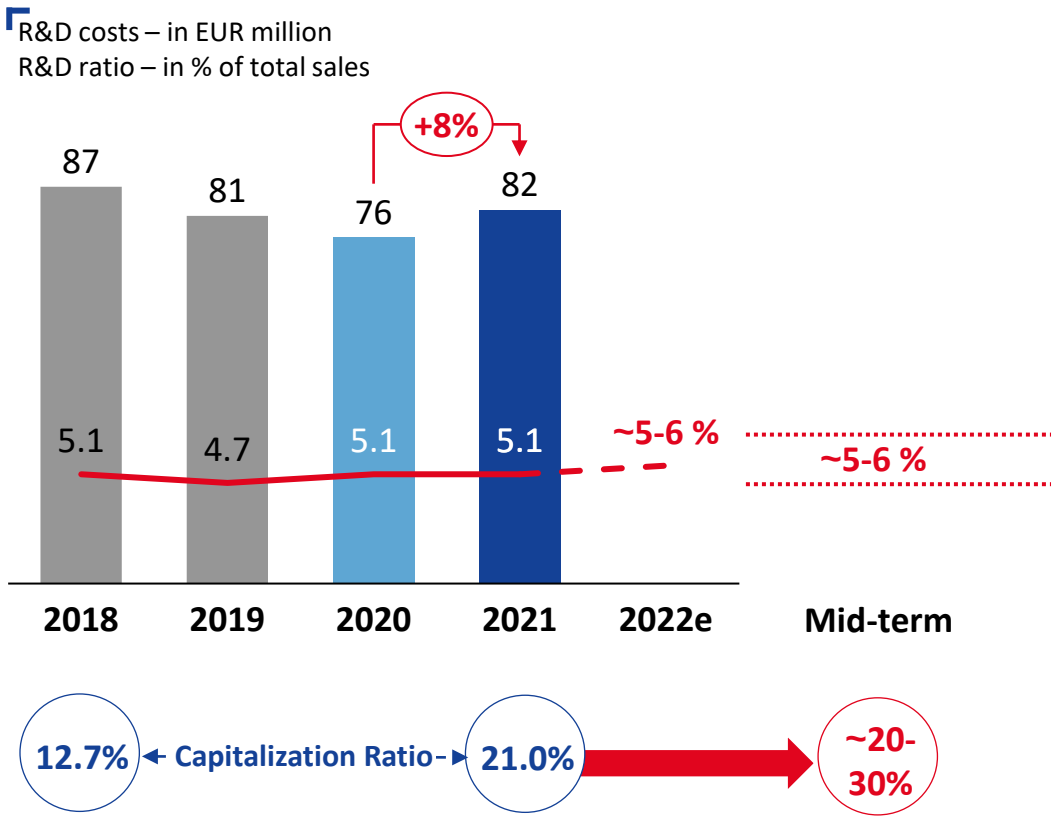


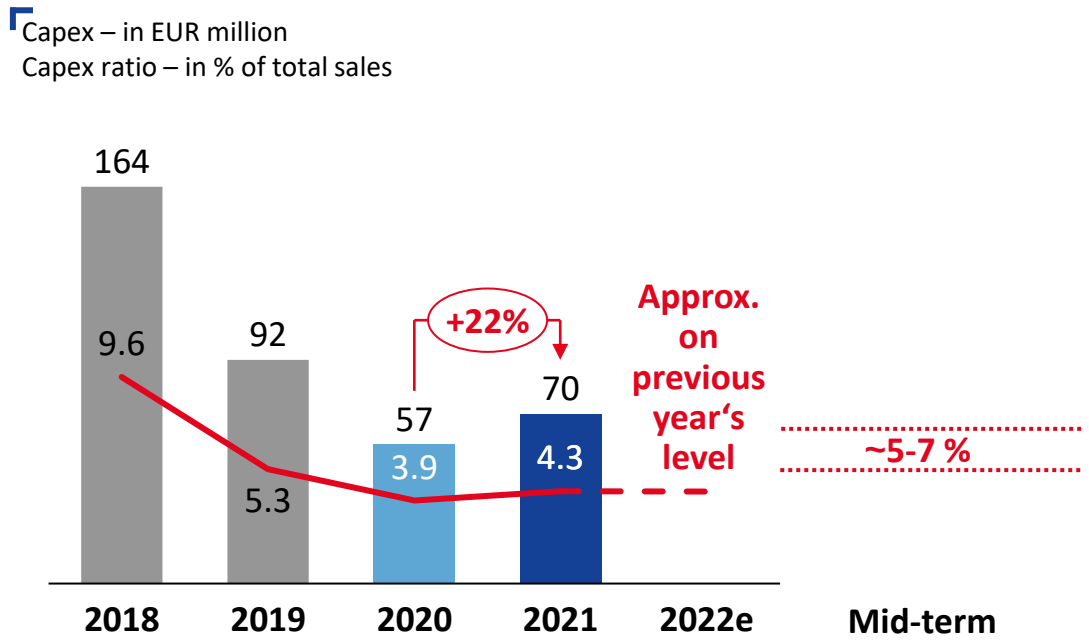
FY 2022	On operating level at around 2 to 3 %
Mid-term	Sustained improvement

Source: IHS (10/2022)

Key performance indicators

R&D and capex on quite stable level



