

# Strong & Flexible

A different approach to manufacturing  
mechanical and mechatronic components

- 01**      **Facts & Figures**      
- 02**      **Markets served**      
- 03**      **Technologies**      
- 04**      **Form your World**      

# 01

## Facts & Figures

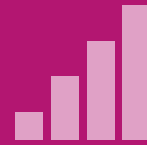


# At a glance

Since 1963



More than 1,000  
customers



1,500 Employees



22 Factories



4 Continents



9 Countries



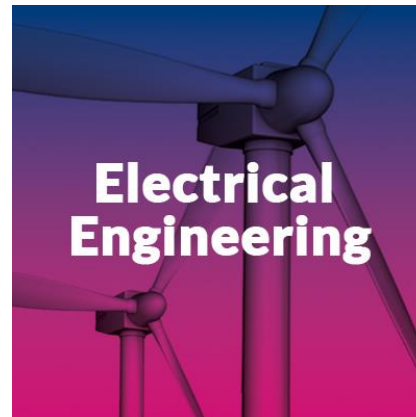
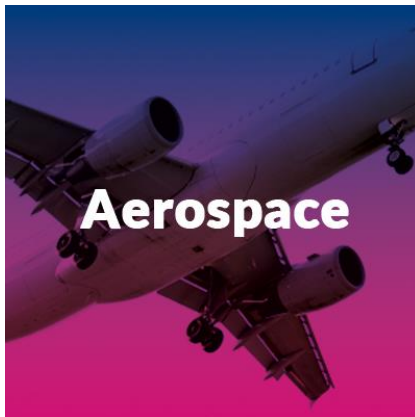
All figures 2023

