

Introduction to BODYCOTE

April 2017

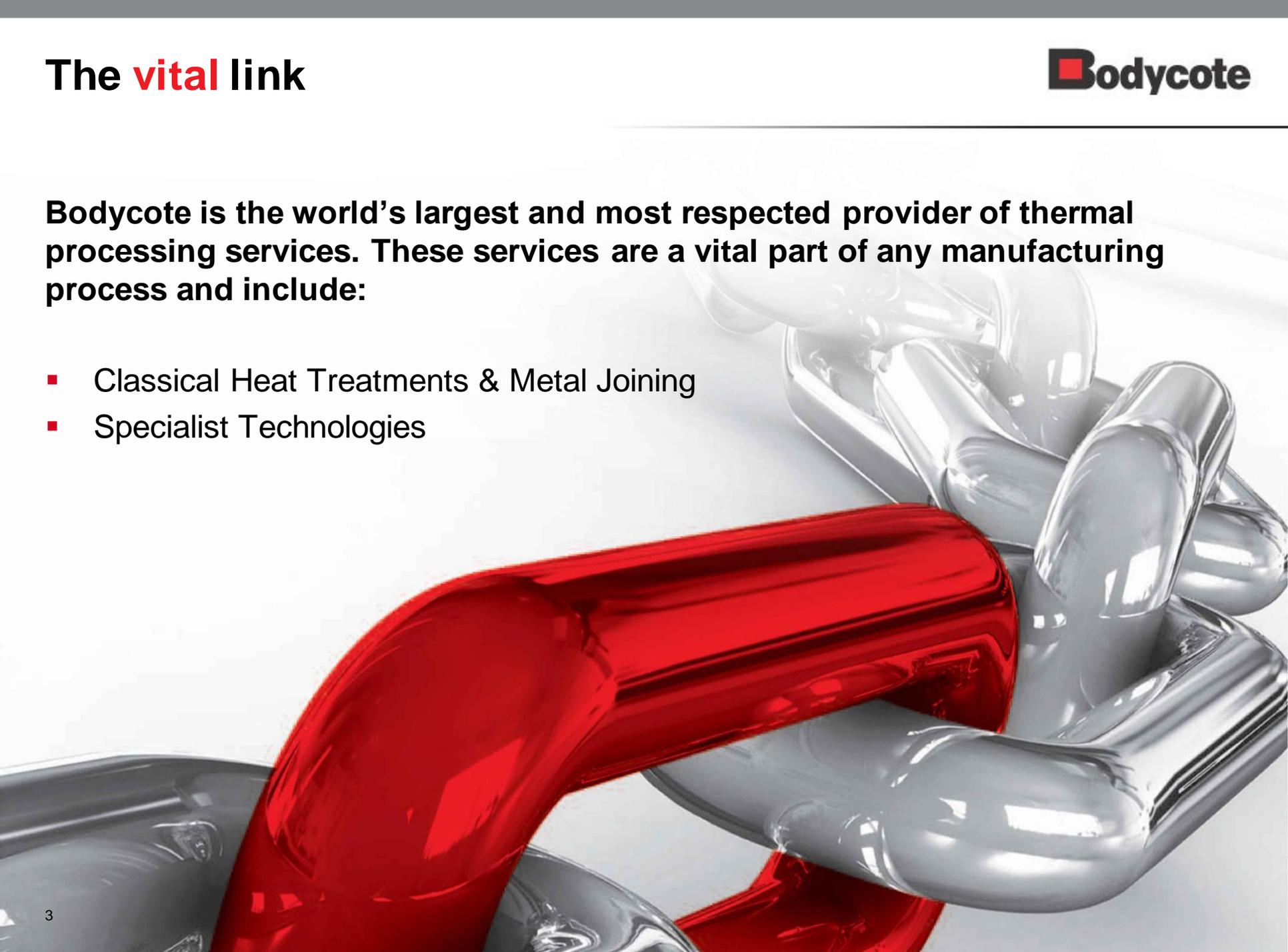


- The world's leading provider of thermal processing services
- Over 180 locations in 23 countries
- The partner of choice for leading international businesses
- Listed on London Stock Exchange (BOY)
- Market capitalisation approx US\$1.5b
- 2016 revenue: approx US\$811m
- Two major businesses:
 - Classical Heat Treatments & Metal Joining
 - Specialist Technologies