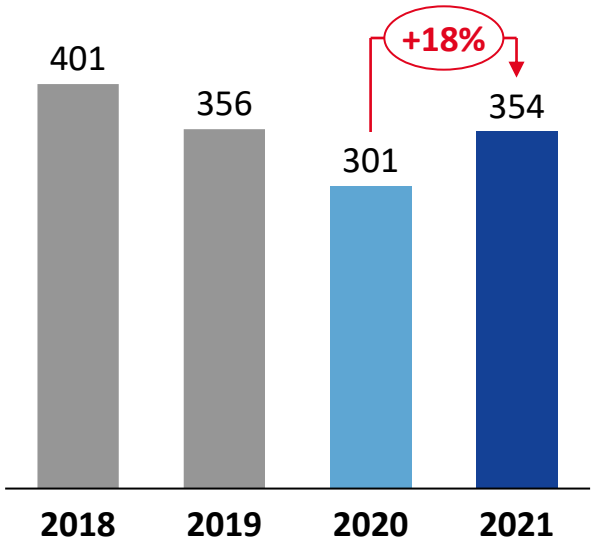


Focus of R&D on strategic future areas. Drivetrain concentrated on production.

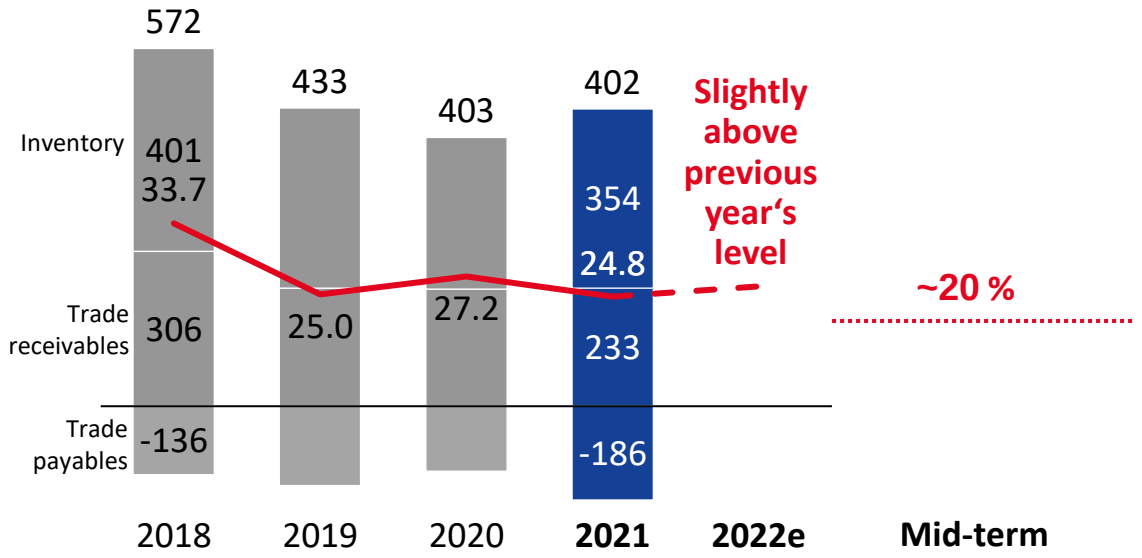
Major investments in strategic future areas done. Further requirements according to order book.