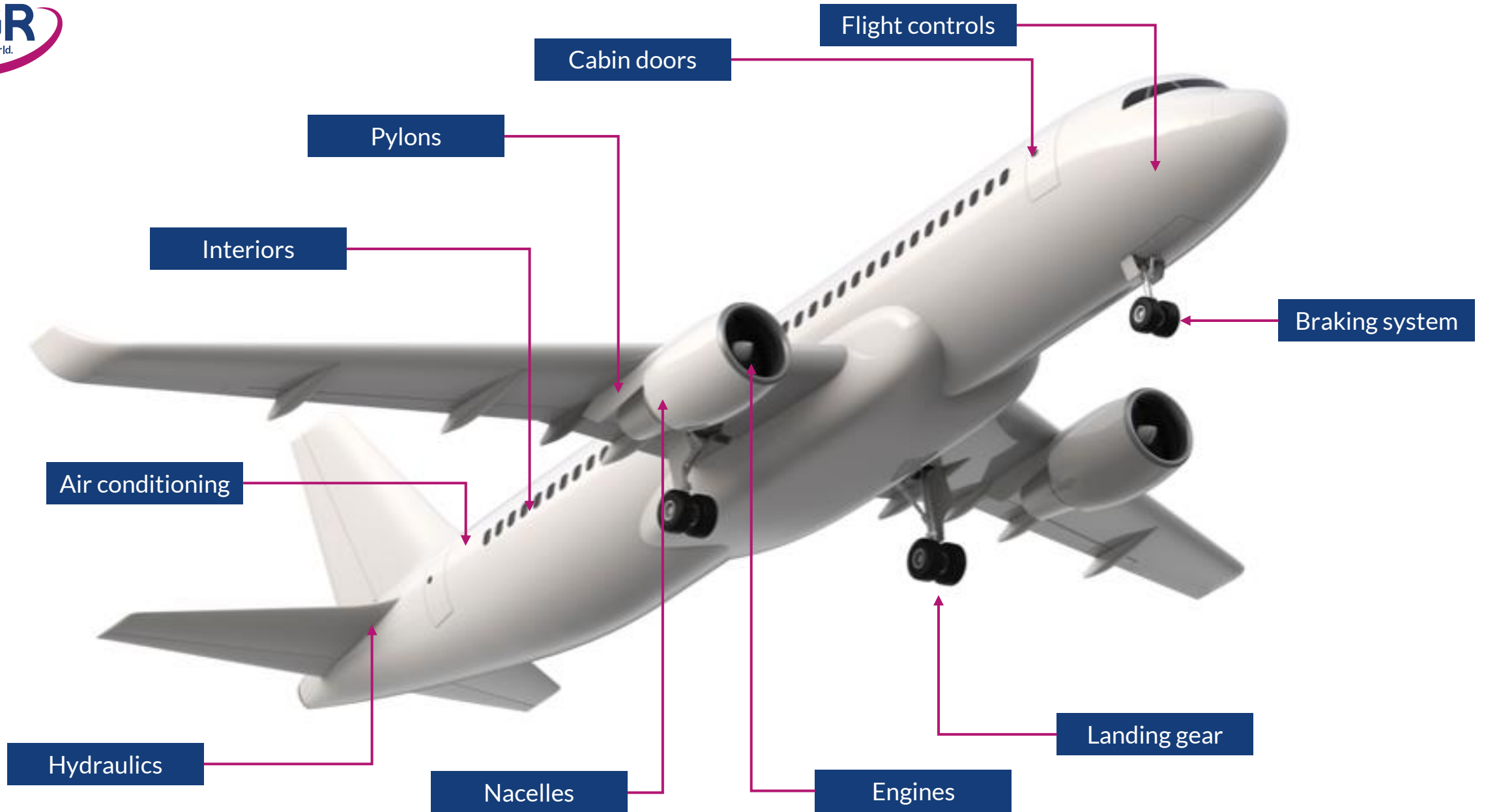


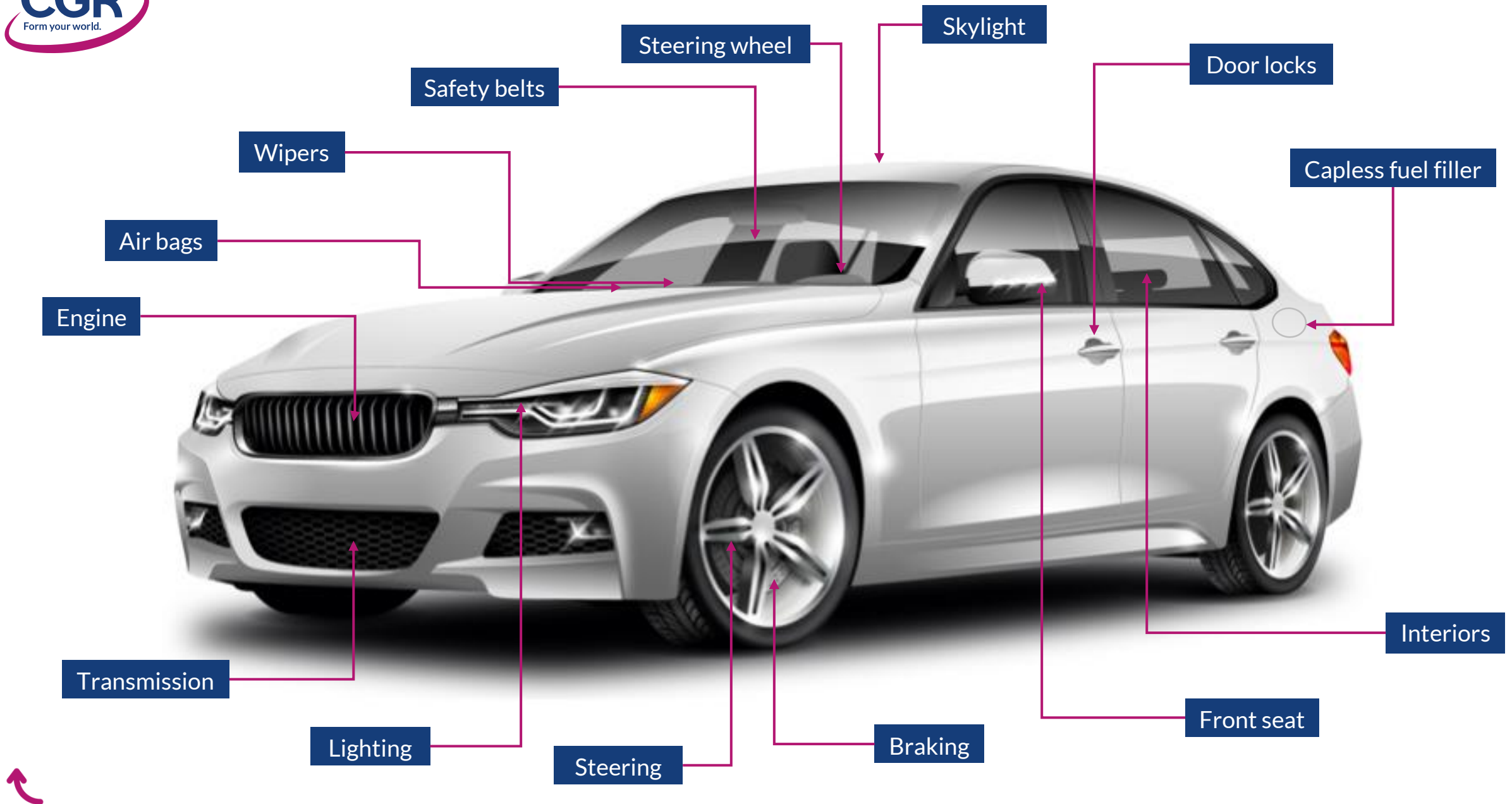


# Aerospace, automotive and beyond

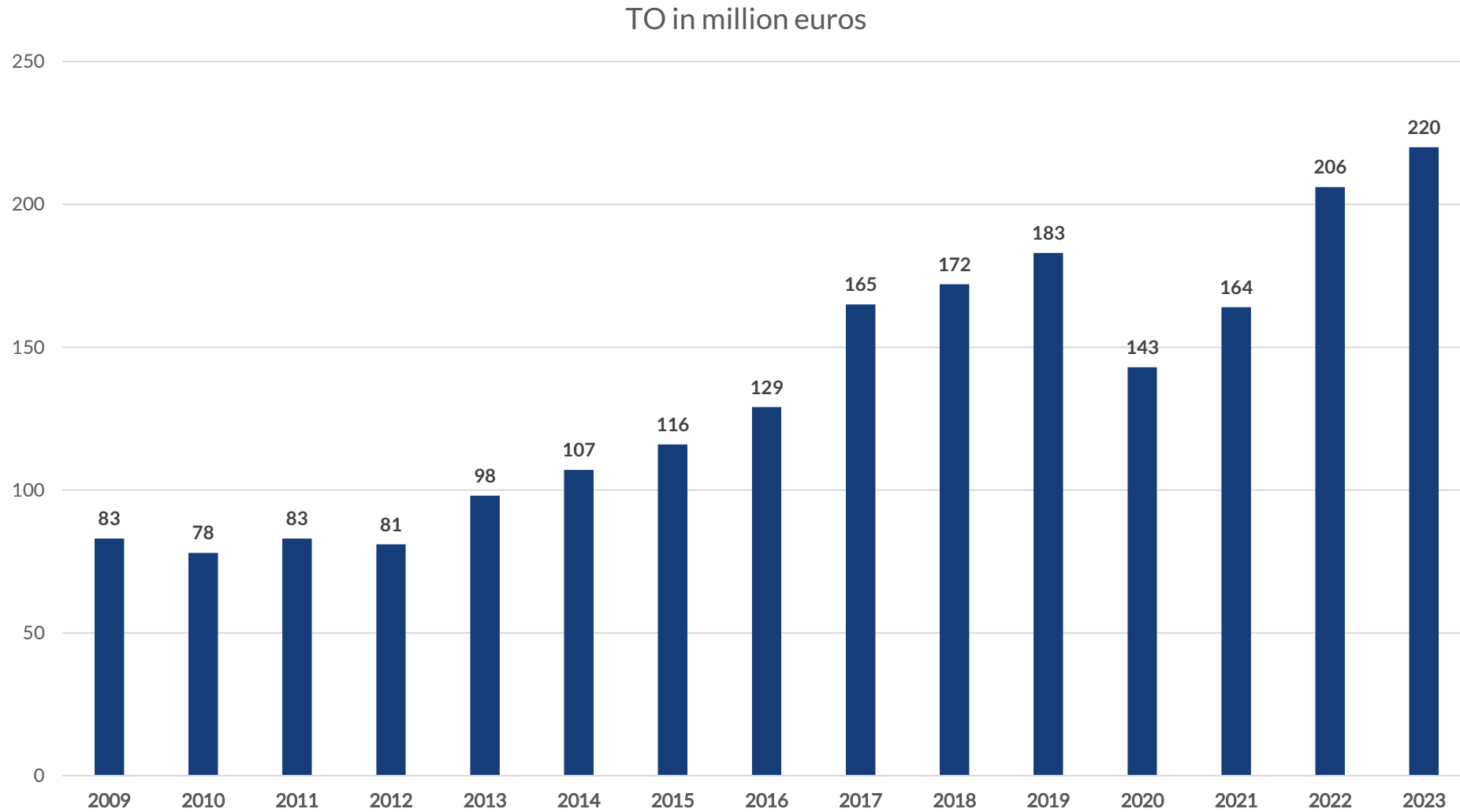
- Our parts and products can be found across major commercial airplane and automotive brands.
- We fulfil the high-volume requirements of car production as well as the stringent quality standards of the aerospace industry.
- Whatever the market to be served, our experience provides a sound base for any manufacturing project.





