



Lubricated by  Castrol

Lubricated by  Castrol

Forward
on your industrial evolution



Contents overview



Introduction

Go to page



A brief introduction to the Castrol brand, our history, our strategies, the sectors we serve, and how we deliver value to your business.



Advanced lubricants

Go to page



Fighting friction, corrosion and wear as the application demands, to optimise performance and efficiency, while helping extend asset and tool life.



Efficiency tools

Go to page



By collecting data and understanding your operations, we can offer actionable insights that aid decision-making linked to lubrication maintenance. Helping cut downtime, boost productivity and unlock value.



Expert services

Go to page



Sharing knowledge through expert technical advice, training and dedicated onsite support to help your operations run smoothly and efficiently.



Sustainability goals

Go to page



How Castrol is doing more and using less, and how we can help you achieve your sustainability goals.



Case studies

Go to page



Success stories from Castrol customers around the world, that demonstrate the real value we deliver to customers like you.



Go to overview





Forward
on your industrial evolution

The industrial world is moving forward fast

Advancing, transforming, getting smarter.

With advanced lubricants, new efficiency tools and expert services, we can help you create more efficiencies, boost productivity, and drive value.

**Let's move forward,
on your industrial evolution.**



Go to overview



Forward since 1899

Providing expert
consultation service
and accelerating
the move to a more
sustainable future



Extending
tool life



Fighting
friction,
corrosion
and wear



Advancing
automation



Boosting
productivity



Creating
efficiencies



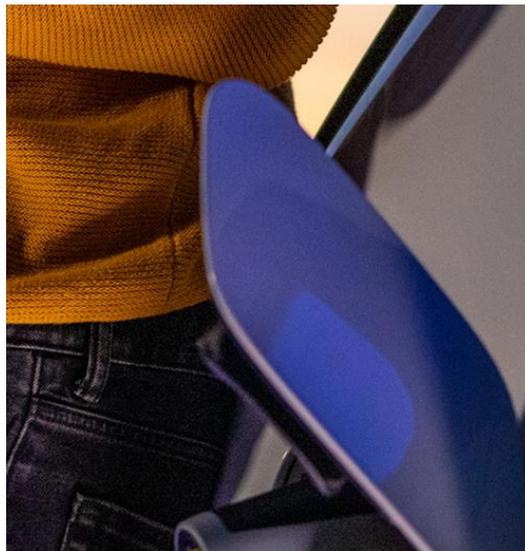
Embracing
new digital
tools



Go to overview



We're no strangers to change



LAND

2 out of every 3 world's major car manufacturers use our electric vehicle fluids*.



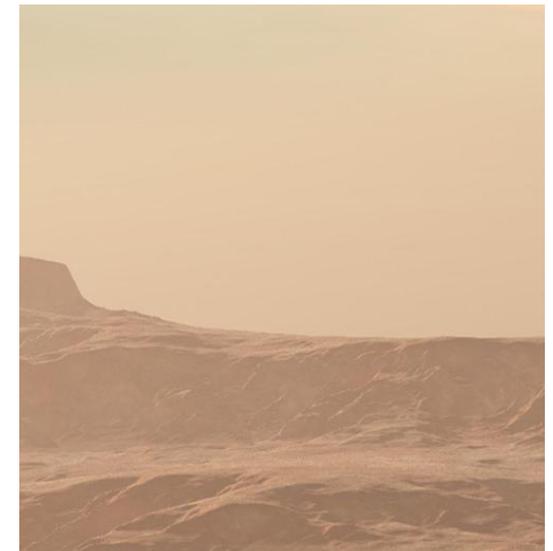
SEA

Finalist at the Gartner **'Eye On Innovation Awards'** for near **real-time** oil analysis in the maritime industry.



AIR

#1 lubricants supplier in the wind industry.



SPACE

Chosen by NASA to lubricate space missions since the 1960s and heading back to the moon in Q1 2025.



[Go to overview](#)



*Based on LMCA data for top 20 selling OEMs (total new car sales) in 2021. Used by these OEMs as a part of EV factory fill.



From the first Industrial Revolution to today's Industrial Evolution

At Castrol, we help our customers innovate, so they can stay ahead and drive further developments of Industry 4.0, 5.0 and beyond.

Evolution of Industrial Manufacturing

1.0

1780s

Mechanization,
water & steam power.



2.0

1870s

Mass production,
assembly line
& electricity.



3.0

1970s

Computer, electronics
& general automation.



4.0

2010s

Cyber-Physical Systems,
IoT & Networks.



5.0

2030s

Mass customization &
cyber physical human
intelligence, cognitive
systems and 'dark
factories.'



We understand the challenges you face:

- Unlocking new efficiencies
- Increasing productivity
- Reducing waste
- Cutting costs and lowering TCO
- Reducing rejected parts
- Cutting water use
- Achieving sustainability goals
- Having a dependable supply chain
- Collaboration in times of change, to bring in new skills and knowledge.

[Go to overview](#)

The primary cause of friction and mechanical wear is **poor lubrication**.

Improper lubrication can lead to...

43%

of mechanical failures



50%

of bearing damage



54%

of bearing failures



70%

of equipment failures



Go to overview



Source: [Advanced Technology Services \(ATS\)](#)

Castrol's experience has found that **correct lubrication** can lead to ...



Reduce resources used in your operations

- 3.5 litres of water saved per engine manufactured with Castrol Techniclean XBC cleaners*
- 90% Reduction in additive top-ups with Castrol XBB metal working fluids.



Avoid downtime of your operations

- A single minute of interruption can cost an automotive manufacturer roughly US\$ 22,000**.



Save money by unlocking new efficiencies

- Eliminating just one oil exchange over the life of a turbine saves at least \$4,300* per turbine with Castrol Optigear Synthetic X 320 AD***
- Reduction in part rejection from 4.5% to 0.5% with Castrol XBB metal working fluids.



[Go to overview](#)



* By introducing Castrol Techniclean XBC at a major manufacturers, delivered over a 12 month period.

** Based on the industry research with 101 manufacturing executives in the automotive industry conducted by Nielsen Research, and commissioned by Advanced Technology Services, Inc. (ATS). While one minute of stopped production, or downtime, costs an average of \$22,000, some survey respondents cite the figure to be as high as \$50,000 per minute.

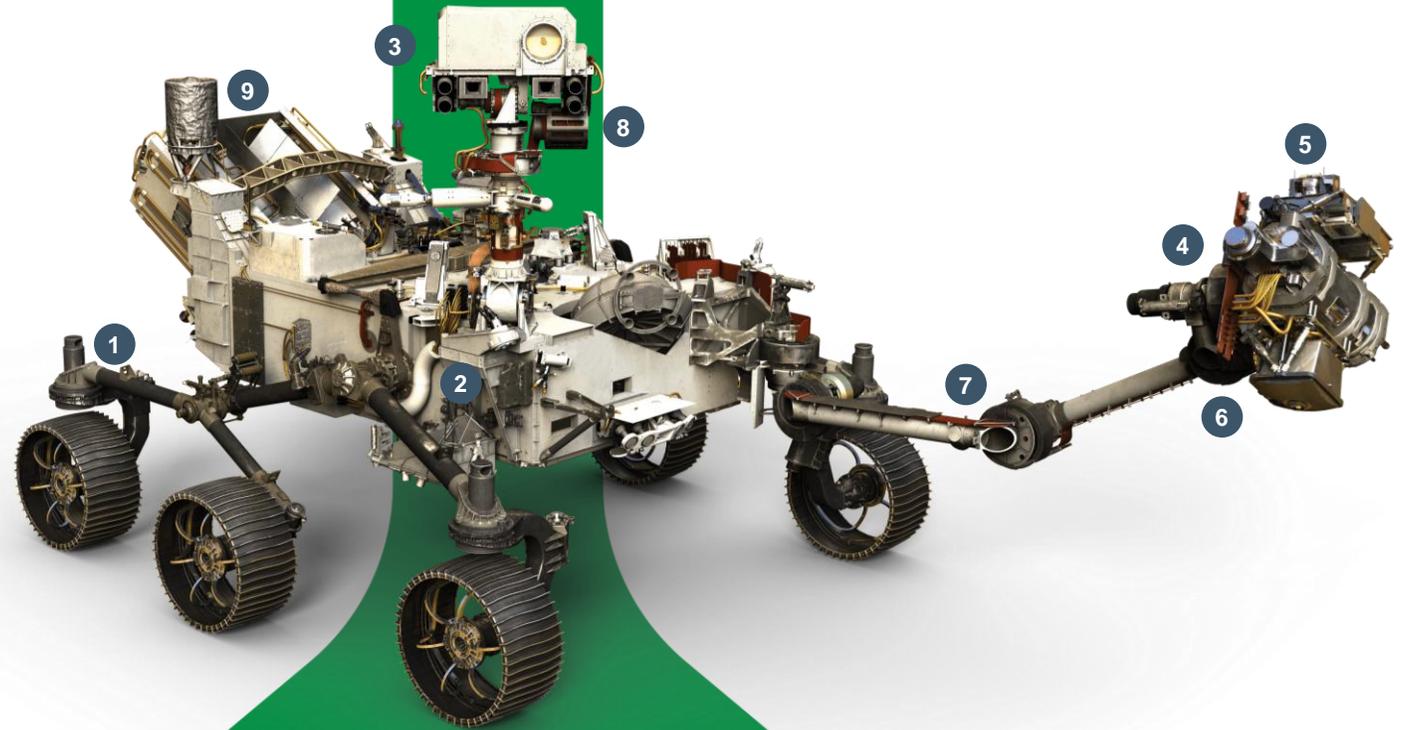
*** Based on Castrol Optigear Synthetic X 320 AD being used on the top-up of 50 turbines to date, each turbine can save \$4,300 through elimination of oil change (significantly more for offshore farms). Calculated in UK trial with major wind OEM in 2017. Data approved and verified.

Proven in space, trusted on earth

Failure is not an option for our customers. Castrol's industrial solutions are designed to help avoid everyday missions grinding to a halt, reduce costly downtime and improve productivity. We apply the same rigour, expertise, and ethos for all our brands and services for customers down here on Earth.

Castrol® Braycote® and Brayco® are used across a variety of mechanisms on the Perseverance Rover.

- 1 Wheel Drive Actuators
- 2 Moxie
- 3 SuperCam
- 4 SHERLOC
- 5 Watson
- 6 Pixl
- 7 Robotic arm
- 8 Mastcam Z
- 9 Caching System



[Go to overview](#)



NASA's Perseverance Rover (Credit: NASA)

Our global Castrol network

Sold in over 120 countries.

Across Automotive, Metal Manufacturing, Wind Energy, Aerospace and Mining.