Temporary inventory increase results in higher NWC ratio

Inventory – in EUR million



Net working capital – in EUR million
Net working capital ratio – in % of total sales



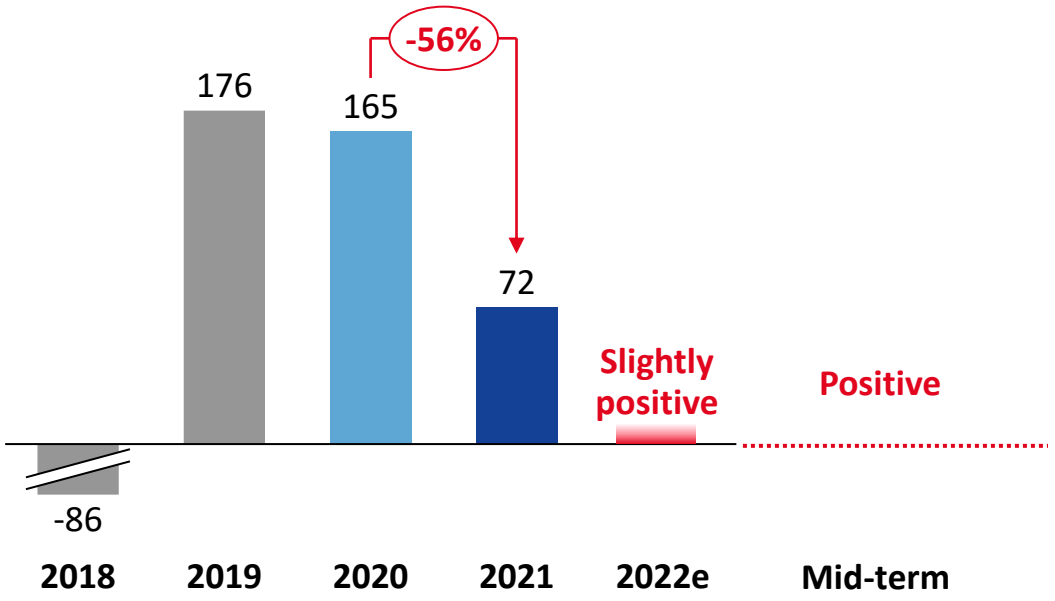
Inventory temporarily increased due to supply chain issues. Will be optimized again in the medium term.

Net working capital consequently managed. Will be reduced again by optimized inventory.