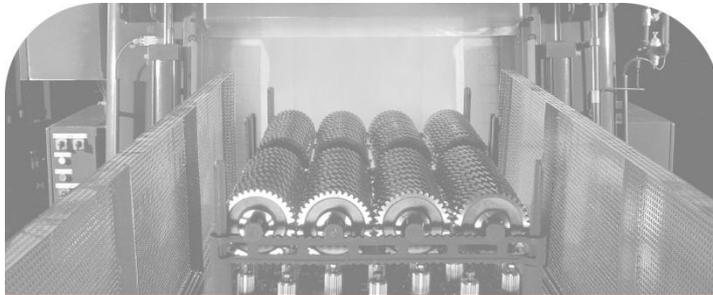
Bodycote is the world's largest and most respected provider of thermal processing services. These services are a vital part of any manufacturing process and include:

- Classical Heat Treatments & Metal Joining
- Specialist Technologies



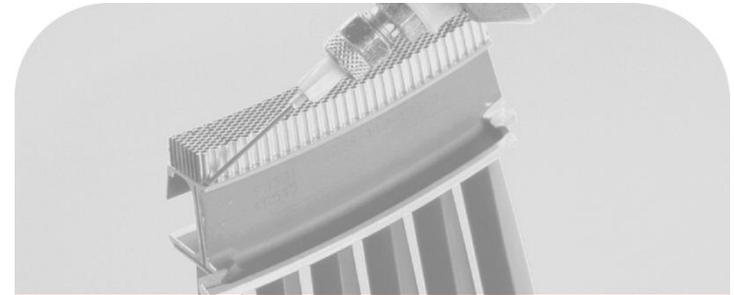
Our technologies

Classical Heat Treatments & Metal Joining



Heat treatment

- Bodycote's classical heat treatments describe a group of mature heat treatment processes such as nitriding, carburising, annealing, tempering, and many more.
- Uses precisely controlled furnaces to process metals and alloys to improve material properties.
- Bodycote is the world's leading provider of heat treatment services.



Metal joining

- A controlled process used to fuse metals.
- There are several techniques used, including Electron Beam Welding (EBW) and brazing in various forms, such as vacuum brazing, honeycomb brazing and felt-metal brazing.
- Bodycote has extensive expertise in metal joining techniques.

Our technologies

Specialist Technologies

Bodycote's specialist technologies refer to a group of processes which require very specialist expertise and technology. In some cases, they are proprietary technologies which have undergone extensive development and offer unique solutions for a variety of applications.



Hot Isostatic Pressing Product Fabrication

HIP PF

- Uses the HIP process to manufacture unique components from metal powder.
- Parts can be simple or very complex.
- Cost-effective due to reduction in material, machining and welding.
- Optimised material properties with 100% density.



HIP Services

HIP

- Uses simultaneous application of heat and pressure to eliminate internal porosity from cast components.
- Improves fatigue strength, tensile ductility and fracture toughness.
- The perfect partner for Additive Layer Manufactured (ALM) parts.



Specialty Stainless Steel Processes

S₃P

- A family of proprietary technologies for the treatment of stainless steel.
- Hardens steel whilst retaining its inherent corrosion resistance.
- Can be used on stainless steels, nickel-based alloys and cobalt-chromium alloys.



Ion Implantation

I₂

- A cold temperature surface hardening process.
- Uses high energy ion beams to implant the surface with gaseous ions.
- Can be used on metals, rubbers and polymers.
- Improves wear, friction and corrosion resistance.

Our technologies

Specialist Technologies

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Low Pressure Carburising

LPC

- Advanced heat treatment technology that gives high hardness below the surface compared to conventional carburising treatments.
- Clean, vacuum process with minimal distortion and improved material properties.
- Environmentally-friendly.



Corr-I-Dur®

CiD

- Proprietary thermochemical treatment.
- Significantly improves corrosion and wear resistance.
- Produces an aesthetically-pleasing dark grey to black colour.
- Environmentally-friendly alternative to hard chromium.