7 technology centres around the world including:

- Germany: Bespoke robotic lubrication test rig
- UK: \$60million investment in new EV battery testing centre and analytical laboratory
- USA: New \$7.5million investment in lab space
- Castrol is part of bp plc



Key Castrol technology centres



Castrol offices



Go to overview



Answering the three core needs of wind industry businesses

Castrol is chosen by leading turbine manufacturers for first fill when their machines go out to market. We are the trusted supplier for thousands of wind farms across the globe, not just for the warranty period, but for the entire working life. That's due to our deep understanding of three core needs for wind operators...

1**LOWERING LCOE**

Lowering the levelized cost of energy to make your business more profitable today and tomorrow

2**REDUCING DOWNTIME**

Tackling heat, wear, and unplanned maintenance, to optimise efficiency in the field.

3**FILLING THE SKILLS GAP**

Nurturing and training a new generation of experts and advocates in the wind industry.

[Go to overview](#)

Answering the core needs of automotive manufacturers

Castrol is chosen and trusted by the world leading industrial manufacturers. Across the automotive manufacturing supply chain – from component, to first fill, and assembly – our solutions combine to deliver reliability, productivity, efficiencies and savings across your end-to-end automotive manufacturing process.

That's due to our deep understanding of three core needs of automotive manufacturers.

1

RELIABLE, QUALITY OUTPUT

Avoid downtime and any risk to your end customer promises, while producing quality output.

2

REDUCE TOTAL COST OF OWNERSHIP

Access to specialised knowledge that can optimise costs and processes to make your business more profitable and competitive in a disruptive, 'EASCY' - electrified, autonomous, shared, connected and 'yearly' updated market.

3

TWO-THIRDS OF CONSUMERS ARE 'SUSTAINABILITY-MINDED DRIVERS'

There is work to be done meet consumers needs. The automotive industry annually producing approximately 80 million vehicles demanding a colossal 112 million tons of materials, and there are some estimates that it takes 40,000 gallons of water to produce a car.*

[Go to overview](#)

Source: DuPont Water Solutions

Answering the core needs of aerospace manufacturers

Castrol is chosen and trusted by the world leading industrial manufacturers. Across aerospace manufacturing, from component to assembly, airframes, engines and even space, our solutions combine to deliver reliability, productivity, efficiencies and savings across your end-to-end manufacturing process.

That's due to our deep understanding of three core needs of aerospace manufacturers.

1

RELIABLE, QUALITY OUTPUT

Aviation demands the highest standards. Regulatory compliance and the best possible component quality are both vital.

2

REDUCE TOTAL COST OF OWNERSHIP

Access to specialised knowledge that can optimise costs and processes, to make your business more profitable and competitive in a disruptive market.

3

INNOVATION

Innovation in materials, processes and technologies, helping aerospace companies stay competitive in a rapidly evolving industry.

[Go to overview](#)

Source: Technology Investors, advanced materials aerospace

Answering the core needs of machinery manufacturers

Castrol is chosen and trusted by the world leading industrial manufacturers. Across machinery manufacturing, from bearings, to gears, electronics and compressors, our solutions combine to deliver reliability, productivity, efficiencies and savings across your end-to-end manufacturing process.

That's due to our deep understanding of three core needs of machinery manufacturers.

1

RELIABLE, QUALITY OUTPUT

Tooling costs are typically biggest on-going expense, so high performance fluids that can extend tool life as well as improving finishes are vital.

Machinery manufacturing demands the highest standards. Regulatory compliance and component quality must be the best it can be.

2

REDUCE TOTAL COST OF OWNERSHIP

Tooling costs are typically the biggest on-going expense. You want access to specialised knowledge that can optimise costs and processes to make your business more profitable and competitive.

3

WASTE REDUCTION

Every year 9.2 billion tons of industrial waste are generated worldwide. Embracing new, sustainable processes could save money and our precious resources.*

[Go to overview](#)

Source: Business Waste Management

How the Castrol pathways to industrial success help every customer

Whenever you have a challenge or a goal, we are here to help accelerate your success through our advanced lubricants, efficiency tools and proven expert services.



Advanced lubricants

Fighting friction, corrosion and wear as the application demands, to optimize performance and efficiency, while helping extend asset and tool life

Efficiency tools

By collecting data and understanding your operations, we can offer actionable insights that aid decision-making linked to lubrication maintenance. Helping cut downtime, boost productivity and unlock value.



Expert services

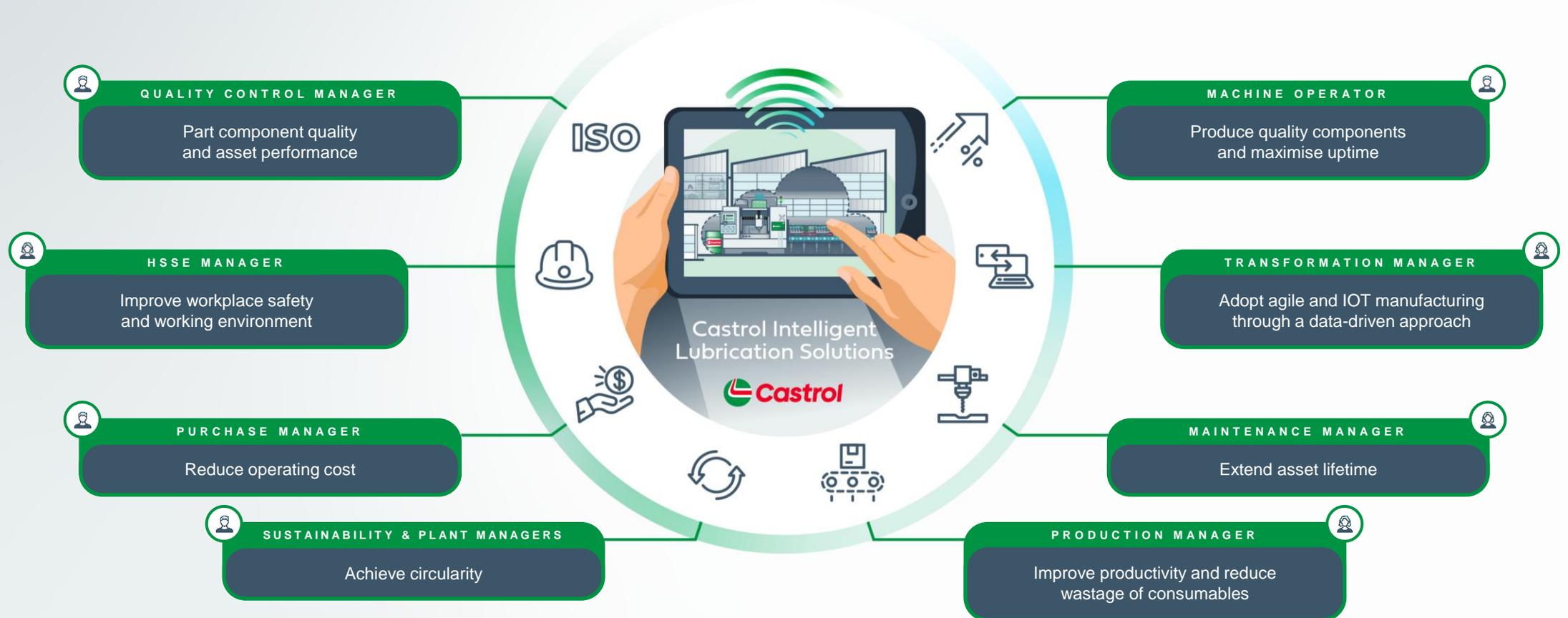
Sharing knowledge through expert technical advice, training and dedicated onsite support to help your operations run smoothly, safely and efficiently



[Go to overview](#)



The goal of industrial customers like you, varies according to your role...



Unlocking new business gains

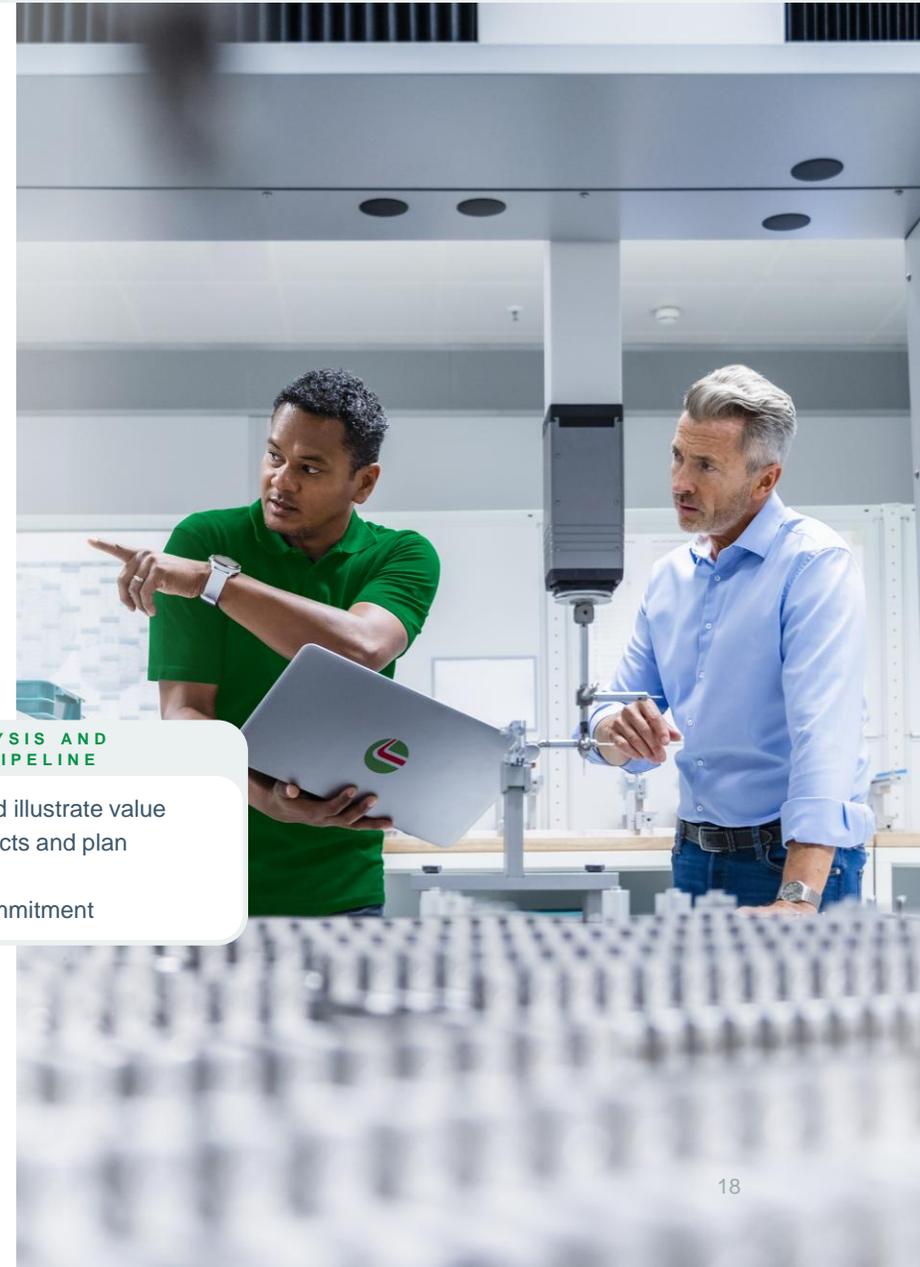
Start with a site survey

Our Castrol Site Survey is the start of our total-cost-of-ownership (TCO) program, where we listen to our customers' challenges and ambitions and make lubrication recommendations across the end-to-end manufacturing process.