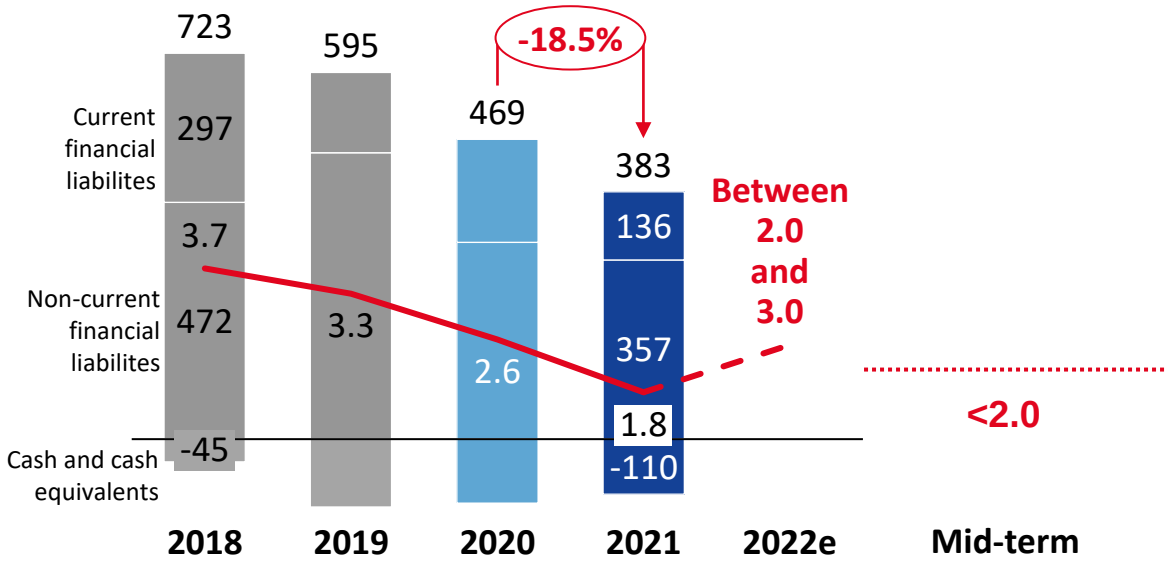
Key performance indicators

Debt reduction creates head room for transformation

Operating free cash flow – in EUR million



Net financial debt – in EUR million
Net financial debt/EBITDA

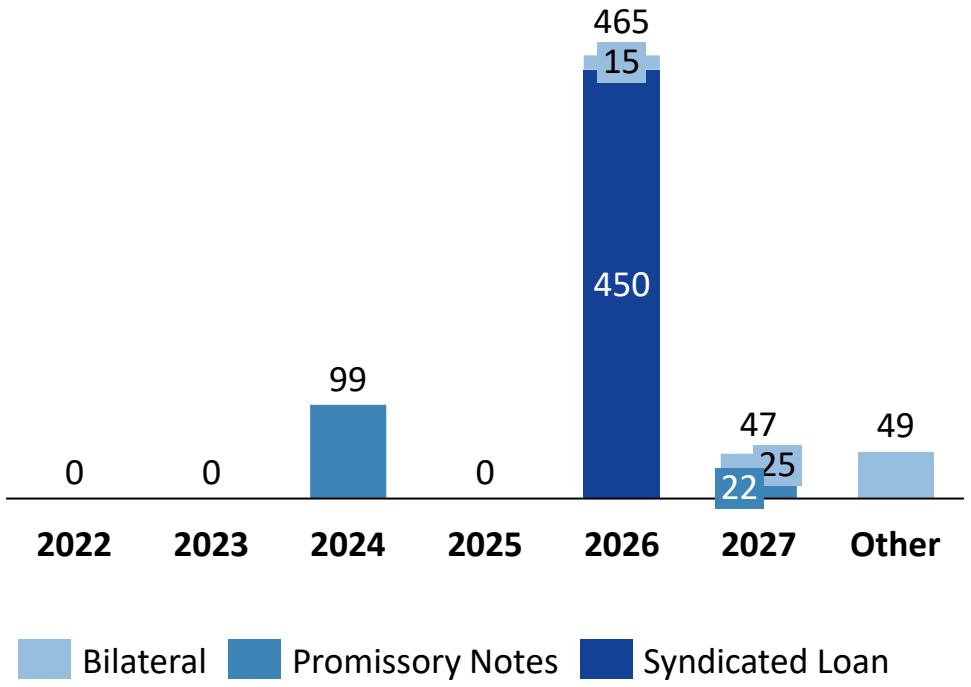


Strong improvement achieved. Temporarily reduced due to working capital management.