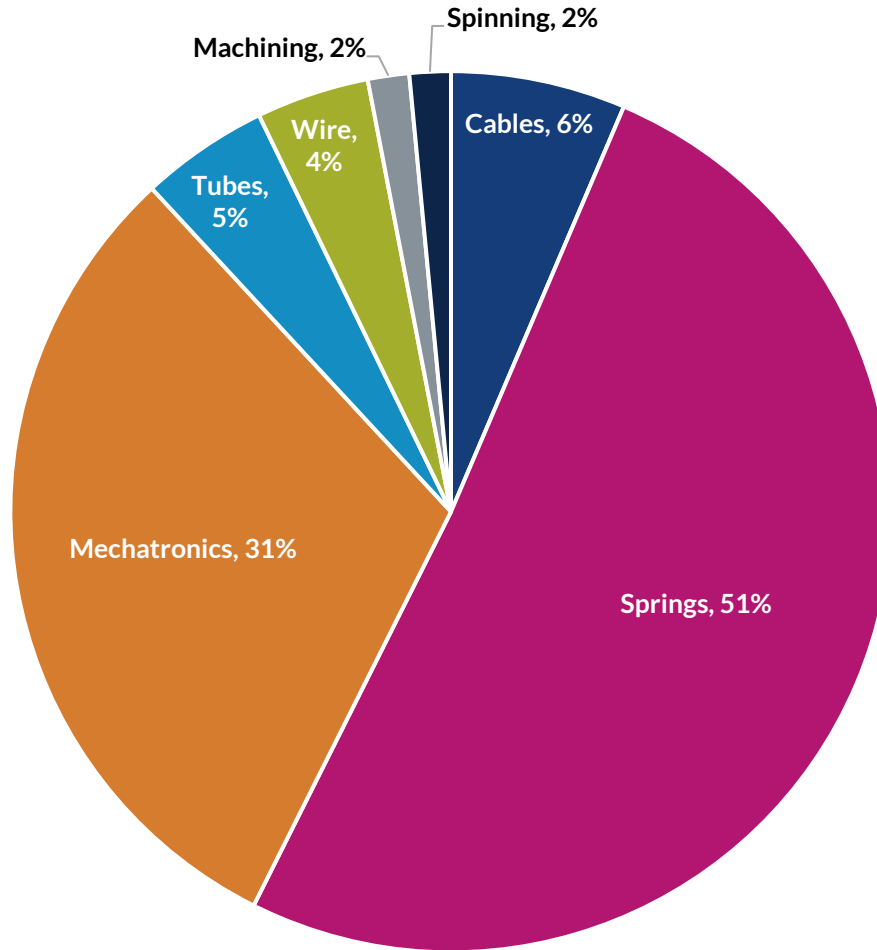


# Turnover in M€





# Turnover by technology (K€)



**Springs: 105 M€**

**Mechatronics: 63 M€**

**Cables: 13 M€**

**Tubes: 10 M€**

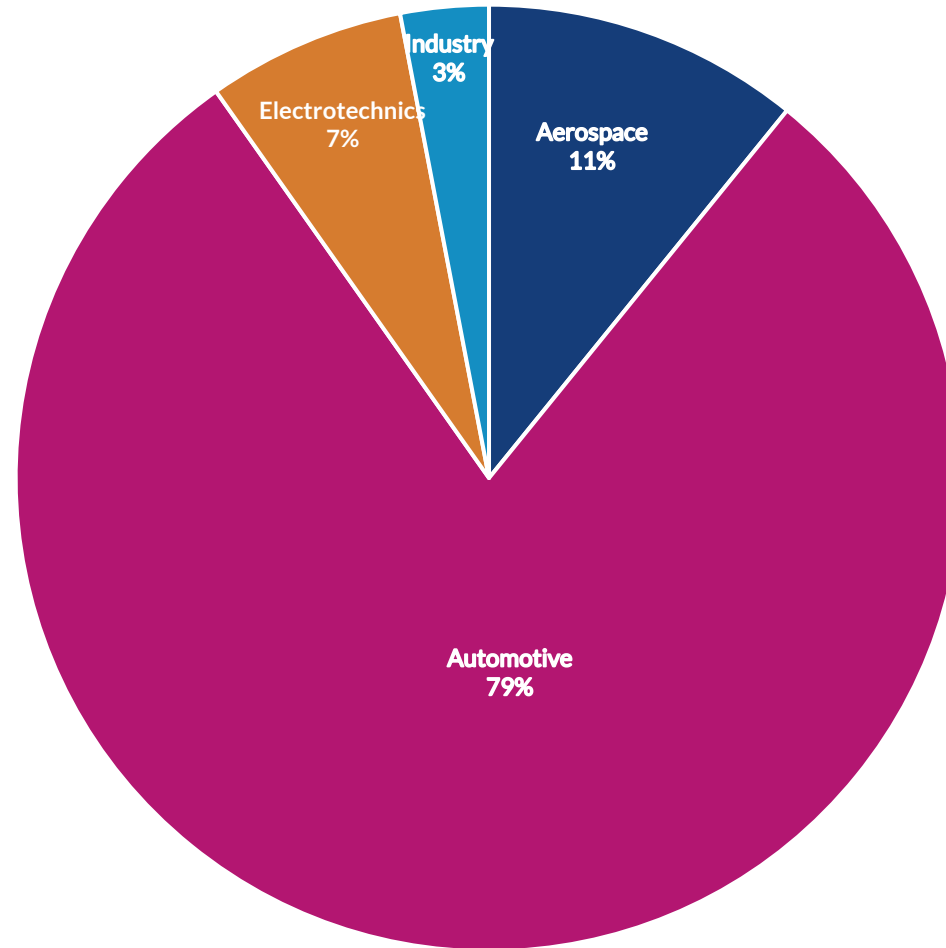
**Wire: 9 M€**

**Spinning: 3 M€**

**Machining: 3 M€**



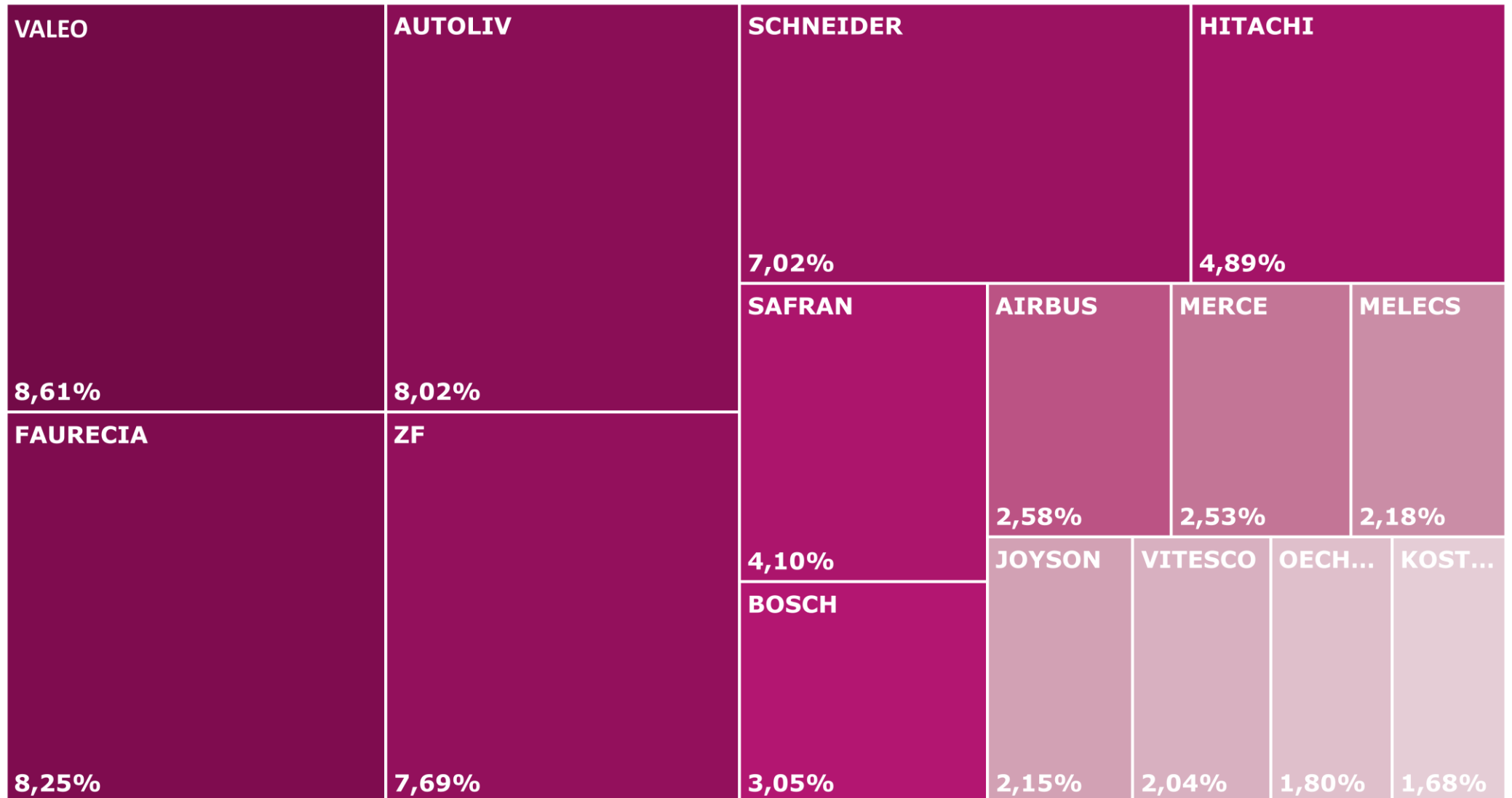
# Market share



# Serving more than a thousand customers



# A balanced portfolio of key accounts



# Vision and mission

## Our Vision

- Changes in technology, society and the environment are transforming industries at a rapid pace and global scale.
- Agile suppliers with decentralized organization offer the required flexibility and strength to create solutions for the future.
- Unleashing talent by empowering our people is the heart of CGR's management philosophy.

## Our Mission

- We design, co-engineer and produce components, principally for the aerospace and automotive industry.
- We offer total control over the supply chain, from validation of raw materials, over development and qualification of prototypes, through to production and delivery on time.
- We share our expertise in metal transformation and process engineering to drive cost down and quality up.