How we deliver integrated solutions that unlock value



Helping you create more efficiencies, boost productivity and drive value across your end-to-end lubrication processes.





Advanced lubricants



[Go to overview](#)

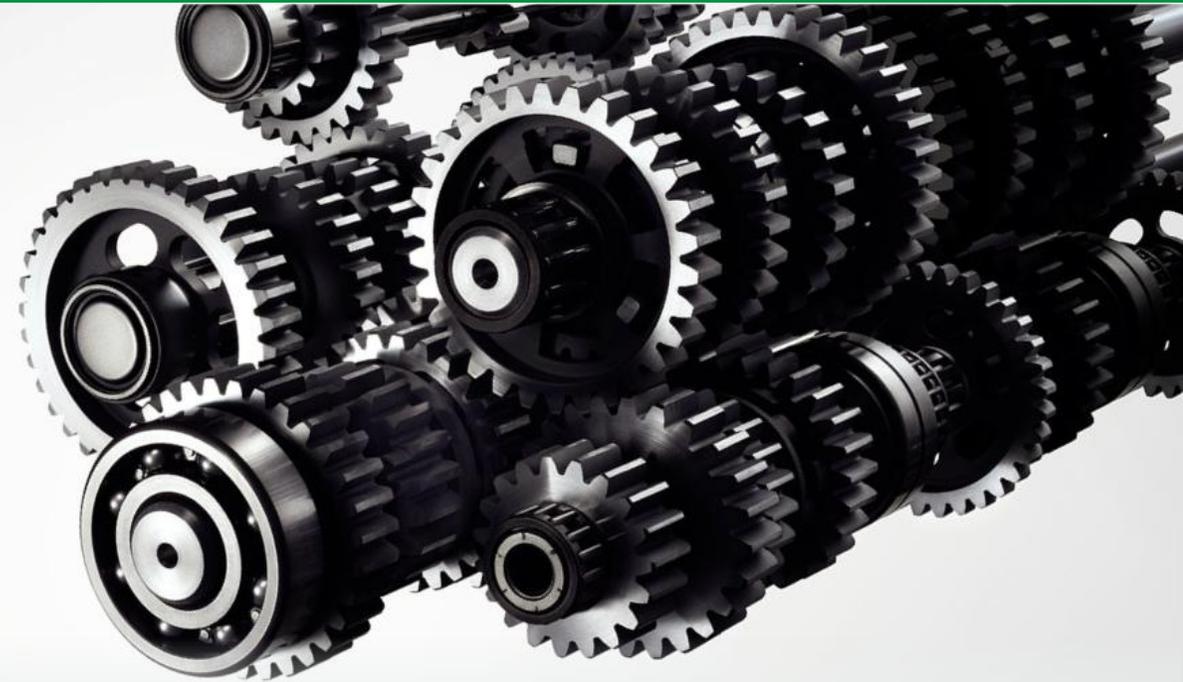


Fighting friction, corrosion and wear

Our advanced products can help you optimise performance and efficiency, while helping extend asset and tool life, helping you meet your sustainability goals.

Our sectors:

- Automotive manufacturing
- Machinery Manufacturing
- Wind
- Aerospace
- Robotics



HIGH-PERFORMANCE LUBRICANTS (HPL)

Standard lubricants
 Gear oils
 Greases
 Hydraulic oils
 Spaces & Aviation
 Chain oils
 Spindle oils

METALWORKING FLUIDS (MWF)

Cutting and grinding fluids
 Corrosion preventatives
 Deformation process fluids
 Cleaners

GENERAL INDUSTRIAL LUBRICANTS (GI)

Compressor oils
 Hydraulic oils
 Fire-resistant hydraulic fluids
 Gear oils
 Greases
 Circulating oils
 Slideway oils

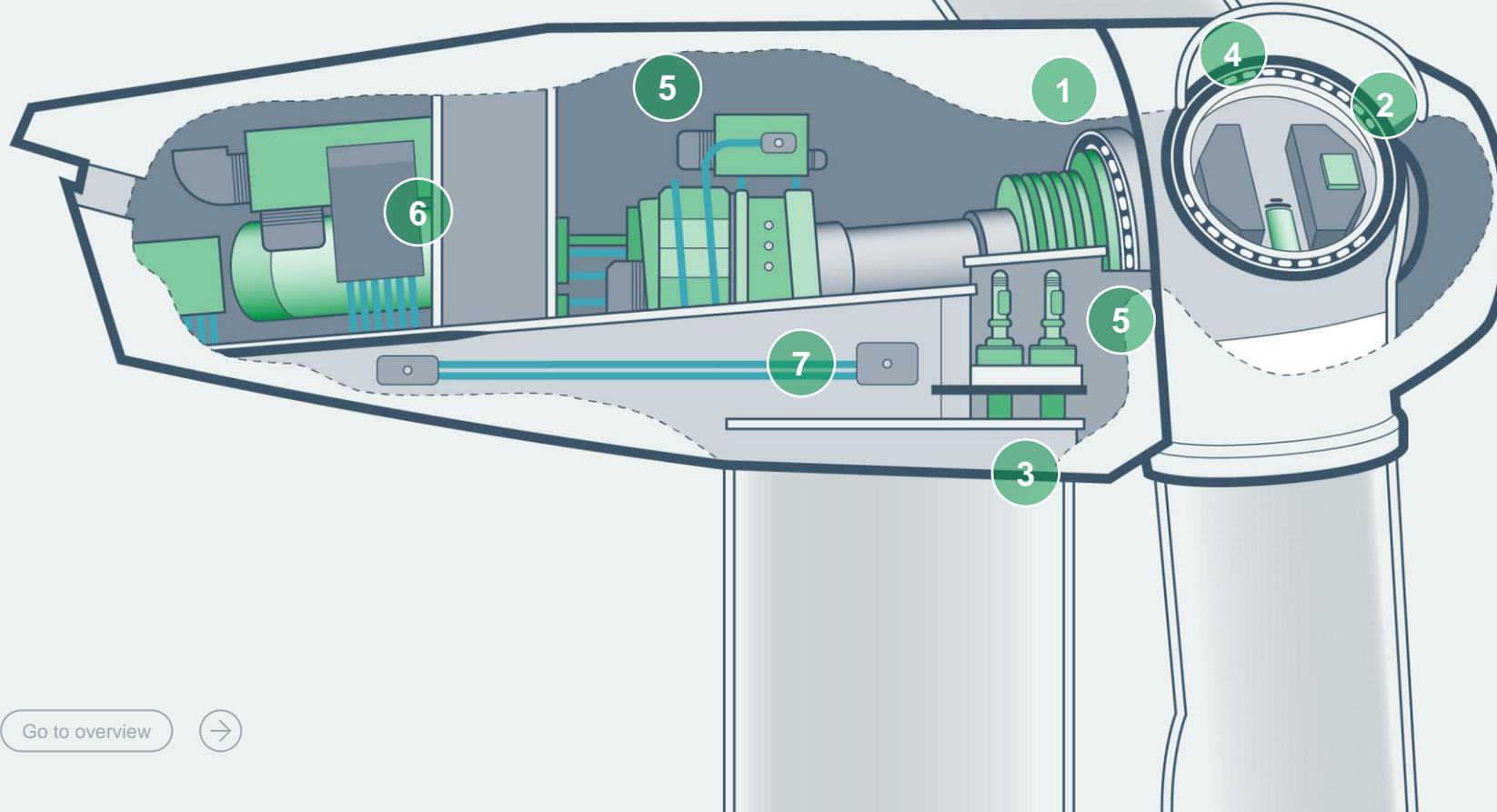


[Go to overview](#)



Lubrication points on a wind turbine

Castrol offer a range of advanced lubricants for the wind industry. This diagram shows all the areas of a turbine where Castrol products can help reduce friction and improve performance.

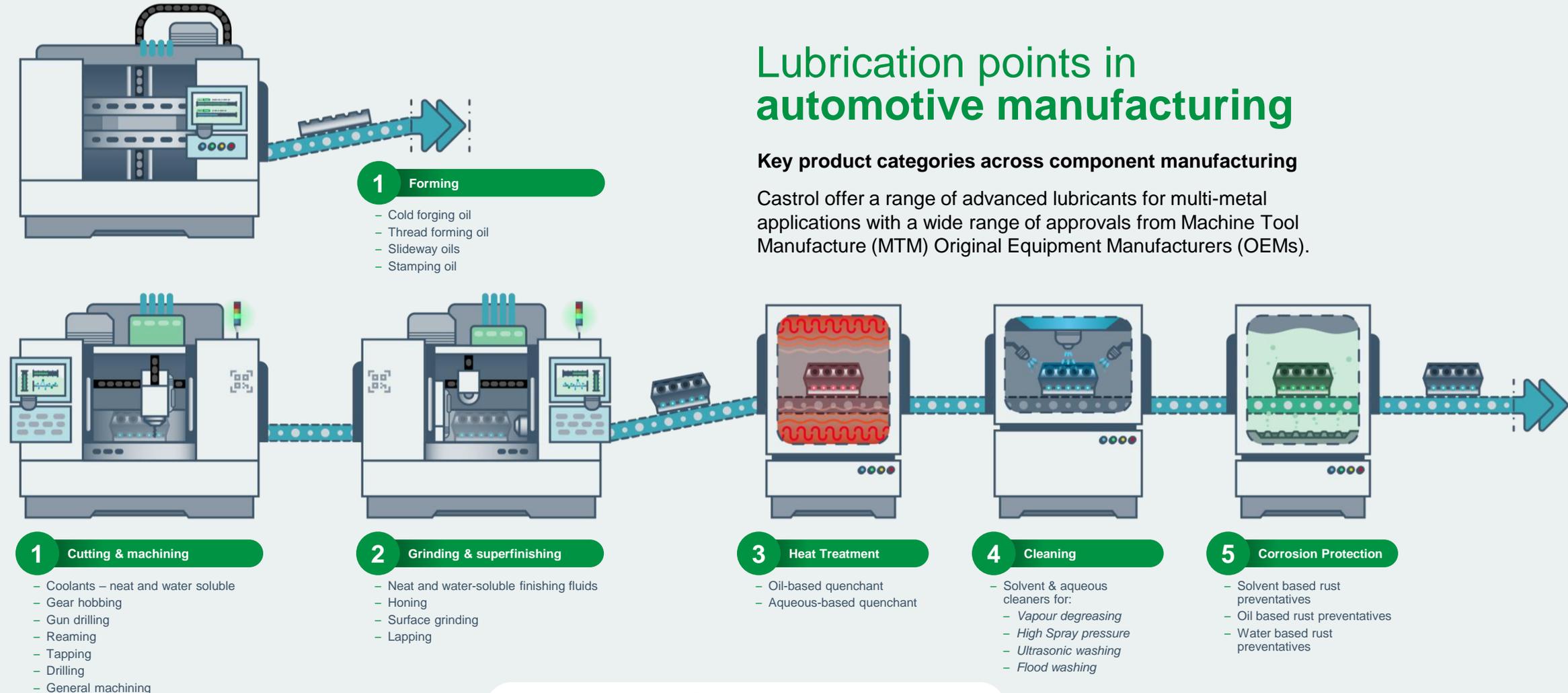


- 1 Main bearing
- 2 Pitch adjustment
- 3 Yaw bearing
- 4 Hydraulic systems
- 5 Main gear and auxiliary drives
- 6 Generator bearing
- 7 Yaw open gear