Surface Technology

ST

- Incorporates specialised plasma spray, HVOF and thermochemically-formed ceramic coatings.
- May be mechanically-bonded ceramics or metallics, or a combination, providing extreme corrosion protection.
- Variety of surfaces can be treated – including complex shapes and internal bores.

Why do we need Bodycote's services?

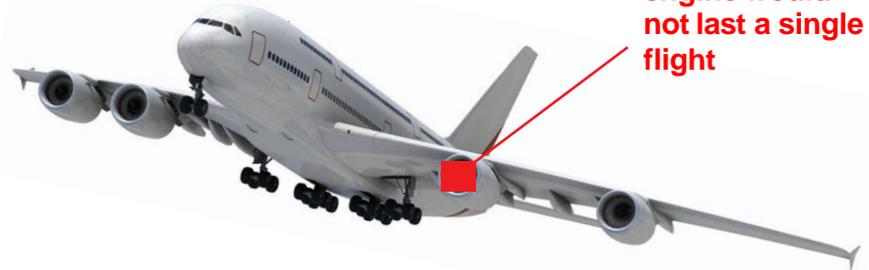
Virtually every type of metal component, whatever its application, has received some form of treatment to enable it to perform to the required standard and last longer once it's put into service.

In a world without Bodycote's vital services....

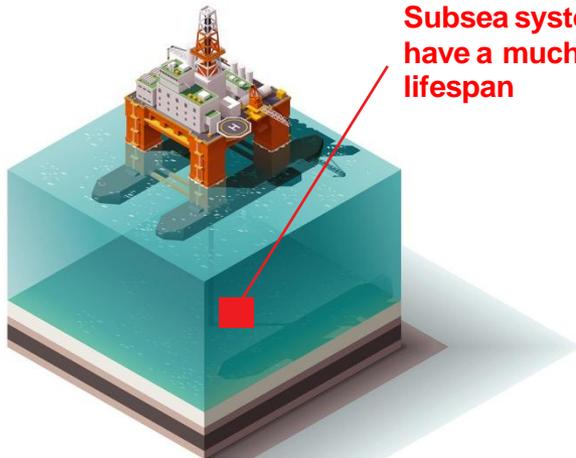
An automotive gearbox might last only a week



