KUKA

Product portfolio_01/2024

#HomeofRobotik

_KUKA

Making life and work easier – that is our mission.

Dear reader,

KUKA is more than just a robot manufacturer. We invented the industrial robot and have more than 50 years of robotics expertise. We are a German company, yet we are at home anywhere in the world. All this makes KUKA unique – or as we call it: the #**Home**of**Robotik.**

But #**Home**of**Robotik** means even more to us: it stands for highest product quality, excellent design, innovative products, and reliable service – all marked by the KUKA spirit, which we live by every day in our companies around the world. What characterizes this spirit? The incentive to continuosly make life and work easier through robot-based automation – because that is our mission.

We want to shape the future together with you. Side by side, we realize your visions of automation and extend the lead of your production – thanks to intelligent and intuitive robotics.

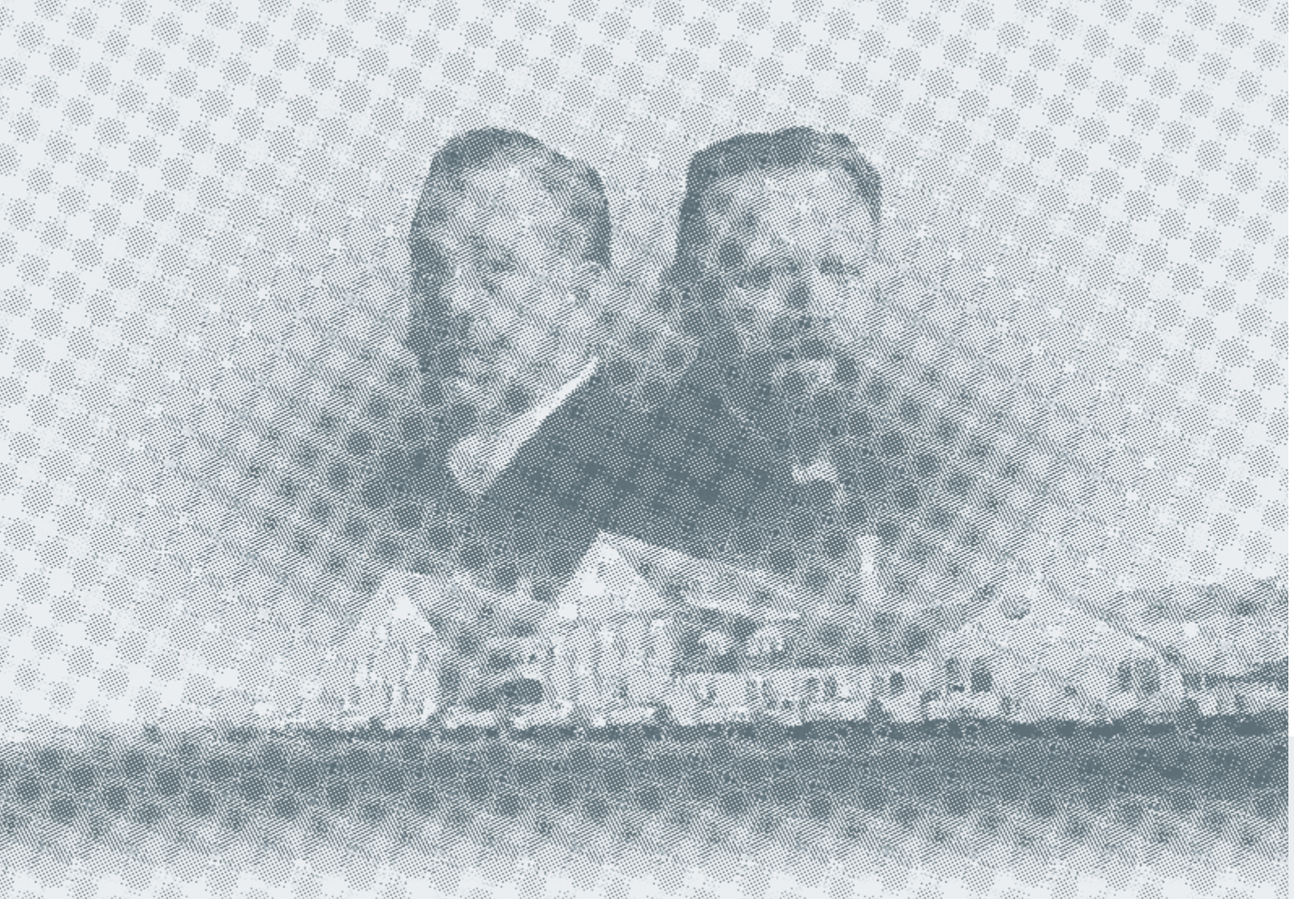
Today, our robots, digital products, and services allow the top performance in production environments of numerous industries. Our goal: to pave the way for more automation by simplifying the integration and use of our products – even beyond previous fields of application.