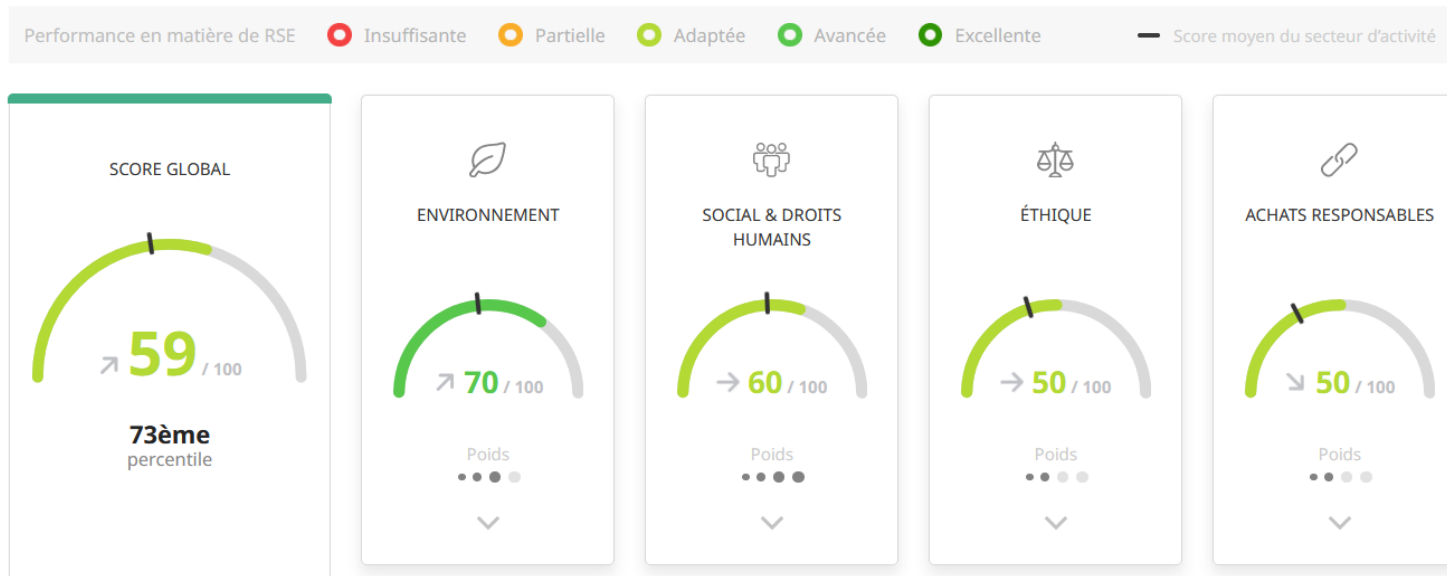
# Environmental commitments



Carbone Neutre (scopes 1&2) before 2030

First step for GHG emissions : -50% before 2025

Ecovadis notation May 2022: **Target to be Gold before 2025**

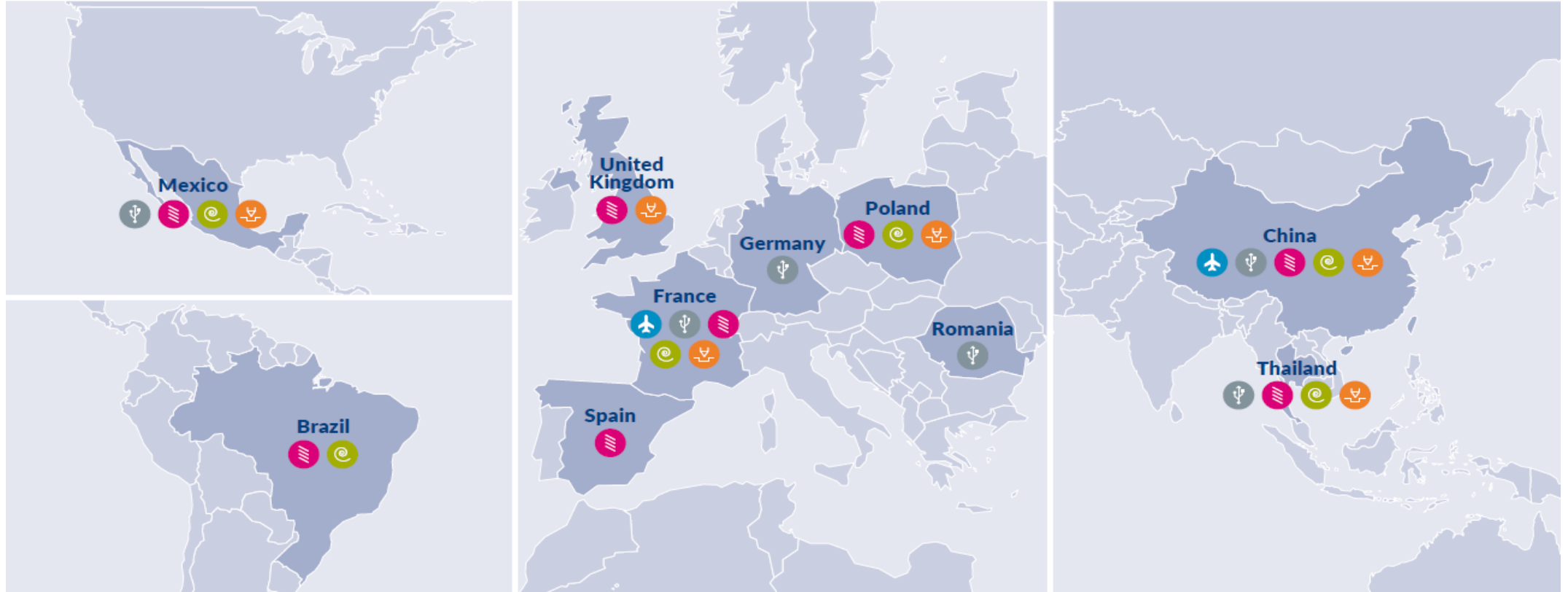


# Global presence, local production

**10**  
countries

**4**  
continents

**>1500**  
employees



cgr-international.com



Aerospace



Mechatronics



Wire springs



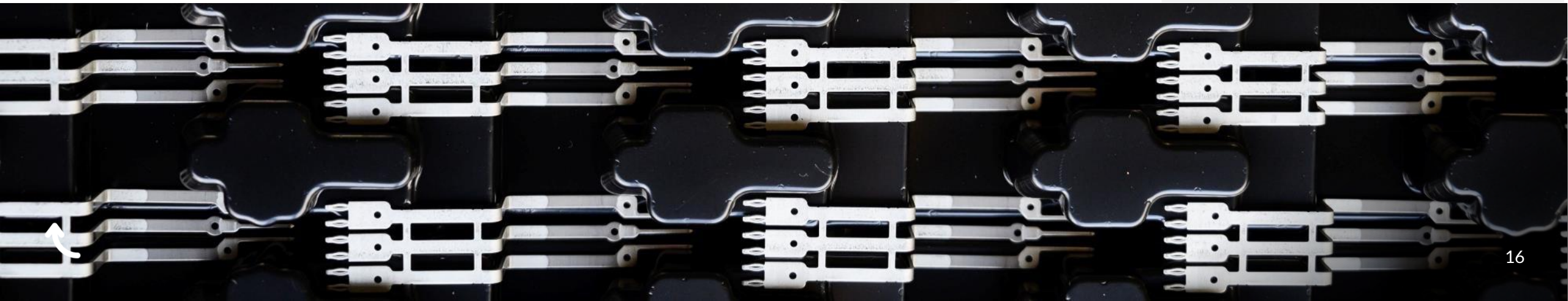
Cold forming



Flat springs

# 02

## Markets served



# From design to production

- 5 dedicated factories
- Counter-expertise of incoming goods and seamless tracking
- Delegation of control granted by many clients
- Facilities certified according to EN/AS 9100, ISO 14001 and ISO 9001
- Finite element methods for static and dynamic design calculations
- Carbon steel, spring steel wire, stainless steel, nickel-cobalt alloys, titanium alloys, copper alloys



# Consistent yield, just in time

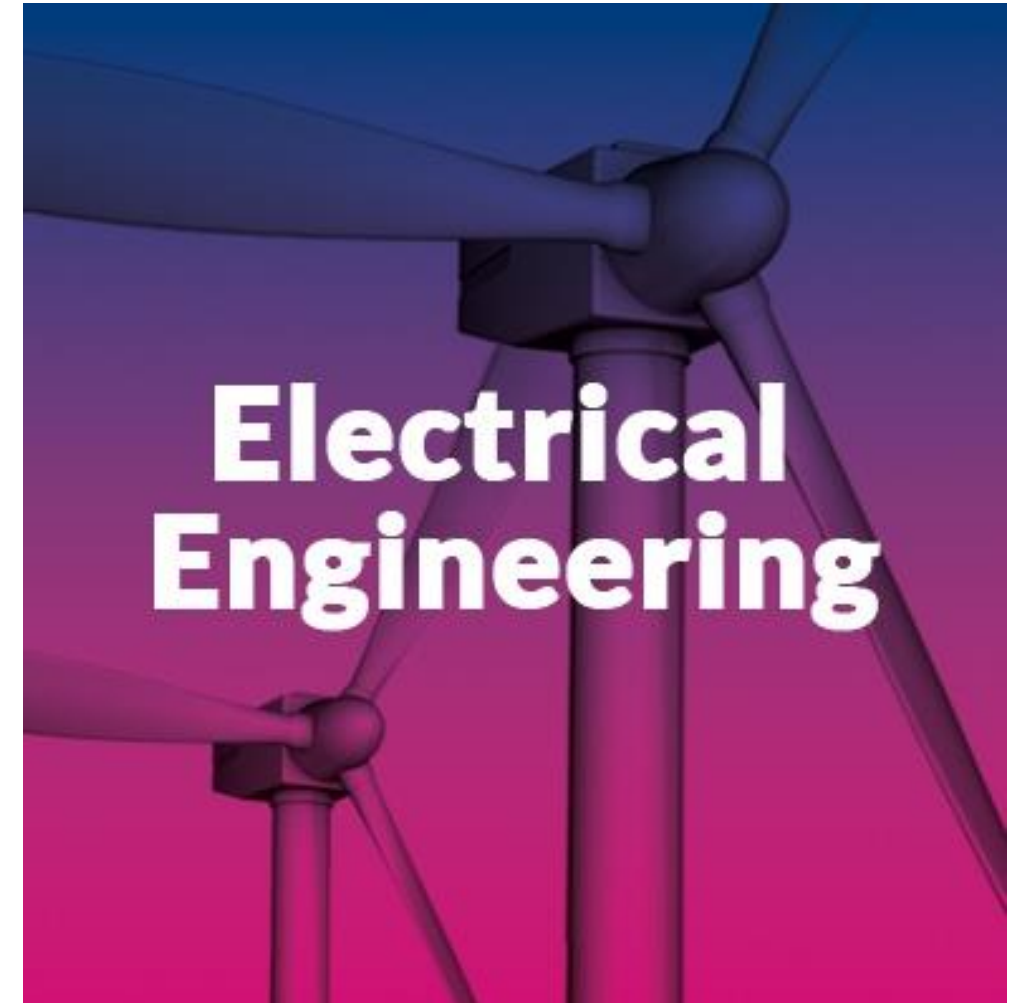
- 15 factories worldwide
- Co-engineering, prototyping, testing and industrializing new solutions and designs
- Delivering high volumes on time with consistent quality and yield
- Wire springs, flat springs, cold-formed components, overmolding and mechatronics
- Facilities certified according to IATF 16949, ISO 14001 and ISO 9001
- Patented press fit EloPIN connectivity





# Quality and reliability

- 12 factories worldwide
- Metal forming, overmolding and automated assembly
- Electromechanical components and advanced sub-assemblies
- Multi-material process knowledge
- Micro-switches, switch disconnectors, thermal relays, surge protectors and other electrical equipment



# Enhancing productivity

- 10 Factories
- Process knowledge including metal transformation, polymer injection and automated assembly
- Fulfilling high volume and high quality requirements
- For construction, railway, agriculture, energy, toys, medical devices and equipment, furniture, defense, luxury and more...