Go to overview



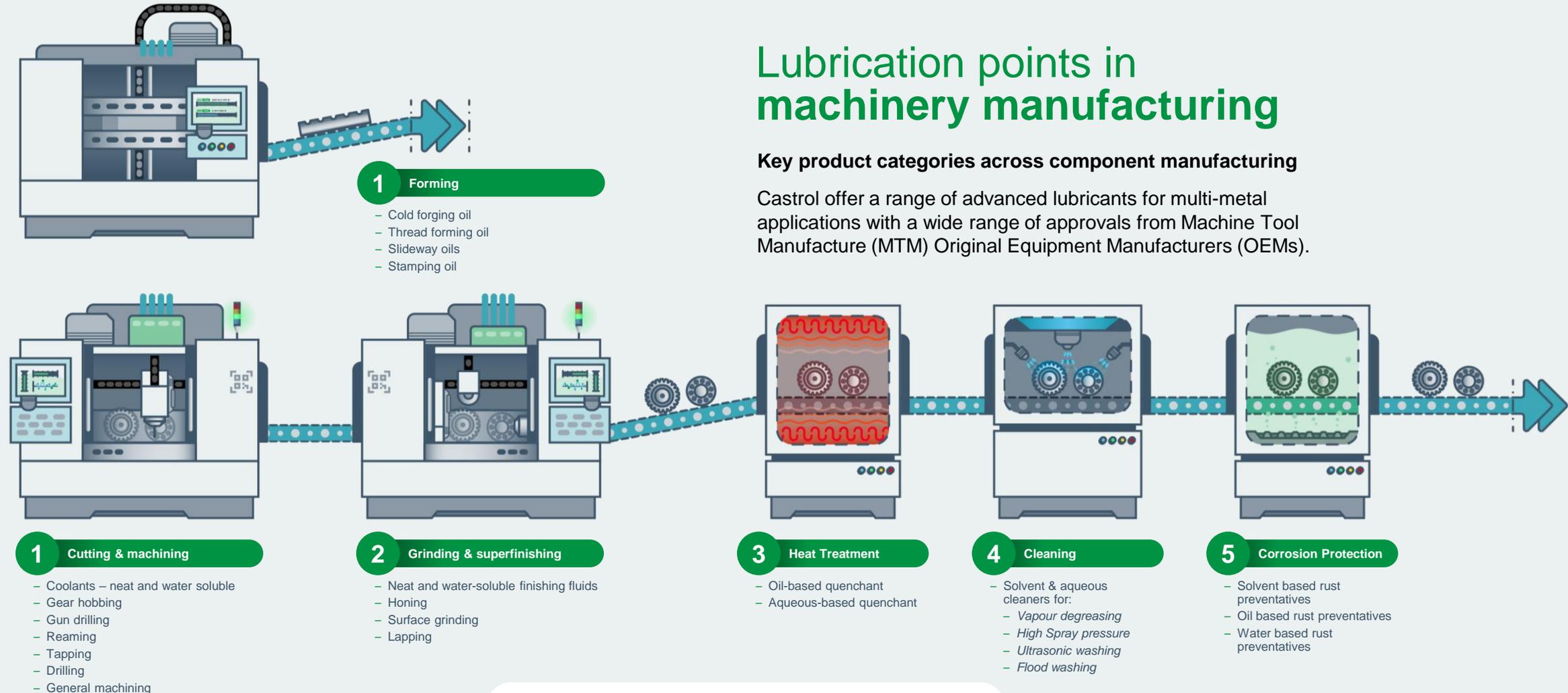


Lubrication points in automotive manufacturing

Key product categories across component manufacturing

Castrol offer a range of advanced lubricants for multi-metal applications with a wide range of approvals from Machine Tool Manufacture (MTM) Original Equipment Manufacturers (OEMs).

MAINTENANCE FLUIDS
Slideway oils, gear oils, greases, chain oils and hydraulic oils



Lubrication points in machinery manufacturing

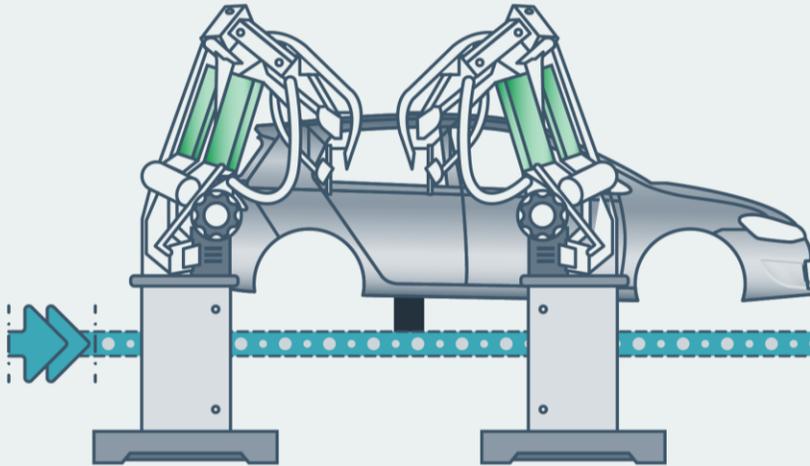
Key product categories across component manufacturing

Castrol offer a range of advanced lubricants for multi-metal applications with a wide range of approvals from Machine Tool Manufacture (MTM) Original Equipment Manufacturers (OEMs).

MAINTENANCE FLUIDS
Slideway oils, gear oils, greases, chain oils and hydraulic oils

Key product categories across the body shop

Press and body



1 Forming oils

- Stamping oil
- Blanking oil
- Deep drawing oil
- Pilgering
- Hydroforming

2 Cleaning oils

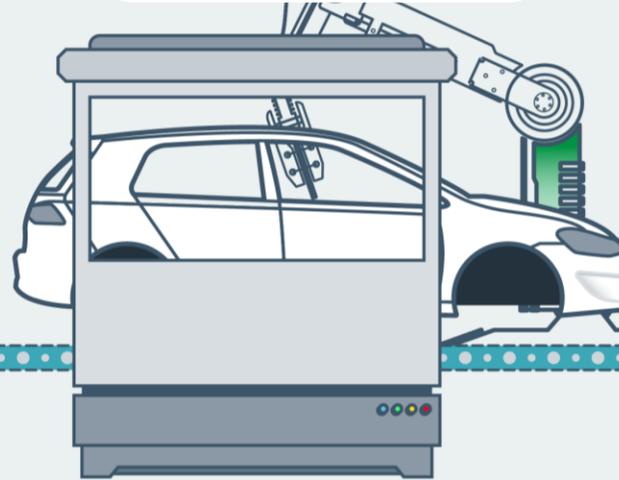
- Blank wash fluid
- Solvent cleaners

3 Corrosion preventatives

- Solvent based rust preventatives
- Oil based rust preventatives
- Water based rust preventatives

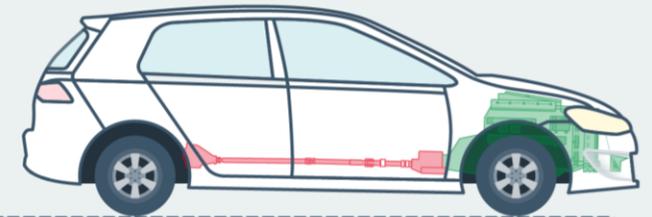
MAINTENANCE FLUIDS
Slideway oils, gear oils, greases, chain oils and hydraulic oils

Assembly and paint shop



Key product categories component first fill

Component first fill



Did you know?

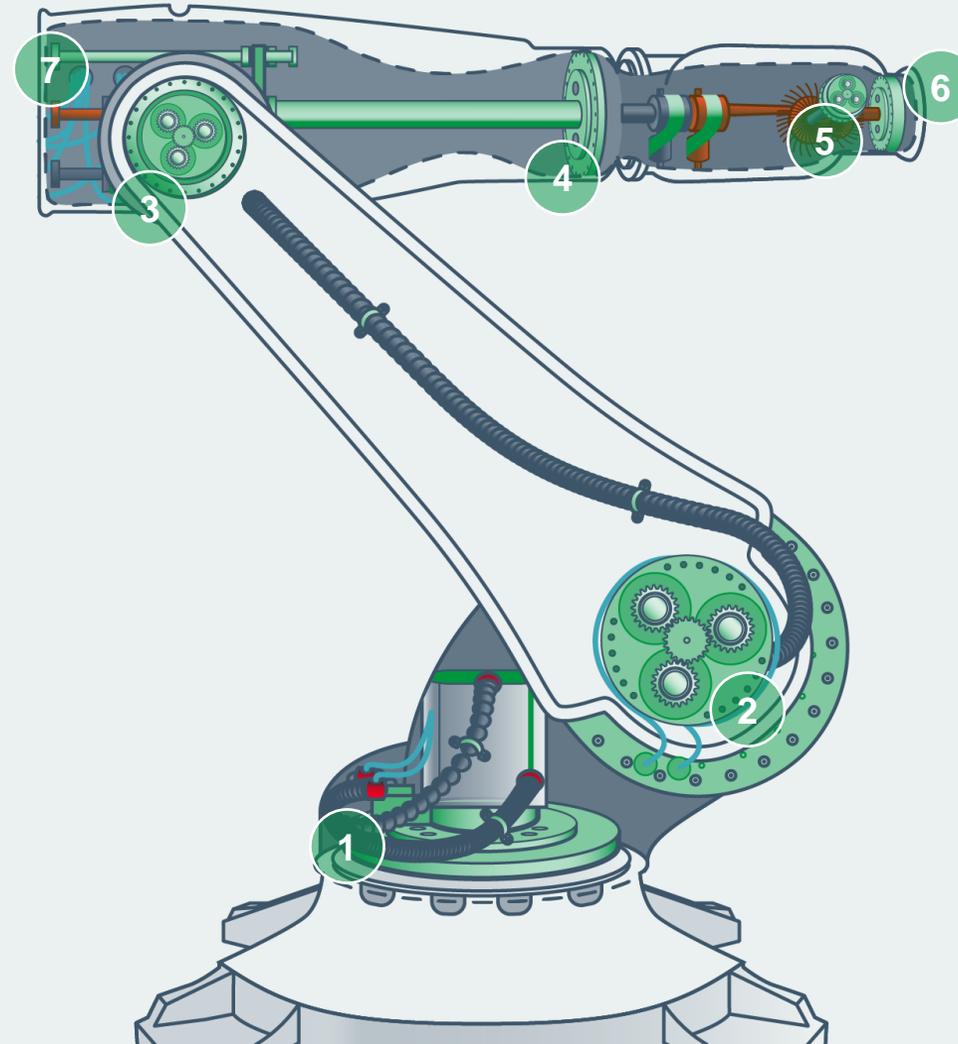
Cars have more than 250 different lubrication points.