Thousands of KUKA employees around the globe give everything every day to achieve this.

Yours sincerely,
Reinhold Gross

A tradition at KUKA: Innovation for more value creation.

Today, KUKA is an internationally active automation group with sales of around 3.3 billion euros. The company is headquartered in Augsburg, Germany. As one of the world's leading suppliers of intelligent automation solutions, KUKA offers customers everything they need from a single source: from robots and cells to fully automated systems and their networking in markets such as automotive, electronics, metal & plastic, consumer goods, e-commerce/retail and healthcare.



1898

How it all started.
Johann Josef Keller and Jakob Knappich founded an acetylene gas plant in Augsburg.

Keller & Knappich GmbH Maschinenfabrik

1920

Portfolio and market expansion.
KUKA has established itself as the market leader in the field of municipal vehicles in Europe.

1949

KUKA types its way into new product areas. Measuring just 64 millimeters in height and weighing five kilograms: the compact "Princess" portable typewriter – a marvel of precision mechanics – is born.

1956

Success through automation.
The first automatic welding system for refrigerators and washing machines is market-launched by KUKA. KUKA also delivers the first multi-spot welding transfer line to Volkswagen AG.

1966

Innovative welding technologies.
KUKA establishes a new welding technology: friction welding. Numerous other innovations follow in the ensuing years, such as short-cycle welding and defined-angle friction welding.

1971

Taking a strong line with KUKA robots.
Europe's first robot-operated welding transfer line is built for Daimler-Benz.

1973

Famulus, the robotics pioneer.
KUKA wrote history as a robotics pioneer with the world's first industrial robot with six electric motor-driven axes.

2001

Robots in medicine.
KUKA robots are used in the world's first robot-controlled radiation surgery system – the "Cyberknife". The system enables the treatment of inoperable, surgically complex tumors.

2006

KUKA as complete solution.
On behalf of the Chrysler Group, KUKA establishes KUKA Toledo Production Operations in North America for the integrated production of the body of the Jeep Wrangler.

2007

World record holder with six axes.
Payload capacity exceeds the magic mark of 1,000 kilograms. The KUKA KR titan receives an entry in the Guinness Book of Records as the world's strongest six-axis industrial robot.

2013

Hand in hand with the robotic colleague.
The LBR iiwa is the world's first series-produced sensitive robot approved for direct human-robot collaboration (HRC).

2023

125 YEARS

Today.
125 years of KUKA

Our complete portfolio.
For your robot-based automation.

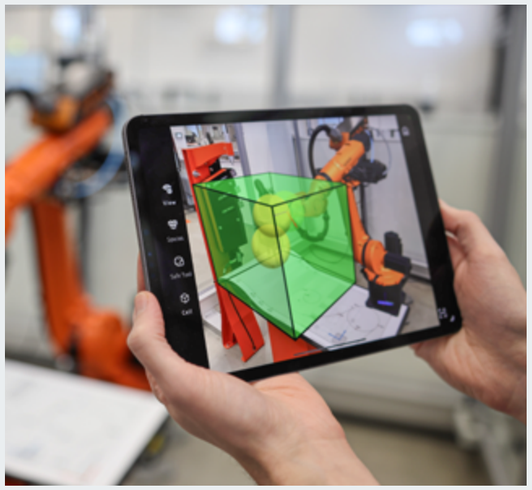
KR FORTEC. Our all-rounder among heavy-duty robots.