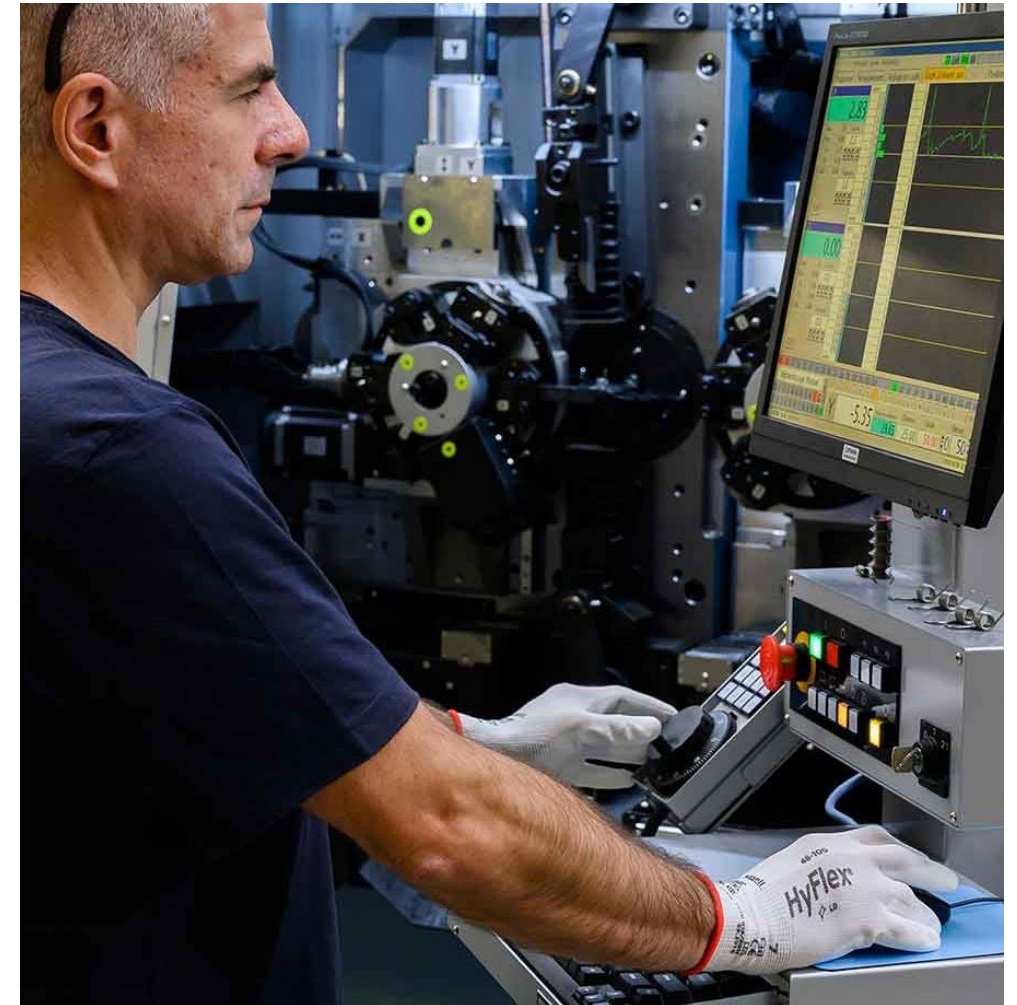
# Technologies

# 03



# An inclusive approach to manufacturing

- Cold forming
  - Flat springs
  - Wire springs
  - Cable crimping
  - Tube forming
- Stamping
- Metal spinning
- Overmolding & automated assembly
- Electroerosion (EDM) & tooling
- Additive manufacturing





# Cold forming

- At 15 production sites on 4 continents, we cut, punch, laminate, weld and assemble a broad spectrum of parts according to client specifications.
- We employ latest technology to transform tubes , wires, flattened wires, cables and sheet metal made of steel, stainless steel, and a large variety of non-ferric alloys.
- We apply thermal treatments as well as a broad range of surface treatments and coatings.
- Our industrial expertise covers production and assembly of wire springs, flat springs, welded seating supports, exhaust system hooks, seat belt cables, busbars, pressure tubes, wiper arms and many other parts.





# Cold forming



# Cold forming / flat springs



# Cold forming / wire springs



# Cold forming / wire springs

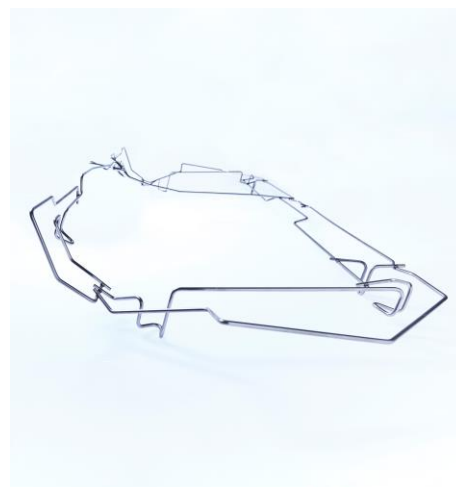


# Cold forming / cable crimping





# Cold forming / tube forming



# Cold forming / tube forming



# Stamping

- Stamping is one of CGR's global core competences.
- We produce functional components by progressive bending, punching and cutting metal strips.
- Inline process control ensures consistent quality.
- The resulting parts serve as clamps, fixtures and connectors.
- Our stamped connectors are the basis for overmolded and assembled parts that can be directly integrated in our clients' products.
- CGR is a main supplier of patented press-fit EloPin® connectors for printed circuit boards (PCBs).



# Stamping



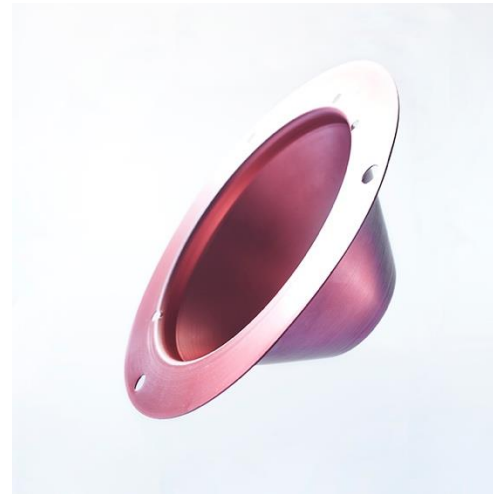
An introduction to CGR

# Metal spinning

- Metal spinning enables production of pieces in small and medium series that are otherwise hard to manufacture.
- Objects can be built from one piece of material, without seams, this withstanding higher internal or external pressure.
- Metal spinning therefore is an ideal method for the aerospace industry and special applications.
- CGR offers its renowned expertise in metal spinning for producing parts from 3 mm to 800 mm in diameter and a thickness of 0.5 mm to 6.0 mm.