We'll help you find the right lubricant for each one.

FIRST FILL FLUIDS
Engine oils, transmission fluids, brake fluids, EV fluids, greases

Lubrication points for robotics

Robots require lubrication on any joint that moves, i.e. near actuated joints, bearings, sliders, chains, and in gearboxes. Our oils and greases are developed to decrease the downtime of industrial robots, and positively impact the quality, costs and efficiency of your manufacturing process.



Oils

Axis 1

- Castrol Optigear EP 320

All axes

- Castrol Optigear ALR 150
- Castrol Optigear ALR X1
- Castrol Optigear ALR 320
- Castrol Optigear Synthetic RO 150
- Castrol Optileb GT 1800/220

Axes 4, 5, 6

- Castrol Optigear BM 100

Greases

All axes

- Castrol Tribol GR ALR 100-00
- Castrol Tribol GR ALR 100-01
- Castrol Tribol GR 100-00, -0, -1, -2 PD

Cables (7)

- Castrol Optitemp RB 2
- Castrol Optileb GR 823-2



Go to overview





Low friction gear oils that optimise efficiency

Gearbox friction can be a problem. High loads create friction, leading to thermal stress on essential components. This propagates wear and pitting, reducing the operational efficiency of every gearbox.

The Castrol Optigear range of advanced gear oils has an advanced formulation that helps to lower levelized costs by reducing friction and optimizing efficiency.



Castrol Optigear is engineered with MicrofluxTrans plastic deformation technology:

- Lowers coefficient of friction by 60%*
- Reduce gearbox temperatures
- Resists wear and pitting



[Go to overview](#)



*Compared to standard gear oils



Adaptive protection for increased reliability

60% of equipment failures are lubricant-related. Castrol Tribol is formulated to increase the life of equipment by actively adjusting to operating conditions.



Castrol Tribol has been specially formulated to help increase the operational life of equipment by adapting to even the most difficult operating environments:

- Reduced maintenance costs
- Productivity improvements
- Lower operating temperatures: all of which contribute to increased reliability and lower cost of ownership



[Go to overview](#)





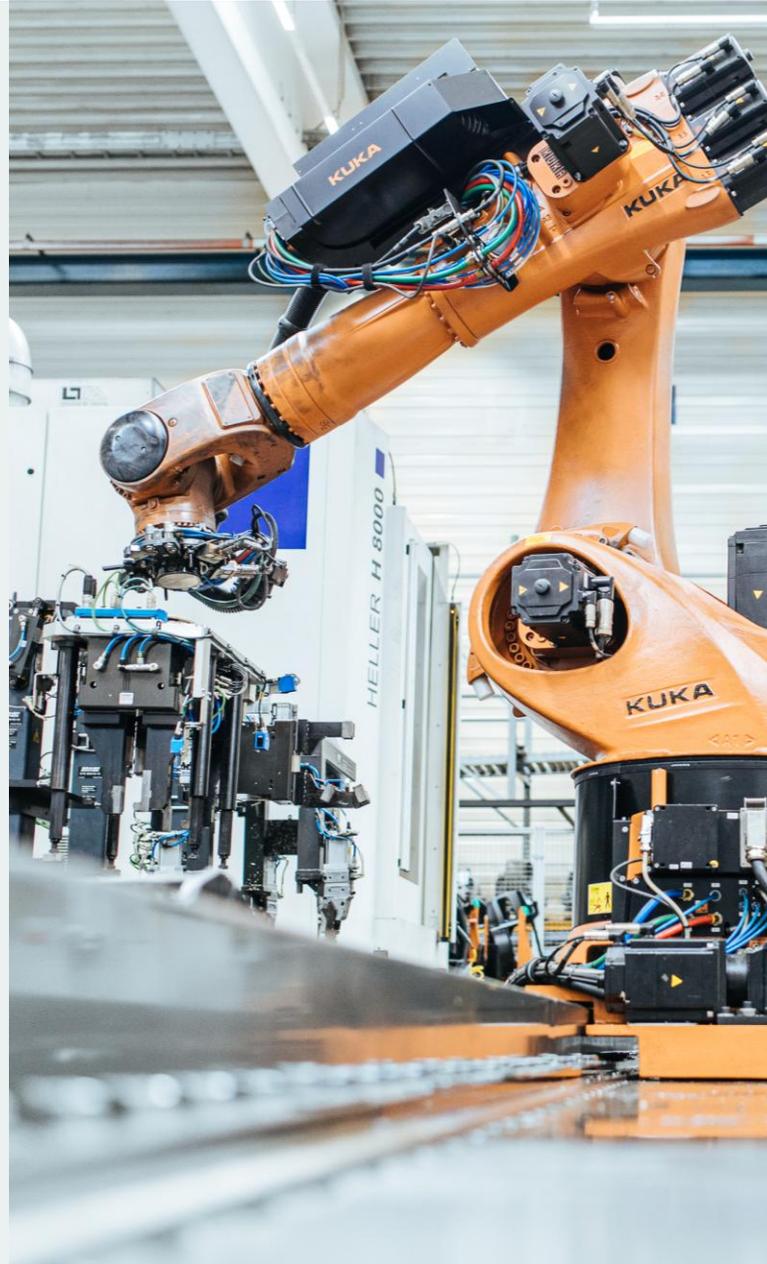
Effective automation relies on excellent lubrication

Automation and robotics are key to low-cost, high-quality manufacturing.

But maintenance can be tricky. And unplanned downtime can cost as much as \$22,000 a minute.

Built on years of research, Castrol's robotic solutions are formulated for this new age of automated manufacturing.

- Less downtime
- Lower running costs
- Improved product quality
- Greater production output



KUKA chose Castrol for first fill of their robots

We have also developed a robotic oil with KUKA.

"Castrol Optigear Synthetic ALR 150 has been developed in partnership with Kuka to help to minimise friction and reduce any leakages during robotic operations"

Daryl Luke
Global Product Manager



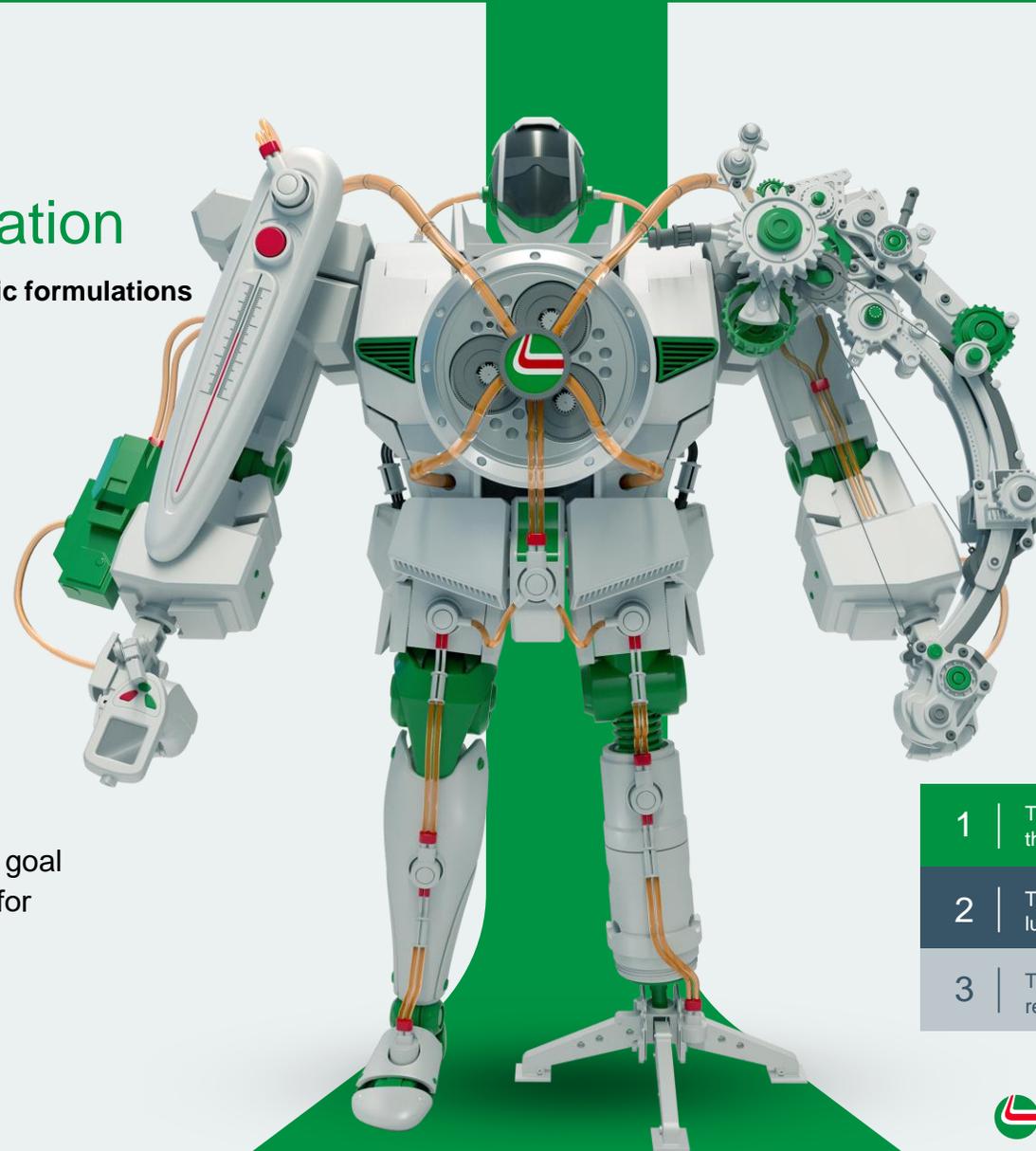
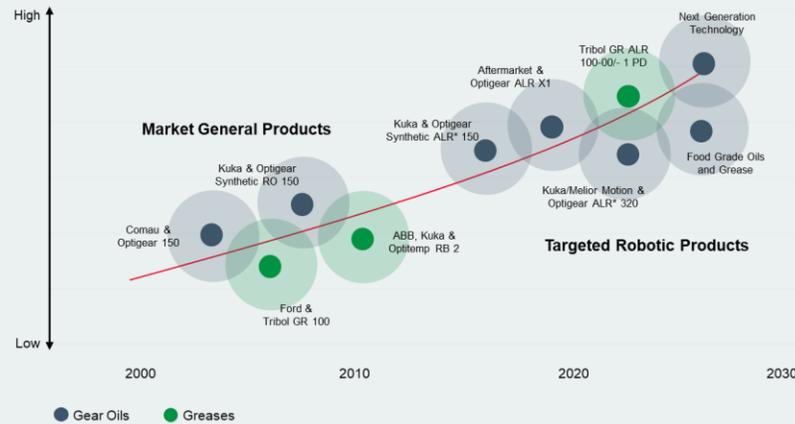
[Go to overview](#)