An aircraft engine would not last a single flight

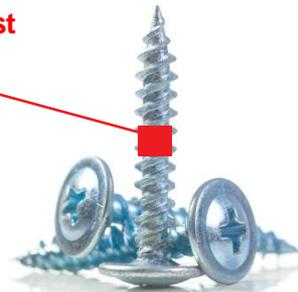


Subsea systems would have a much shorter lifespan

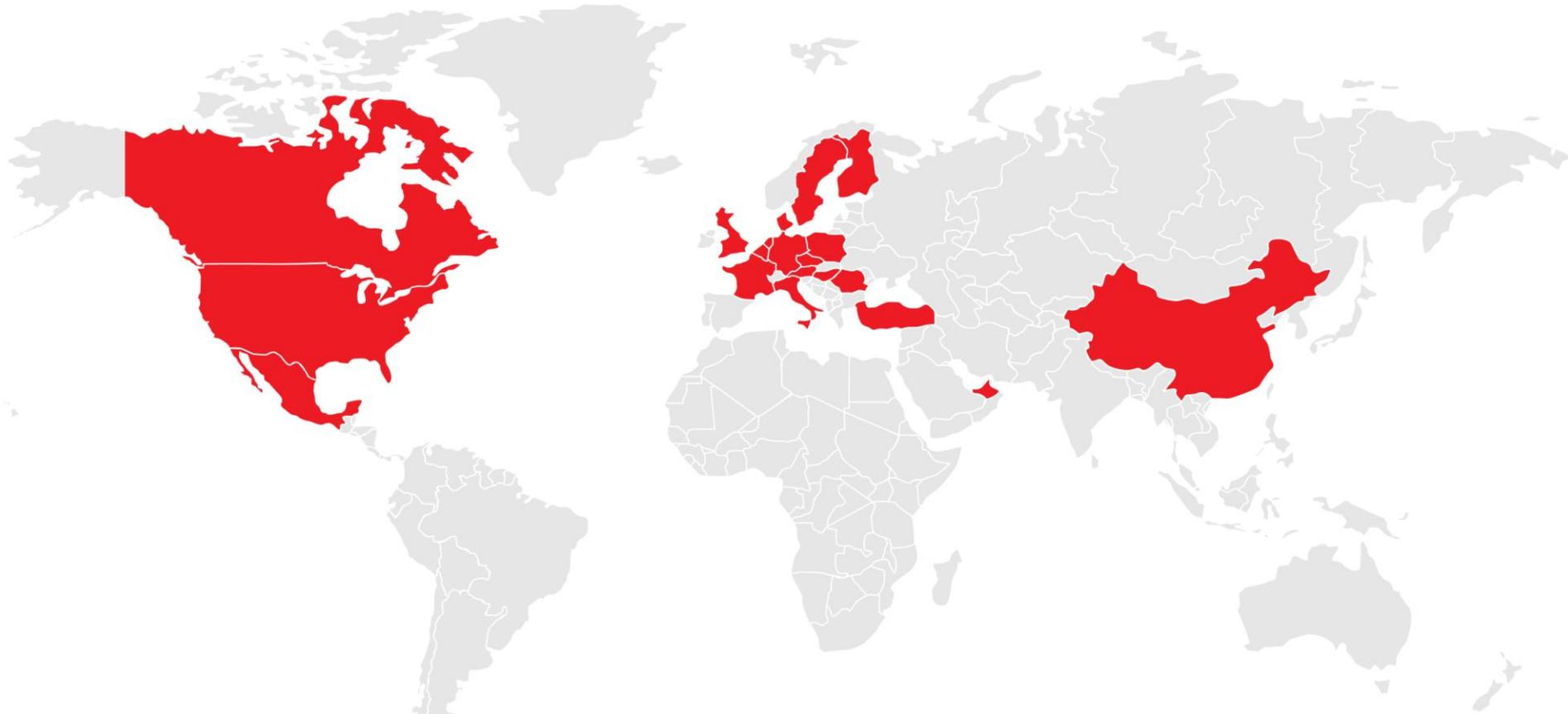


The finish on this watch would quickly become scratched

Fasteners would rust more quickly



A global presence

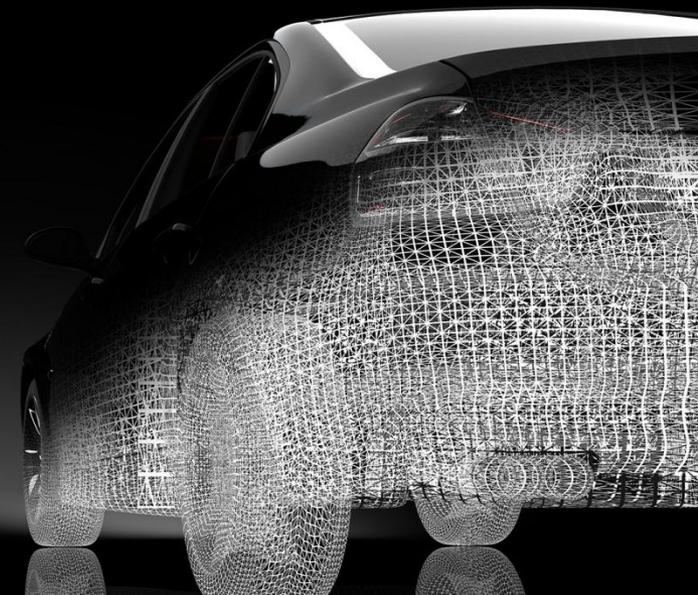


Bodycote is experienced in all major market sectors and is able to combine the capability and expertise of a network of over 170 worldwide locations to deliver global, or local, services to customers.