# Metal spinning



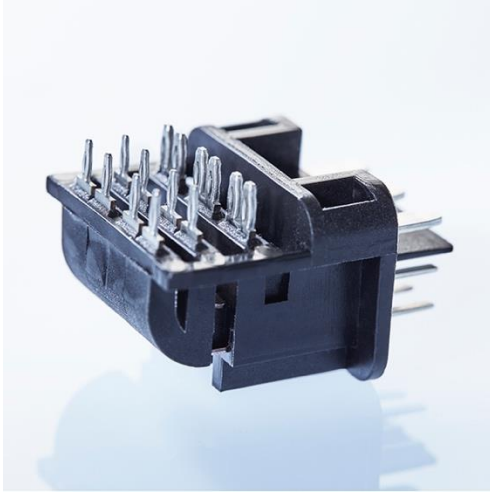


# Overmolding and automated assembly

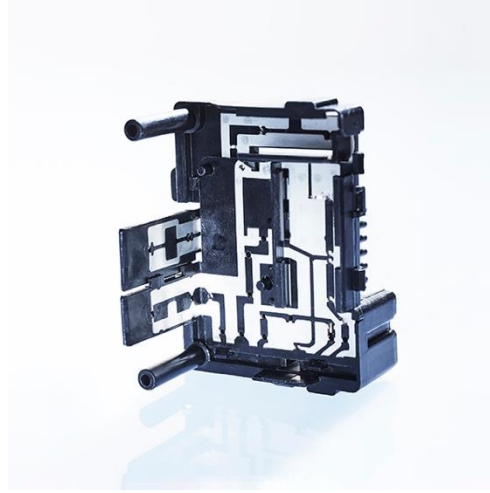
- Metal overmolding is an ideal complement to stamping.
- Our manufacturing sites operate state-of-the-art horizontal and vertical injection presses with different tonnages from 40 to 600t.
- Reel-to-reel overmolding is one of our specialties.
- Further integration includes, for example, membrane welding and assembly of electronics.
- Our automated production lines for high-volume production of parts and sub-assemblies employ latest 6-axis and cartesian robotics, machine vision and artificial intelligence.
- Optical quality control and inline physical and electrical testing capabilities enable zero defect rates.



# Overmolding and automated assembly



# Overmolding and automated assembly



# Electro Discharge Machining (EDM) and Machining

- Our specialized EDM production units make tools, prototypes and small series by wire cut, die sink and EDM hole drilling
- Aerospace parts are produced and assembled with CGR springs to deliver small assemblies for Aircraft applications
- Raw materials include steel, aluminum, carbide, chrome cobalt, copper, graphite, Inconel, inox, titan and alloys
- Wire diameters range from 0.07mm to 0.33 mm
- We have the latest machines and techniques at hand to build our own precision tools for stamping and progressive die.