Forward in advanced automation

The shift from general lubrication product to robot specific formulations



Meet Castrol T-Rig 001

The latest member of our team. They are a symbol of our goal to develop the world's most advanced lubricant solutions for robotics to help you meet your productivity goals.

- 1 | The gear and the lubricant in combination is the heart of the rig
- 2 | The aim of the rig is to optimise the gearbox / lubricant partnership
- 3 | The rig is designed around them with all relevant controls and sensors

Cutting fluids

Our comprehensive offer of high quality coolants meets all machining requirements in the various application areas.

By using our products, you can help to improve your productivity, quality and HSSE profile. Due to our latest knowledge from research and technology, we can help you to increase your efficiency and reduce your costs through lower fluid consumption.

Our coolants are divided in:

Soluble Cutting Fluids

Synthetic Cutting Fluids

Neat Cutting Fluids



[Go to overview](#)



Introducing our Castrol XBB range of intercompatible cutting fluids and cleaners

The Castrol XBB cutting fluids and XBC water-based industrial cleaners are fully compatible with each. This means Techniclean XBC can be recycled into the cutting fluid system at the end of its useful cleaning life without compromising the coolant performance.



Producing precision engineered components can sometimes result in compromises to hit increasing production targets.

Castrol Alusol XBB delivers precision performance in aluminium machining without compromising productivity or the safety of your operators.



Manufacturing with ferrous alloys often means making compromises to hit increasing production targets. Performance, system conditions, constant, clean machines and reduced corrosion risks are just some of the choices required.

Castrol Hysol XBB helps combat these challenges and delivers long lasting fluids for system stability, with minimal maintenance and no compromise on quality.



Industrial cleaning is integral to every metalworking process, from automotive to machinery manufacture.

Castrol Techniclean XBC re-imagines the process by recycling the cleaner into your system with Castrol Alusol and/or Castrol Hysol XBB cutting fluids

ALUSOL XBB



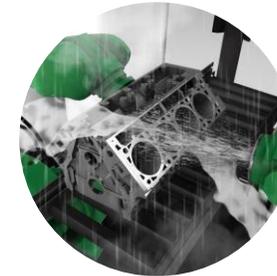
Proven to **reduce lubricant usage** by 34% and work 44% longer*

HYSOL XBB



67% improvement in tool life, **save up to 45%** in overall fluid top-up volumes

TECHNICLEAN XBC



XBC has helped **Groupe Renault** save 1 million litres of water and 1 million litres of waste



[Go to overview](#)



* Based on laboratory tests or in-field experience





Forward to productivity without compromise

Producing precision-engineered components can sometimes result in compromises to hit increasing production targets.

Castrol Alusol XBB delivers long lasting fluids for system stability without compromising your productivity.



A unique technology which is formulated without boron and biocides:

Productivity for longer

- Stable fluid with pH control technology
- System cleanliness and waste disposal

Fewer interventions

- Less fluid top-ups
- Eliminates or reduces biocide use
- Reduce wasted resources

Precision performance with stability

- Lubricity: tool life, surface finish
- Reduced scraps



Go to overview





Forward to productivity without compromise

Manufacturing with ferrous alloys often means making compromises to hit increasing production targets. Performance, system conditions, constant pH, clean machines and reduced corrosion risks are just some of the choices required.

Castrol Hysol XBB helps combat these challenges and delivers long lasting fluids for system stability, with minimal maintenance and no compromise on quality.



A unique technology which is formulated without boron and biocides:

Productivity for longer

- Stable fluid with pH control technology
- System cleanliness and waste disposal

Fewer interventions

- Less fluid top-ups
- Eliminates or reduces biocide use
- Reduce wasted resources

Precision performance with stability

- Lubricity: tool life, surface finish
- Reduced scraps



Forward to using less

with Castrol Techniclean XBC
high-performance cleaners

Industrial cleaning is integral to every metalworking process, from automotive to machinery manufacture. While it is essential, it is also highly problematic.

Castrol Techniclean XBC re-imagines the process by recycling the cleaner.

- Effectively removes light-duty metalworking fluids, lubricants, swarf, dirt and residues
- Low foaming over a wide temperature range
- Excellent demulsifying properties
- Proven to increase bath-change intervals by 300% and more*
- Can be recycled into your system with Castrol Alusol and/or Hysol XBB cutting fluids



Waste

Lower waste volume due to cleaners being reused



Water

Less water consumption thanks to using low-value spent cleaner instead of high-value clean water



Operating cost

Cost savings from processing less waste and using less clean water



[Go to overview](#)



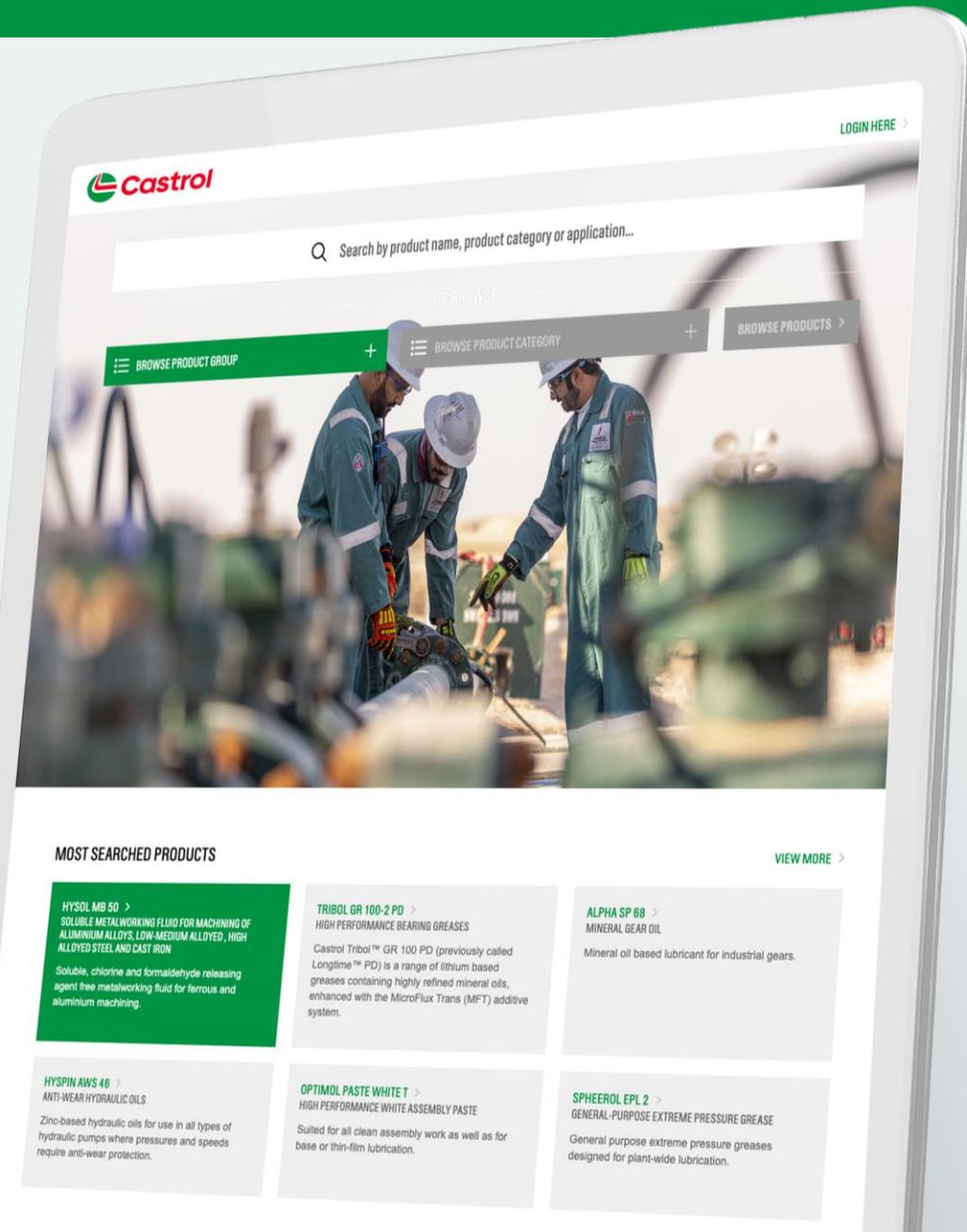
*Based on selected case studies with global customers including tier one auto manufacturers, e.g. Renault Spain Engine Plant.

The Lubricant Oracle

Explore our product range online 24/7

- Search by sector, product category or application for all your fluid needs
- Get product and safety data sheets
- Check out our high-performance reference guide covering all the need-to-knows of high-performance lubrication
- Register online access to OEM approvals

[Register for the Castrol lubricant Oracle](#)



[Go to overview](#)





Efficiency tools



Go to overview



Chemical Management Services (CMS)

Finding efficiency in every detail

Castrol Complete can provide a unique end- to-end service that allows your teams to focus on its core business while we manage all aspects of your lubricants and fluids.