It is energy-efficient and dynamic for handling applications in the heavy payload range up to 500 kg. Thanks to its use of our well-known industrial robot concepts, it requires little maintenance when in operation. This gives the robot a high reliability factor in your production.

The new KR FORTEC can be expanded flexibly, is economical in its energy consumption and requires little maintenance. With its payload capacity, the robot fits seamlessly in between the KR QUANTEC and the KR FORTEC Ultra – thus rounding out KUKA's portfolio. It is predestined for use in the automotive industry and the general industry sector. Thanks to the KR FORTEC, you can standardize your production processes at a high quality level through the use of automated handling. The low total cost of ownership of the robot also contributes to the cost-effectiveness of your production processes.

KMP 3000P. Working tirelessly for the perfect flow.

Thanks to its inductive charging concept, the new KMP 3000P is always ready to use, night and day, and adds a new dimension of flow to intralogistics. The mobile platform, which can transport loads of up to three tonnes, expands KUKA's range in the area of Autonomous Mobile Robots.



KUKA.MixedReality Assistant. Augmented reality makes new robots easier to start up.

The new KUKA.MixedReality software visualizes the environment of robot cells live on the smartphone, making commissioning easier and supports fast, safe and intuitive robot start-up. The mobile app displays tools and interference geometries to enable early detection of potential hazards so users can eliminate them before a robot starts work.

_Cobots

Hands-on robots. With intuitive interaction for new solutions.

Where humans and robots work together, completely new opportunities are created. Collaborative robots, or cobots for short, can be quickly and easily integrated into production environments. Due to their intelligent sensors, they open up entirely new methods of automation and collaboration between robots and humans. Cobots are the solution for industries that, until now, have been dominated by manual labor – such as the electronics sector. They are also ideal for SMEs that have not previously automated tasks with robots for economic reasons.

KUKA served as pioneers with the development of the world's first cobot – the LBR iiwa – in 2014. Since then, KUKA has continuously expanded the range of possible applications for cobots. With the introduction of the LBR iisy, which runs with iiQKA.OS and is supported by the iiQKA Ecosystem, KUKA is now starting a new chapter. Sensors and fenceless functions facilitate teaching and, if desired, enable safe cooperation and collaboration between humans and robots. Cobots can be guided by hand during start-up and programming – enabling the robots to be taught their motion sequences much more quickly and naturally. This is so intuitive that even beginners with no prior knowledge can operate and program a cobot from KUKA.

LBR iiwa

LBR iisy

LBR iiwa. A feel for the production world of tomorrow.

With the arrival of the LBR iiwa – one of KUKA's lightweight cobots specializing in sensitive assembly work – safety fences make way for human-robot collaboration in the workspace.