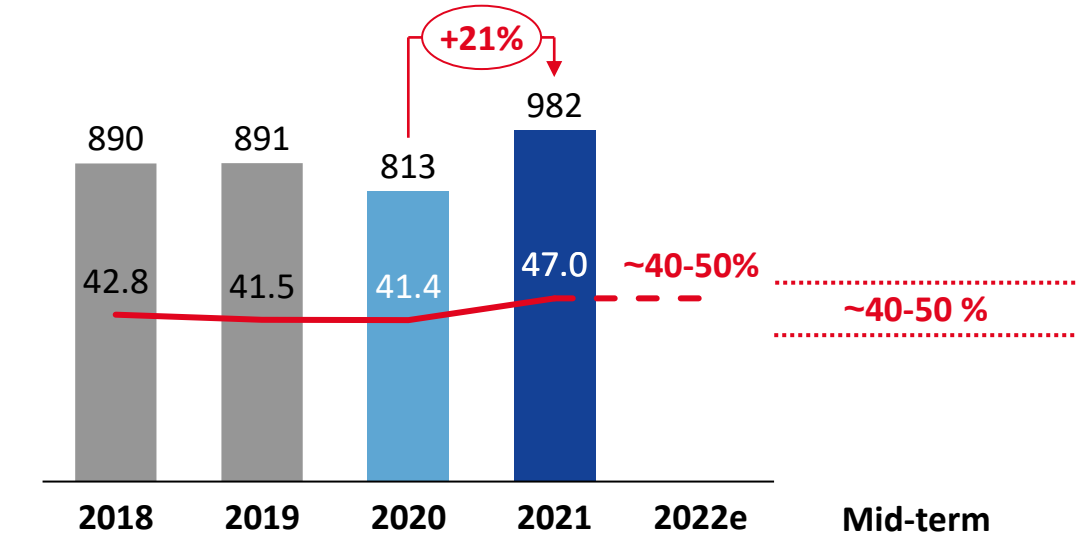
Net financial debt significantly reduced. Will be further lowered with positive op. free cash flow.

Solid maturity structure and stable equity ratio

Loans and credit lines by year of maturity – in EUR million



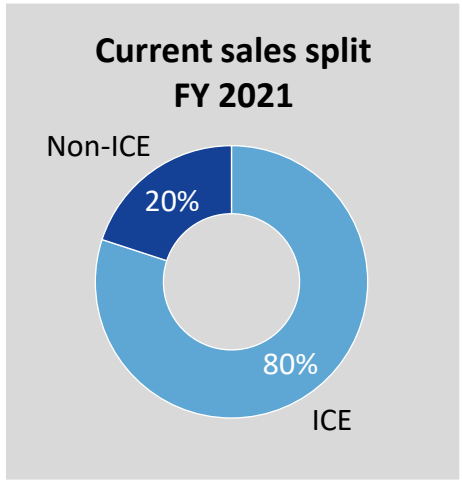
Equity – in EUR million
Equity ratio – in % of total assets

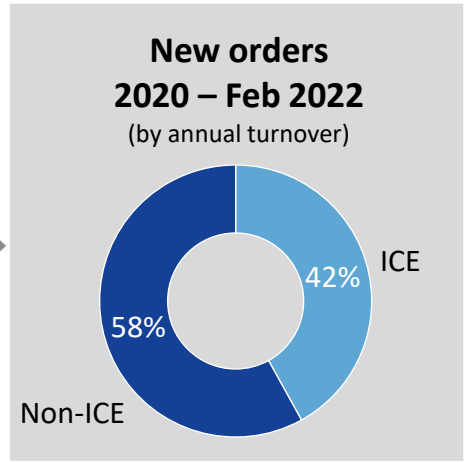


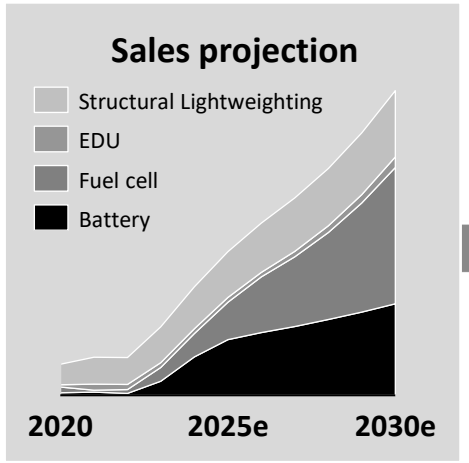
Balanced refinancing situation with the syndicated loan being major part