- Globally organised to reflect customer operations
- The Aerospace, Defence & Energy business incorporates:
 - Classical heat treatment and metal joining services
 - Specialist Technologies:
 - Hot Isostatic Pressing (HIP)
 - HIP Product Fabrication (HIP PF)
 - Surface Technology (ST)



- Regionally focused to reflect customer operations
- The Automotive & General Industrial business incorporates:
 - Classical heat treatment and metal joining services
 - Specialist Technologies:
 - Low Pressure Carburising (LPC)
 - Corr-I-Dur® (CiD)
 - Specialty Stainless Steel Processes (S³P)
 - Ion Implantation





Sales

- North America
- Western Europe
- Developing economies

Aerospace, Defence & Energy



- Aerospace & Defence
- Energy
- Auto & GI

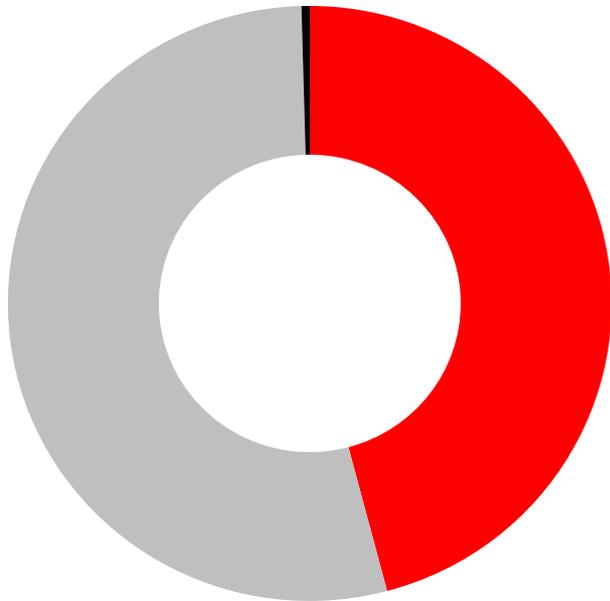
Automotive & General Industrial



- Automotive
- General Industrial
- Aerospace & Defence & Energy

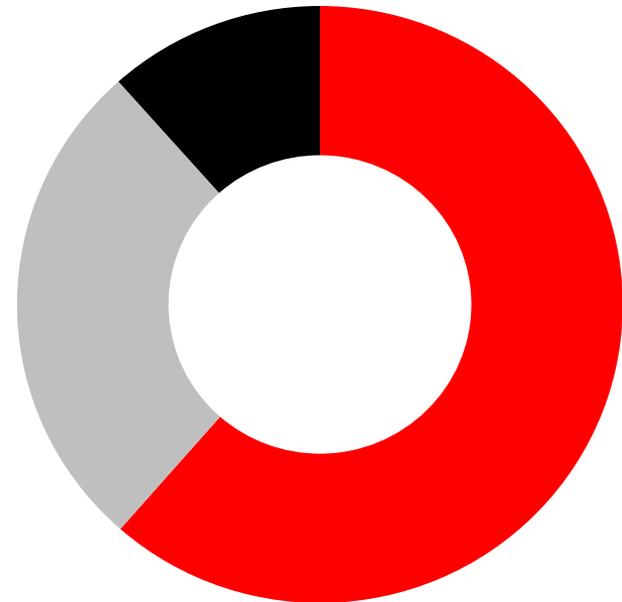
Geography by business

Aerospace, Defence & Energy



- Western Europe
- North America
- Emerging Markets

Automotive & General Industrial



- Western Europe
- North America
- Emerging Markets

The proven value of partnerships

Bodycote has a history of successful, mutually beneficial partnerships with leading international companies.