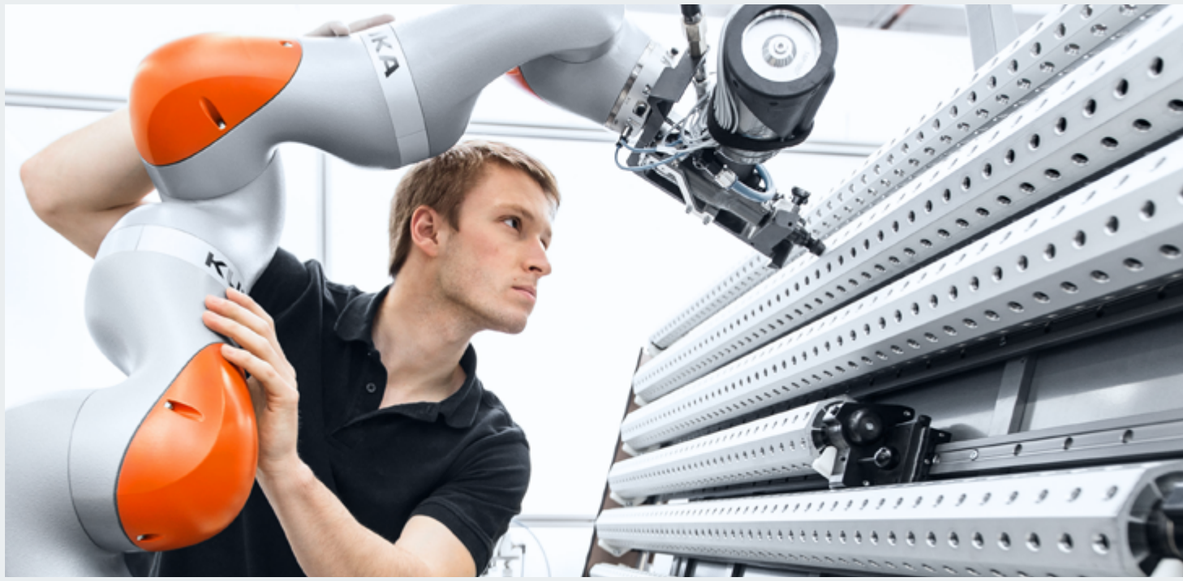
Quick reactions. Thanks to its joint torque sensors, the LBR iiwa detects contact immediately, and reduces its level of force and speed instantly. Its position and compliance control enables it to handle delicate components without creating crushing and shearing hazards.

Able to learn. Choose from three operating modes and program the LBR iiwa by means of simulation: show it the desired position – and it remembers the coordinates of the point on the path. Stop for breaks and control it with simple touch commands.

Sensitive. The lightweight LBR iiwa with its high-performance servo control is able to detect contours quickly under force control. It establishes the correct installation position and mounts components quickly and with the utmost precision with an axis-specific torque accuracy of ±2 percent of the maximum torque. The LBR iiwa can also find small, delicate components in next to no time without your assistance.

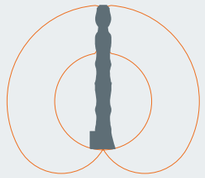
Independent. The LBR iiwa's controller, KUKA Sunrise Cabinet, simplifies the quick start-up of even complex applications. Give your operator a third hand – and have the LBR iiwa take care of unergonomic, monotonous tasks reliably and independently.

click for more



Greater freedom.
The LBR iiwa does not require a safety fence.

Industrial change is in full swing. IoT and Industry 4.0 are replacing established structures with a cyber-physical production environment. The active agents in this process of change are intelligent machines with completely new capabilities: robots equipped with sensitivity and superior intelligence. Working side-by-side with humans, they operate more independently and with more sensitivity than ever before. They are mobile, highly flexible and extremely versatile. At the same time, they provide you with seamless digital networking and autonomous adjustment to the rapidly changing production requirements. KUKA is making the vision of a production environment free from rigid structures a reality. As part of this, lightweight robots (LBR) play a key role as "intelligent industrial work assistants" (iiwa). In short: LBR iiwa.



Reach
800 – 820 mm

Payload
7 – 14 kg

LBR iiwa	LBR iiwa 14 R820	LBR iiwa 7 R800
Rated payload	14 kg	7 kg
Number of axes	7	7
Reach	820 mm	800 mm
Wrist variant	In-line wrist	In-line wrist
Mounting flange on axis 7	DIN ISO 9409-1-A50	DIN ISO 9409-1-A50
Pose repeatability	±0.15 mm	±0.1 mm
Axis-specific torque accuracy	±2 %	±2 %
Weight	29.9 kg	23.9 kg
Protection rating	IP54	IP54
Variants	CR	CR
Installation position	Floor, ceiling, wall	Floor, ceiling, wall

CR Suitable for cleanrooms

The technical data in the tables applies exclusively to standard versions.

LBR iisy.
The cobot for a new era.

Flexible, intuitive to use, fast to implement and safe in direct contact with human colleagues – the LBR iisy is an all-around cobot for automated production. It combines the know-how, precision and reliability of industrial automation with the intuitive flexibility of a smart device.

In order for robots to be more usable in more applications than ever before, automating tasks should be one thing above all else: simple. This is the mantra of KUKA's new cobot running on iiQKA.OS and supported by the iiQKA Ecosystem.

