

ADVANCED**ROBOTIC**
SOLUTIONS

MAXIMIZING UPTIME IN INDUSTRIAL ROBOTICS

How Castrol's Advanced
Robotic Solutions can help

IT'S MORE THAN JUST OIL. IT'S LIQUID ENGINEERING.®



EFFECTIVE AUTOMATION RELIES ON EXCELLENT LUBRICATION

Manufacturing companies in every field have realized that, when it comes to price and quality, the best way to be competitive is to automate their factories with industrial robots.

That said, many are concerned about the risk of unplanned downtime when using these robots. When you consider that a single minute of interruption can cost an automotive manufacturer roughly US\$22,000,* downtime is one of the most significant challenges manufacturers face.

Castrol's heritage of high-tech lubricants, reduced leakage, faster starting times and decreased power usage has benefited major industries across the globe. This is why our products were also chosen by NASA for robotics equipment on Mars. NASA chose our lubricants and greases for its US\$820 million mission using the InSight lander and Curiosity rover.

*Based on industry research conducted by Nielsen Research.

TYPICAL SIX-AXIS INDUSTRIAL ROBOT

Expansion in robots has accelerated significantly over the last few years, but in industrial operations, most are articulated robots featuring six axes (or six degrees of freedom). Six-axis robots as shown below have a high degree of flexibility and the ability to perform a wide number of tasks.

AXIS 1

The base axis, which takes all the weight of the robot and allows it to rotate. This is also known as the S or J1 axis by some robot manufacturers.

AXIS 2

This axis allows the lower arm of the robot to extend forwards and backwards. This is also known as the L or J2 axis.

AXIS 3

This allows the upper arm to raise and lower, with a wide degree of movement to expand work access. It is also known as the U or J3 axis.

AXIS 4

This is the axis allowing rotation between vertical and horizontal orientations. It is also known as the R or J4 axis.

AXIS 5

This allows for pitch and yaw motion (up and down and left to right), and is also known as the B or J5 axis.

AXIS 6

This is the wrist of the robot arm, allowing flexible movement for positioning or to manipulate parts. It is also known as the T or J6 axis.

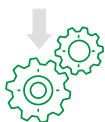


CASTROL® ADVANCED LUBRICANTS FOR ROBOTICS (ALR)

Robots require lubrication on any joint that moves, i.e. near actuated joints, bearings, sliders, chains, and in gearboxes.

Castrol Advanced Lubricants for Robotics are developed to decrease the downtime of industrial robots, and positively impact the quality, costs and efficiency of your manufacturing process.

Castrol ALRs have been developed over many years of research and provide greases and gear oils to help you achieve your goals:



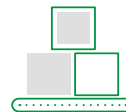
Decreasing
downtime



Lowering
running costs



Improving
product quality



Increasing
production output

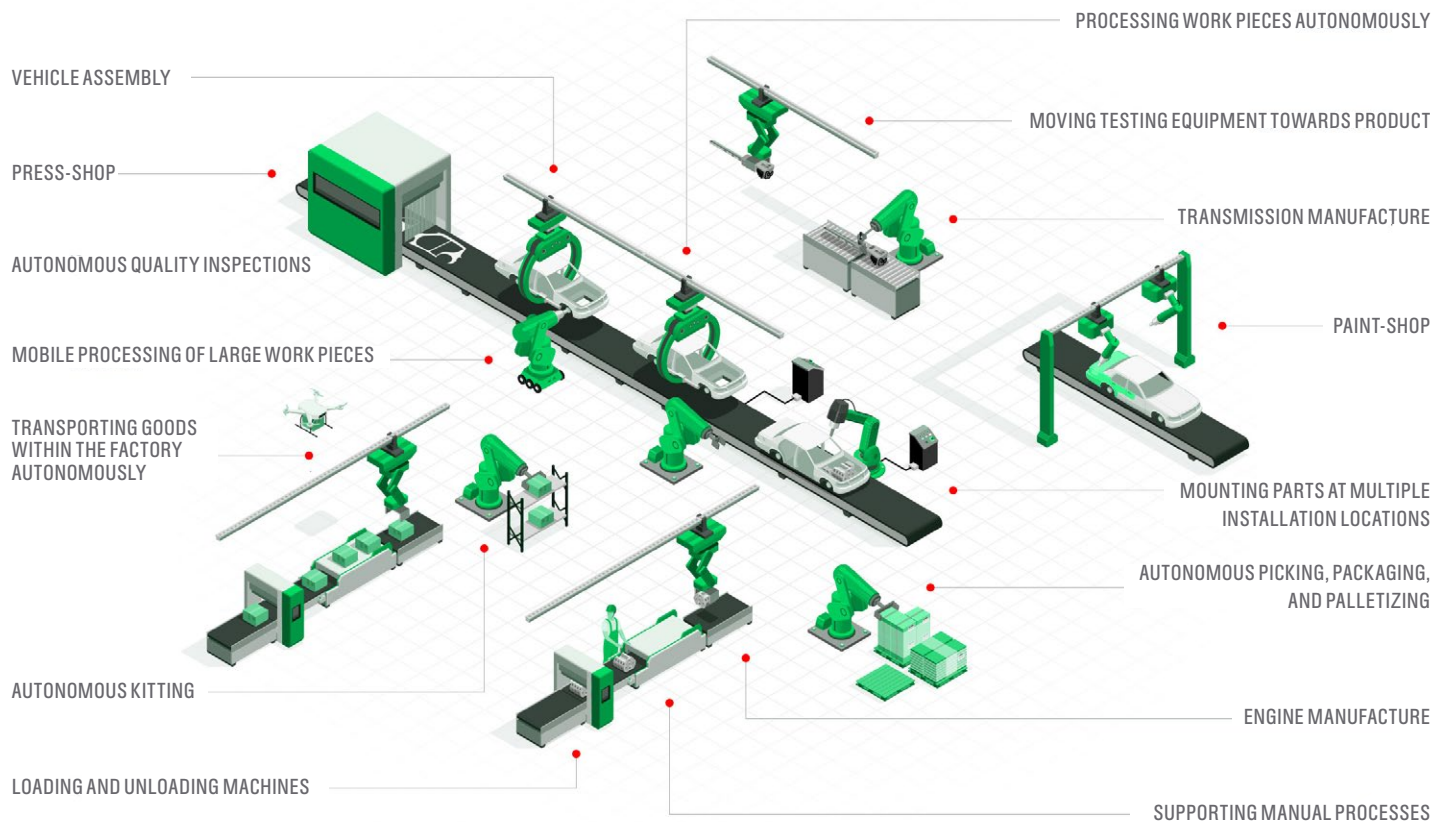
CASTROL ROBOTICS PRODUCT RANGE

The following Castrol products have been tried and tested in various robot types and applications.

PRODUCT	GROUP	TYPE	LUBRICATION POINT	BRIEF DESCRIPTION
Optigear Synthetic ALR 150	Gear Oil	Synthetic Gear Oil	All axes	For Kuka robots, available through Kuka only.
Optigear ALR X1	Gear Oil	Synthetic Gear Oil	All axes	Designed for oil-lubricated robots. A low-leakage long-life gear oil with elastomer compatibility.
Optigear Synthetic RO 150	Gear Oil	Synthetic Gear Oil	All axes	High load-carrying and endurance performance for oil-lubricated robots.
Optigear Synthetic 800/150	Gear Oil	Synthetic Gear Oil	All axes	Suitable on all axes where polyglycol oil (viscosity grade 150) is recommended by the robot manufacturer.
Optigear ALR 320	Gear Oil	Mineral Gear Oil	All axes	For Kuka robots, available through Kuka only.
Optigear BM 100	Gear Oil	Mineral Gear Oil	Axes 4,5,6	Low friction gear oil for selected Axes.
Alpha SP 320	Gear Oil	Mineral Gear Oil	Axes 4,5,6	Suitable for select axes where standard mineral oil-based gear oils (viscosity grade 320) have been specified by the robot manufacturer.
Tribol GR ALR 100-00 PD	Grease	Synthetic Grease	All axes	Designed for grease-lubricated robots, with high stability, low oil separation, and low friction and torque values.
Tribol GR 100-00, -0, -1, -2 PD	Grease	Mineral Grease	All axes	A low-friction grease offering high wear protection.
Optileb GR 823-2	Grease	Food-Grade Grease	Cables	For grease-lubricated robots in food applications.

The Castrol Advanced Lubricants for Robotics range is constantly evolving.
Please contact your Castrol representative for more details.

OUR PRODUCTS IN ACTION



GET IN TOUCH WITH YOUR **CASTROL®**
REPRESENTATIVE TO LEARN HOW TO
CHOOSE THE RIGHT LUBRICANT FOR
YOUR INDUSTRIAL ROBOTS.

CONTACT US TODAY:

1-888-CASTROL

WWW.CASTROL.COM/ROBOTICS-US

BP Lubricants USA, Inc.

1500 Valley Road, Wayne, NJ 07470

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