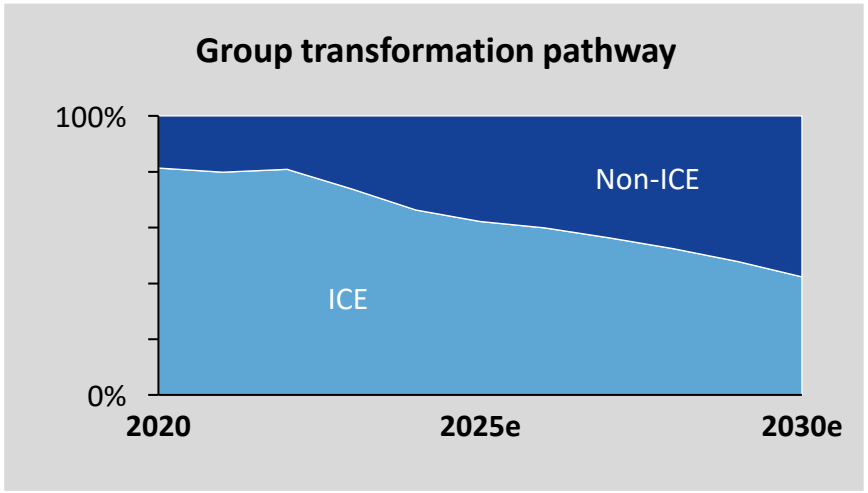
Equity ratio stable in the long-term perspective

Sales split and order intake indicate further transformation









Status: 03/2022

Non-ICE includes non-automotive business as well as components that are independent of drivetrain technology. ICE includes Aftermarket business. Data after 2026 based on growth assumptions.

Capital Markets Day

November 18, 2022

Wrap-up

Dr. Stefan Wolf
CEO

ElringKlinger will transform and is ready for the future

Today

- Established supplier with strong footprint in ICE business and a **portfolio ready for transformation**
- **Sustainability as key project** for future positioning
- Clear program for **digitization and optimization** of processes
- **Mainly components** business
- **Navigating a challenging environment** in the short term and **preparing for growth**

Tomorrow

- Established supplier being part in **shaping new drive technologies**
- **Digitized Group** with optimized processes as basis for further growth
- **Sustainability lived** in all relevant dimensions
- Both **systems and components** business
- **Realization of profitable growth**, particularly in new technologies

The ElringKlinger Difference

1 With our strong technological orientation, we provide solutions for mobility demand.

2 We will utilize our strong market position in ICE business, but focus on new technologies.

3 We will market and further develop our already transformed product portfolio.

4 We will grow profitably by systems as well as components business.

5 We will further shape key financial performance indicators.

6 Sustainability is a key priority for the Group.

Next Generation Products @ elringklinger

Disclaimer

Forward-looking statements and predictions

This presentation contains statements about the future. These statements are based on current expectations, market evaluations and predictions by the Management Board, and on information that is currently available to them. The statements about the future should not be interpreted as guarantees of the future developments and results that they refer to. Whilst the Management Board is convinced that the statements that have been made, and the convictions and expectations on which they are based, are realistic, they rely on suppositions that may conceivably prove to be incorrect; future results and developments are dependent on a multitude of factors, they involve various risks and imponderabilities that can affect whether the ongoing development deviates from the expectations that have been expressed. These factors include, for example, changes to the general economic and business situation, variations of exchange rates and interest rates, poor acceptance of new products and services, and changes to business strategy.