Intuitive. Simple programming with smooth handguiding

Collaborative. Enables direct, fence-free collaboration with humans

Sensitive. Detects collisions and measures process forces

Flexible. Simple installation of components, fast re-use in new applications

click for more

Based on KUKA's next generation operating system, iiQKA.OS, the LBR iisy cobot experience is user-friendly, well-thought-out and straightforward for a wide range of industries with applications that require precise, fast and sensitive activities.

With its new, user-friendly software, the LBR iisy can be operated immediately by anyone, from automation experts to cobot newcomers. This makes the robot equally at home in complex automation environments and in unstructured environments where it interacts with workers. And the best part: LBR iisy is ready for use in a matter of minutes, from unpacking to productive work.

LBR iisy can also work without safety fences, directly with human operators and can be handguided smoothly with the commander input device on the end of the robot arm to help simplify setup and programming.

As the first robot running on iiQKA.OS, LBR iisy sets new standards for easy, straightforward and intuitive integration into production landscapes.

Flexible. Flexible robot system due to easy operation and programming, as well as low weight and many pre-configured elements

Suitable for industry. Fully industrial cobot through the use of proven technologies

Fast time to production. Ready to use from unboxing within a matter of minutes – and just as quick to get ready for new applications

Reach
760 – 1,300 mm

Payload
3 – 15 kg

LBR iisy	LBR iisy 3 R760	LBR iisy 6 R1300	LBR iisy 8 R930	LBR iisy 11 R1300	LBR iisy 15 R930
Controller	KR C5 micro	KR C5 micro	KR C5 micro	KR C5 micro	KR C5 micro
Number of axes	6	6	6	6	6
Rated payload	3 kg	6 kg*	8 kg*	11 kg	15 kg
Reach	760 mm	1,300 mm	930 mm	1,300 mm	930 mm
Pose repeatability	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm	±0.1 mm
Weight	22.8 kg	46.3 kg	43.2 kg	46.3 kg	43.2 kg
Variants	–	–	–	–	–
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle
Software	iiQKA.OS	iiQKA.OS	iiQKA.OS	iiQKA.OS	iiQKA.OS

* estimate

_Small robots

Little helpers – a big help.

The versatile world of KUKA small robots.

When it comes to compact solutions and payloads of up to 10 kilograms, small robots from KUKA steal the show. Our portfolio in the field of small robots will impress you with a large number of variants and possible applications.

All robots in this class are characterized by impressive precision and speed and combine this with minimal space requirements.

KUKA offers an ideal solution for every automation project – from six-arm robots and robots with internal media supply to parallel-arm robots with parallel kinematic systems. Small robots from KUKA are synonymous with freedom for automation. The flexible installation positions, for example, enable the implementation of a wide variety of production cell concepts.

The breadth of KUKA's portfolio of small robots is probably demonstrated most clearly, however, by the wide range of applications. These range from cleanrooms to hygienically sensitive areas such as the food or pharmaceutical industries, and from ESD-compliant electrical assembly tasks to fields of work involving water spray or explosion hazards. Safe Robot functionalities are also already available for some small robots.

KR DELTA

KR SCARA

KR 4 AGILUS

KR AGILUS

KR DELTA. A big performer for small spaces.

With the new KR C5 micro robot controller for small robots, KUKA is taking automated production to a new level: durable and future-proof.

The KR DELTA delivers with speed, precision, range, reliability, versatility – all with its small footprint. This parallel arm robot was created for pick-and-place tasks focusing on short cycle times and the rapid recognition and handling of objects. With a payload capacity of three kilograms, it is ideal for the automation of order – picking and packing tasks – for example in the electronics industry. One particular strength of all robots in the KR DELTA family is their low maintenance requirements. The ball joints are self-lubricating so that replacement of the lubricant in the reduction gears is never required.