Drive operational excellence across your sites

- Effectively removes light-duty metalworking fluids, lubricants, swarf, dirt and residues
- Low foaming over a wide temperature range
- Excellent demulsifying properties
- Proven to increase bath-change intervals by 300% and more*
- Can be recycled into your system with Castrol Alusol and/or Hysol XBB cutting fluids



[Go to overview](#)



*Based on selected case studies with global customers including tier one auto manufacturers.



Used Oil Analysis

Monitoring programs are vital to keep an eye on lubricant use, to optimise performance, avoid machine failures and improve productivity.

We offer a range of services, from standard testing of metalworking fluids and lubricants, to advanced analytical ferrography.

1 Standard testing

Fluid condition analysis to optimise fluid performance and improve productivity

For lubricants, we offer oil condition monitoring to improve oil change frequency, which may indicate potential future problems.

For metalworking fluids, we recommend consistent system monitoring to enable proactive maintenance of metalworking product properties. This ensures optimal performance, reduced maintenance costs and minimising downtime.

It is the analysis of physical and chemical properties, monitoring key parameters that influence system performance. Regular monitoring enables effective control of unwanted microbial growth and maintains a healthy workplace.

2 Standard testing + Ferrography

Makes the shift to condition based maintenance

Identifies the exact nature of all particles present e.g. steel from a gear tooth, copper from a bearing bush.

Highlights increases in particle counts with highly skilled analysts accessing large databases to make additional objective comparisons.

Helps maintain profits and machines

- Avoids unplanned machine stops
- Increases overall plant profitability
- Enables accurate maintenance scheduling
- Increases component life
- Reduces spares inventory
- Decreases total maintenance costs
- Helps extend lubricant life
- Monitors condition of machinery under guarantee



[Go to overview](#)



*Based on selected case studies with global customers including tier one auto manufacturers.



Expert services



Go to overview





Forward to a safer working world

We are committed to:

- Complying with applicable laws and company policies and procedures
- Systematically managing our operating activities and risks
- Reporting our HSSE performance
- Learning from internal and external HSSE events

Our ultimate goal is a world with no accidents and no harm to people, as we move to a more sustainable future.

[See our HSSE policy](#)



[Go to overview](#)



Castrol Virtual Engineer

A new way to connect with our experts

Wherever you're based in the world, whatever your industry*, when you have a challenge or simply need some technical advice, our Castrol experts want to help.

Through our new digital solution, Castrol Virtual Engineer, we can now virtually visit your site, from anywhere in the world, without the travel.

The next best thing to a Castrol expert on site



Safe, secure
and compliant



Rapid access
to our expertise



Multi-device
compatibility



Safe, secure
and compliant



Rapid access
to our expertise

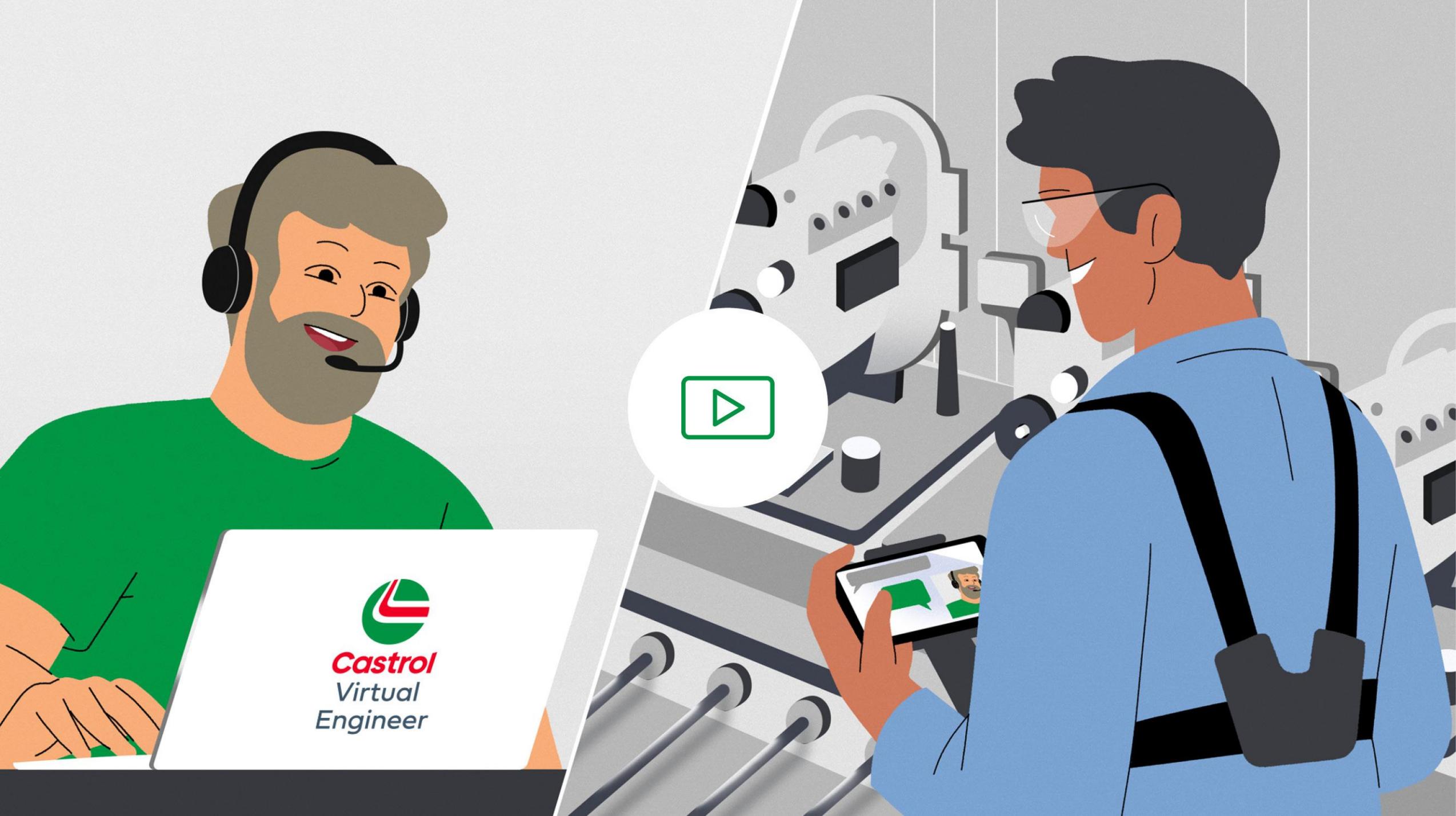


[Go to overview](#)



*Where service is offered by Castrol and subject to connectivity and compatibility of your device.






Castrol
Virtual
Engineer

Unlocking new business gains

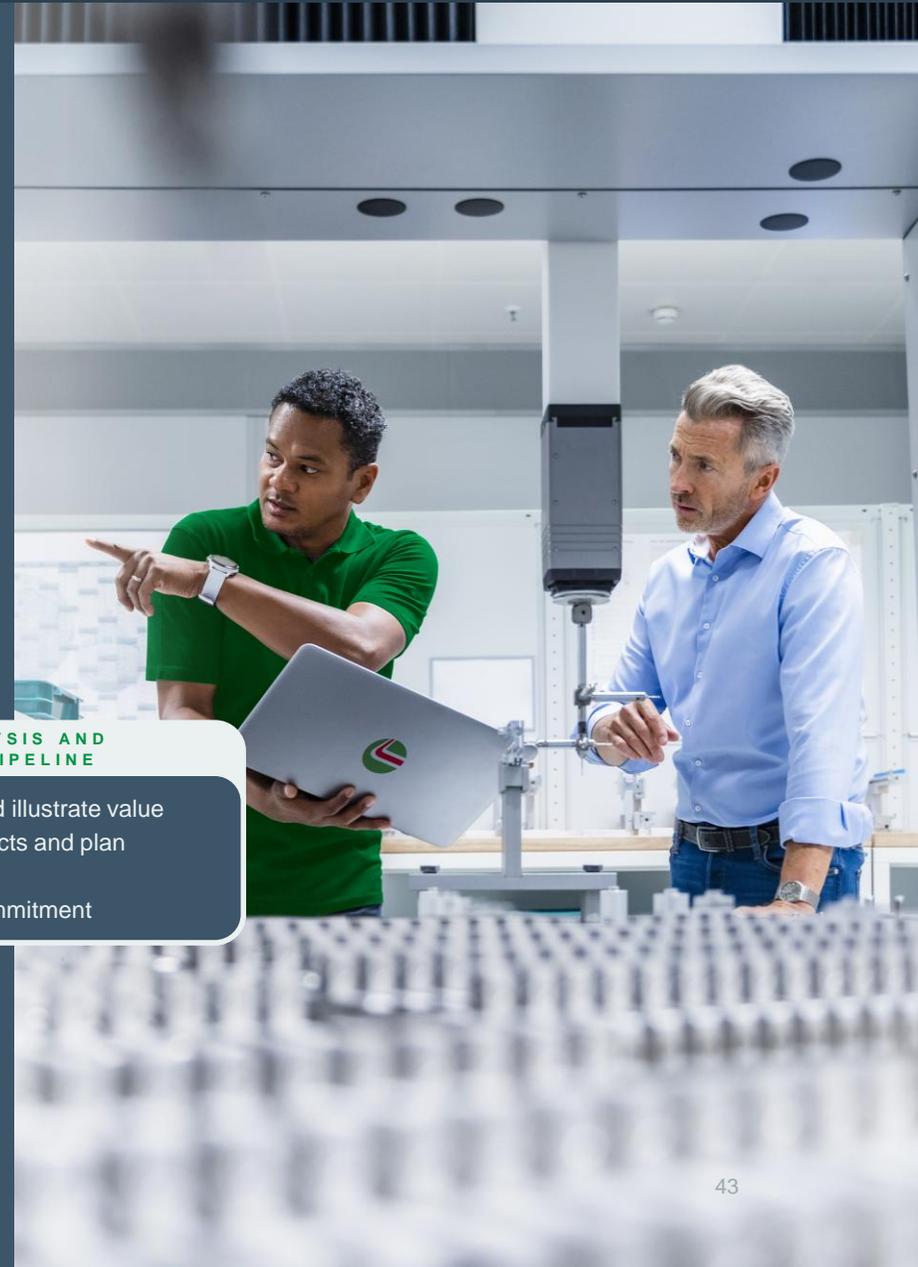
Start with a site survey

Our Castrol Site Survey is the start of our total-cost-of-ownership (TCO) program, where we listen to our customers' challenges and ambitions and make lubrication recommendations across the end-to-end manufacturing process.

How we deliver integrated solutions that unlock value



Helping you create more efficiencies, boost productivity and drive value across your end-to-end lubrication processes.