Conventional subcontract support and long-term agreements

Focus resources on core competencies

For Customers

For Bodycote

Optimised business resources

Strategic partnerships

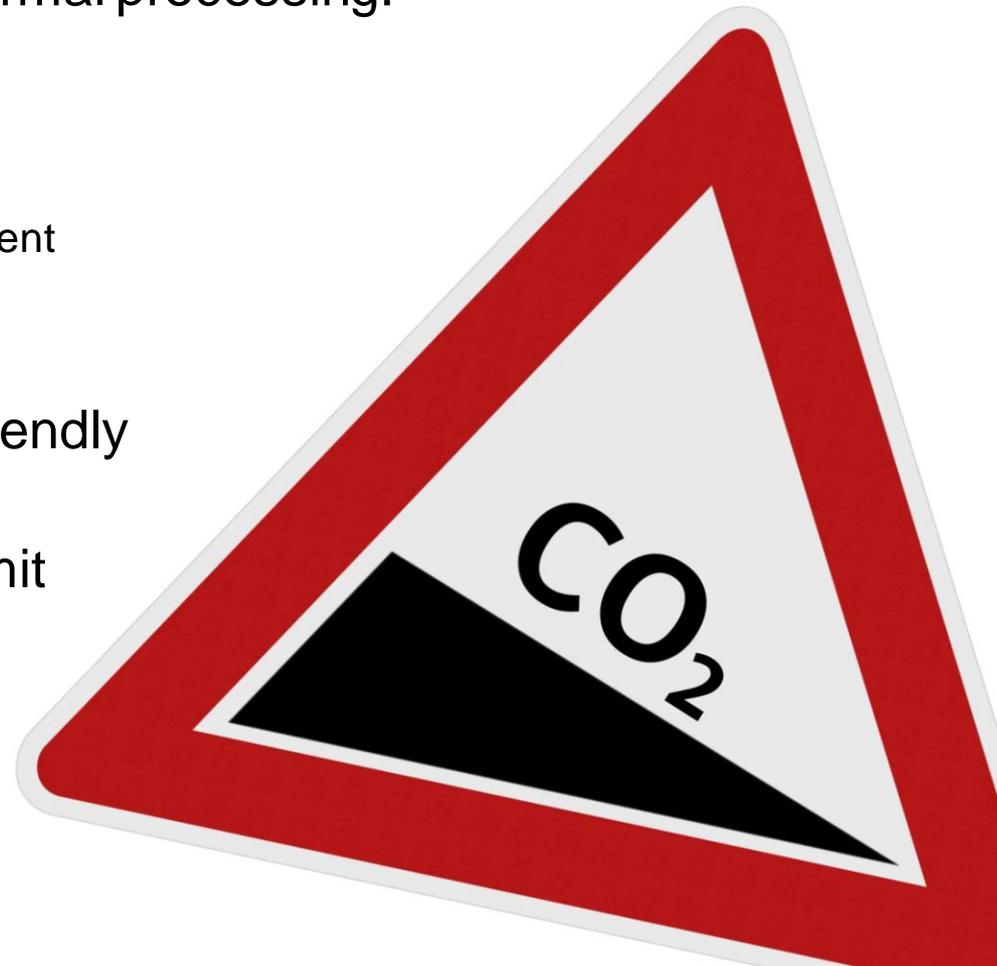
Satisfied customers, growth and investment

- Improved productivity
- Less equipment maintenance
- Lower capital expenditure
- Reduced energy costs
- Better carbon footprint

- Helping to reduce carbon footprint of customer activities through efficient and effective thermal processing:
 - Efficiency in aggregation
 - Modern energy efficient equipment
 - Extended component lifetimes
 - Reduction in downtime and replacement
 - Weight saving materials optimised

- Introduction of environmentally friendly alternative processes

- Customers can more easily commit to carbon reduction schemes



What makes Bodycote great?



PEOPLE

With the best metallurgists, engineers and technicians in the industry, Bodycote is ideally positioned to provide solutions for customers, whatever their market or wherever in the world they may be.



TECHNOLOGY

Our scale enables our customers to benefit from our investment in the latest technologies and in the most efficient and environmentally-friendly equipment.



SERVICE

A focus on excelling at customer service drives our business. Our team takes an active role in finding value-adding solutions to technical issues and promoting mutual business development with our customers.



EXPERTISE

A customer of any local Bodycote plant can benefit from the know-how of the entire company's network as employees leverage the knowledge, skills and technology across the entire group.



QUALITY

We never forget that our customers have invested time, money and resources in all the components we process, which is why quality comes as a standard part of our service. Our facilities hold numerous international and national accreditations, and customer approvals appropriate to the services offered and the markets served.



VALUES

Bodycote is a company that lives by its core values of Honesty and Transparency, Respect and Responsibility, and Creating Value. These values represent Bodycote and its people, and our commitment to how we operate our business.

Bodycote