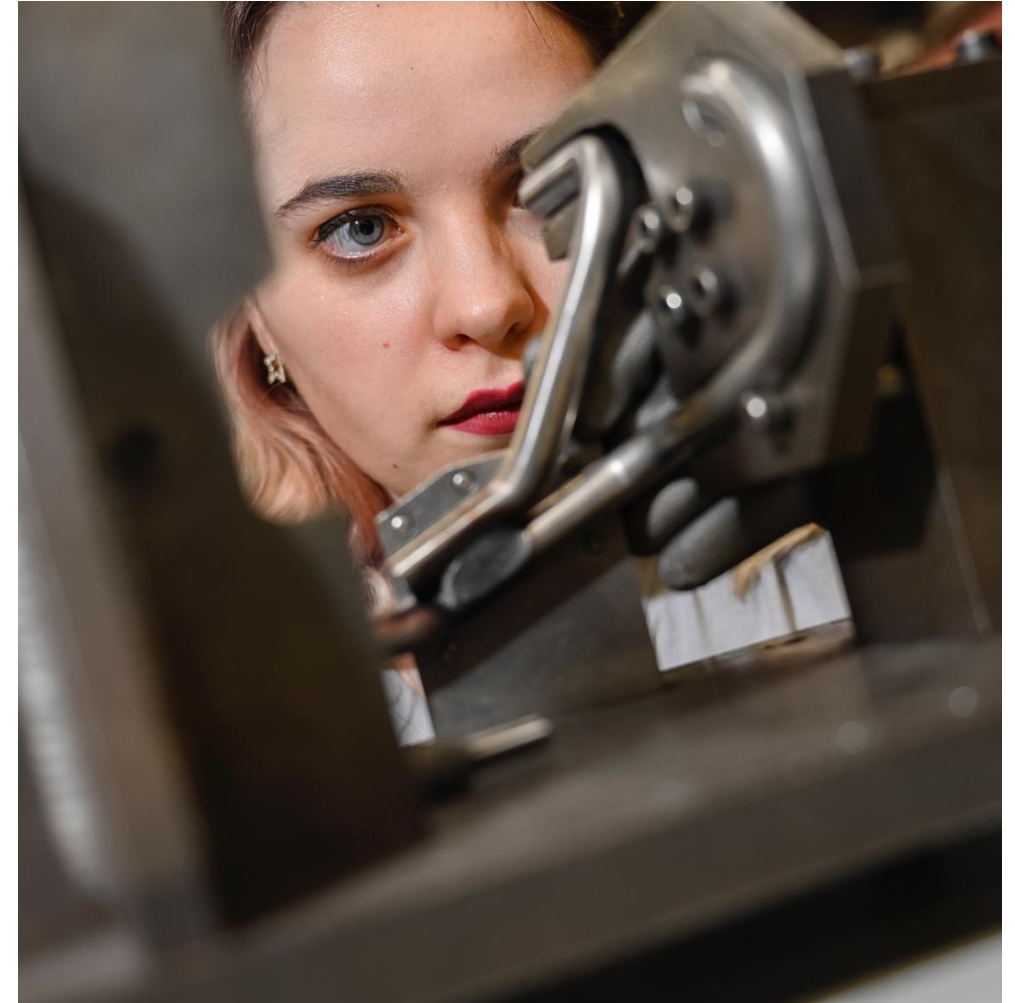
**Form your world**

04



# Form your world

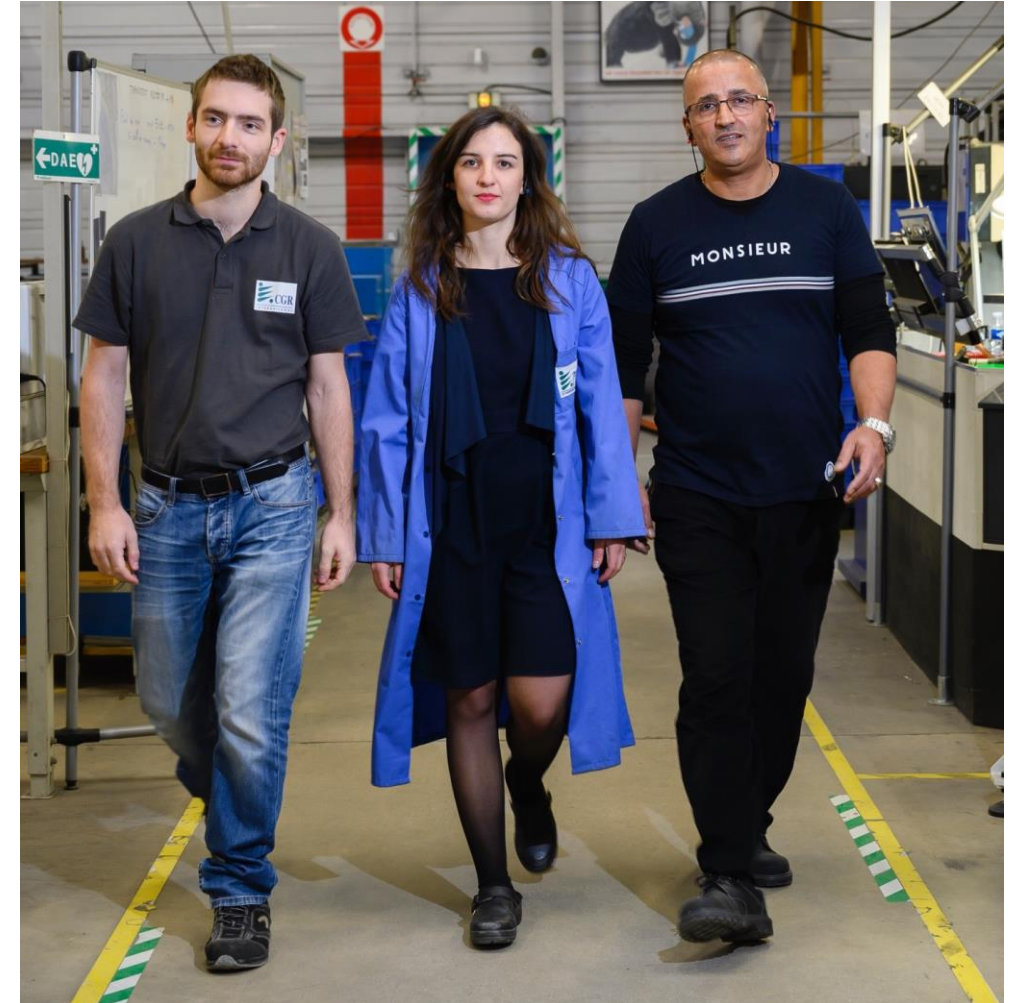
- ‘Form your world’ is the baseline that accompanies CGR’s new visual identity
- Much more than a slogan, it resonates with our core activity: forming and transforming metal.
- It is also a call to action that summarizes our attitude: assume responsibility, take action, drive change, make this world a better place.
- We are united by values that have been chosen by our people:  
**fairness, respect, honesty, solidarity and responsibility**



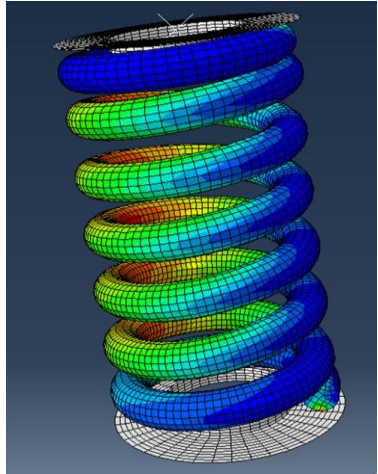


# Social and environmental responsibility

- Our CSR policy relies on three main pillars:
- **Governance and ethics** – we fulfill our missions with integrity and respect at all time.
- **Human capital** – the women and men at CGR are our primary stake, far beyond elementary compliance with legal obligations.
- **Environmental performance** – we strive to continuously improve our environmental footprint and encourage our partners to act alike.



# Co-design and co-engineering

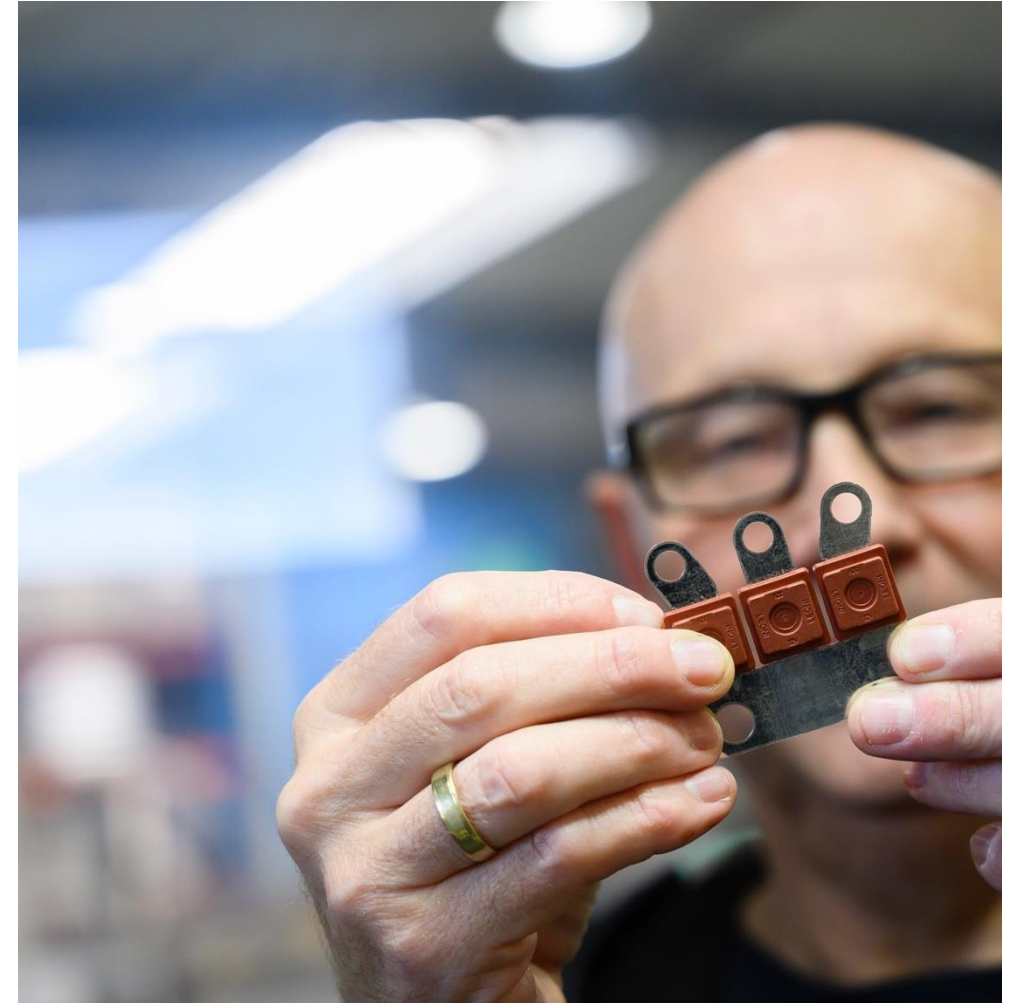


- We help clients shorten time to market, increase production yield, optimize cost and enhance quality.
- Our Lab STRAIN (Spring Technology ReseArch Institute) has been set up in close cooperation with the Clement Ader Institute (CAI) and the National Institute of Applied Sciences (INSA) in Toulouse.
- STRAIN offers CGR's industrial clients leading-edge R&D capacity which is unique in its genre.



# Kaizen attitude

- 5S and Quick Response Quality Control are our primary industrial methods to ensure every component matches specification.
- We deploy lean manufacturing methods including Total Productive Maintenance, Single Minute Exchange of Die, Plan Do Check Act, and 8Do.
- We are certified ISO9001, IATF16949, EN/AS9100 and ISO14001.



# Autonomous production units

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#### CGR Transilvania

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### Royaume-Uni

#### CGR JB Springs

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## Asia and Americas

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#### CGR de Mexico Planta 1

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