Go to overview





Sustainability goals

CONTENT COMING SOON



Go to overview





Case studies



Go to overview



Helping a customer achieve their waste goals

BBAC / Daimler China case study

Situation

BBAC / Daimler China, like many manufacturers, were faced with increasing pressures to manufacture more efficiently and reduce waste, all while experiencing foam issues on the line. Castrol and an alternative lubricant supplier were providing the cutting and cleaning fluids for their lines.

Solution

Castrol transitioned BBAC to an alternative cleaner, Castrol Techniclean 80 XBC. This allowed BBAC to benefit from an integrated metal working solution, that enabled the XBC cleaner to be recycled back into the central system once it has reached its sump life. Thereby saving cleaner consumption and minimising the use of fresh water.

Outcome

Foaming challenge was resolved and BBAC benefited from waste water reduction, and water savings.

Find out more in public published article named 'New metal working fluids empowering green manufacturing' written by BBAC.



先进行业 | Case Study

金属切削液赋能绿色制造

3 | 张德胜 杨静 王静

随着全球可持续发展的呼声日益高涨，制造业面临着越来越大的环保压力。如何在不影响生产效率的前提下，实现绿色制造，成为企业关注的焦点。在金属切削液领域，如何实现绿色制造，一直是行业内的热门话题。

为绿色，另一方面，由于工厂产量较大，清洗工作繁重，清洗剂消耗量巨大。因此，如何实现清洗剂的循环利用，降低清洗剂消耗，成为企业关注的焦点。在金属切削液领域，如何实现绿色制造，一直是行业内的热门话题。

北京赛轮发现其多家供应商提供的清洗剂，均不符合环保要求。清洗剂消耗量大，且含有大量有害物质，对环境造成严重污染。为解决这一问题，赛轮集团决定引入 Castrol Techniclean 80 XBC 清洗剂，实现清洗剂的循环利用，降低清洗剂消耗，实现绿色制造。

Castrol Techniclean 80 XBC 清洗剂具有绿色环保配方（即不含磷、重铬酸盐等有害物质），通过其独特的化学配方，能够有效抑制泡沫的产生，提高清洗效率。同时，得益于其独特的配方，清洗剂的使用寿命得以延长，从而减少了清洗剂的消耗量。此外，清洗剂的使用寿命延长，还可以减少清洗剂的更换频率，降低清洗剂的更换成本。

从环保角度来看，清洗剂的使用寿命延长，可以减少清洗剂的消耗量，降低清洗剂的消耗成本。同时，清洗剂的使用寿命延长，还可以减少清洗剂的更换频率，降低清洗剂的更换成本。此外，清洗剂的使用寿命延长，还可以减少清洗剂的更换频率，降低清洗剂的更换成本。

为了进一步降低清洗剂的消耗量，赛轮集团与 Castrol 建立了长期合作关系。Castrol 为赛轮集团提供了专业的技术支持和培训，帮助赛轮集团实现了清洗剂的循环利用，降低清洗剂消耗，实现绿色制造。

通过引入 Castrol Techniclean 80 XBC 清洗剂，赛轮集团实现了清洗剂的循环利用，降低清洗剂消耗，实现绿色制造。这不仅有助于降低清洗剂的消耗成本，还可以减少清洗剂的更换频率，降低清洗剂的更换成本。此外，清洗剂的使用寿命延长，还可以减少清洗剂的更换频率，降低清洗剂的更换成本。

5.4 现代制造：绿色制造 | 张德胜 杨静 王静

- Savings achieved over a year
- Wastewater – 350,000 litres
- Water – 600,000 litres
- Fluid consumption

The next best thing to a site visit

How Castrol Virtual Engineer helped a major Auto Manufacturer

Situation

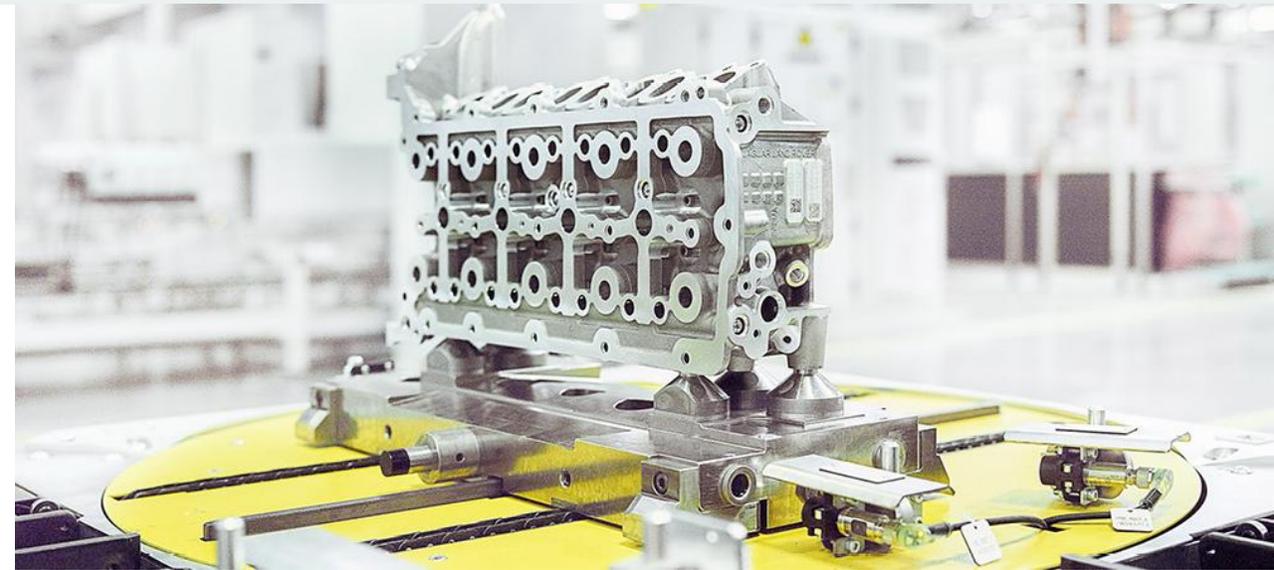
A major automotive manufacturer faced some challenges with new equipment they were trialling.

Solution

The engineering teams joined a Castrol Virtual call within minutes of contacting Castrol, including the equipment manufacturer. The on-site engineer used Virtual Engineer to show those on the call the equipment and exactly what was happening.

Outcome

Through being able to view the equipment and issues on screen, Castrol were able to guide the customer through a series of checks and recommendations. The equipment was operational within an hour.



Savings

- Rapid solution with real time instruction, no travel delays
- Operational disruption kept to an absolute minimum
- Multi-team collaboration



[Go to overview](#)



For Castrol and Castrol customer use only. Other uses prohibited. Do not forward or duplicate.

Productivity up by 50%

Castrol develops new synthetic ester neat oil and reinforces technology leadership

Situation

Customer is using a cutting fluid based on synthetic ester technology and is looking for a new neat cutting fluid to increase productivity.

Solution

Customer agreed to run a trial on CareCut ES9 in several grinding machines. Based on an extreme pressure (EP) additive package in CareCut ES 9 and the 4 ball weld load, the probability to increase productivity was high.

Outcome

After 6 months of testing the customer could increase productivity by 50% and couldn't see any performance loss during this period.



Savings

Productivity increase by 50%

Consistence performance,
no performance drop



[Go to overview](#)



For Castrol and Castrol customer use only. Other uses prohibited. Do not forward or duplicate.

Helping operations advance profitably

Situation

As part of strategic relationship with a leading bearing manufacturer, we agreed to conduct a full site review to evaluate where we could deliver additional business gains.

Solution

11 Projects were identified across the factory by the Castrol technical team. Following a joint review it was agreed that seven projects would get progressed by a joint Castrol-customer project team. The projects were grouped under four workstreams – sulphur removal, foam reduction, Technical XBC introduction and integration with Castrol's real time condition based monitoring equipment, SmartControl.

Outcome

As of January 2022, 3 of the 4 key projects have been implemented at the significant factory, cost savings have been identified and agreed with the site. The cost savings are now embedded solutions for the bearing manufacturer. The 4th project is ongoing.



Savings

- Water – 500,000 litres
- Fluid consumption – 24,000 litres
- Waste – 25,000 litres
- Cost – \$250,000



[Go to overview](#)



For Castrol and Castrol customer use only. Other uses prohibited. Do not forward or duplicate.

Cleaner machines and a cleaner working environment

Situation

Customer used high mineral oil containing product, which lead partially to oily sticky residues on the machines and environment.

Solution

Recommended low oil – micro emulsion type Castrol Hysol SL 20 XBB.

Outcome

Issues resolved, cleaner machines and a cleaner working environment.



Savings

- No surface quality issues anymore
- Neutral odour in use
- Significant lower consumption/drag out
- Cleaner machines and worker environment



[Go to overview](#)



For Castrol and Castrol customer use only. Other uses prohibited. Do not forward or duplicate.

Cutting downtime

\$215,000 savings for a wind energy supermajor

Situation

Oil condition depletion in turbines was causing problems for one of the world's leading wind energy operators. The need for oil changes presents challenging maintenance issues – from significant financial outlay, operational downtime and investment of important resources.

Solution

Smart top ups keep turbines turning. Castrol Optigear Synthetic X 320 AD, a premium synthetic oil for wind turbine gears, was added to the company's wind turbine main gearbox oil to replenish the additives. The top-up technology is fully compatible with the first fill gear oil, Castrol Synthetic X 320 in 2007, providing a new lease of life with no need for a time consuming, costly oil change.

Outcome

The top-up technology is fully compatible with the OGSX 320 fluid added to the turbines in 2007, providing a new lease of life with no need for a time consuming, costly oil change.

- Less demand on technician time
- Reduced risk of oil spillage
- Longer oil life
- Avoiding complex hazardous waste removal and disposal processes
- Better employee safety for wind technicians
- Up to 1% higher energy efficiency.



Savings

\$215,000 saved

Eliminating just one oil exchange over the life of a turbine saves at least \$4,300* per turbine. The supermajor has topped up 50 turbines with Castrol Optigear Synthetic X 320 AD.

8-10 hour

Shutdowns avoided

Removing the need to change the oil means the turbine can remain operational and avoid the usual downtime of 8–10 hours.



[Go to overview](#)



For Castrol and Castrol customer use only. Other uses prohibited. Do not forward or duplicate.



Let's move
forward
on your industrial evolution

Talk to your local
Castrol representative

[castrol.com/industrial](https://www.castrol.com/industrial)



[Go to overview](#)

Published January 2025. Results can vary depending upon the type of equipment used, its maintenance, operating conditions, and any prior lubricant used.
© 2025 The Castrol name and logo are registered trademarks of Castrol Limited. Subject to availability in region.