In addition to the cost-effective standard version, the KR DELTA is also available in the Hygienic Machine variant. In this hygiene robot version, the KR DELTA HM can also be used in demanding food or medical applications. Here, the entire body of the robot is made of stainless steel. Due to its IP 67 protection rating, it can be cleaned and sterilized with high-pressure cleaners as well as with various industrial chemicals. Both the materials used for the robot body and those used for lubrication comply with the regulations for food contact materials published by the FDA and in the LFGB.

High speed. The KR DELTA enables extremely short cycle times as fast as 0.32 seconds.

Flexible flange. The flange of the KR DELTA is suitable for easy mounting of a wide variety of tools.

Large workspace. The industrial robot operates reliably in a cylindrical workspace with a height of 350 millimeters and a diameter of 1,200 millimeters.

Small footprint. The ceiling-mounted robot has an installation area with a diameter of 350 millimeters.

click for more

High cost-effectiveness, low maintenance

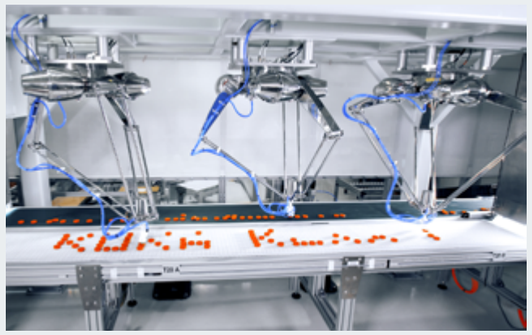
- No replacement of the lubricant in the reduction gears is ever required.
- With an encapsulated gear unit and self-lubricating ball joints, the maintenance requirements of the KR DELTA are particularly low.
- The KR C5 micro, the latest generation of KUKA controllers, is included in the scope of supply. This requires less space and consumes little energy at only 230 volts.
- Direct cleaning with high-pressure cleaners is possible, greatly reducing cleaning-related downtime.

Powerful and easily accessible application system

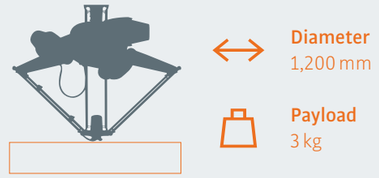
- With the visualization application KUKA.VisionTech and the dedicated KUKA.PickControl software package, the seamless integration of up to ten robots and conveyor systems can be implemented with ease.
- The wide range of applications includes processing, order picking, sorting, packaging, stacking and many other applications in the electronics, food, medical, household chemical and other industries.

The HM version meets the hygiene standards according to the regulations for contact with foodstuffs

- The entire body is made of stainless steel, and is smooth, dirt-repellent and corrosion-resistant, making it easy to clean and disinfect.
- The protection rating for the robot body is IP 67, while the fourth axis meets the high protection rating IP 69K.
- The materials used for the robot body and for lubrication comply with the regulations for food contact materials published by the FDA and in the LFGB.
- Direct contact of the robot body with food and medicines is permissible. This robot variant is particularly suitable for food processing, primary packaging and similar applications.



With flexible DELTA robots – shown here in the HM variant – and matching hardware and software, KUKA offers cost-effective solutions for automated order picking and packing.



KR DELTA	KR 3 D1200	KR 3 D1200 HM	KR 3 D1200-2 HM
Controller	KR C5 micro	KR C5 micro	KR C5 micro
Number of axes	4	4	4
Rated payload	3 kg	3 kg	3 kg
Reach	600 mm	600 mm	600 mm
Diameter	1,200 mm	1,200 mm	1,200 mm
Pose repeatability	±0.05 mm	±0.1 mm	±0.05 mm
Weight	105 kg	95 kg	95 kg
Variants	–	HM	HM
Installation position	Ceiling	Ceiling	Ceiling

HM Hygienic Design

KR SCARA.
Extremely fast, extremely precise.

Strong, fast, highly efficient. From the assembly of small parts to material handling or inspection – the ultra-compact KR SCARA robots immediately deliver maximum efficiency and cost-effectiveness. With integrated media supply systems, they can master almost any application straight out of the box.

The KR SCARA robots have an internally-routed media supply for air, power and data – a complete package for smart integration of peripheral devices and quick adaptation of the KR SCARA robot to almost any desired application. From the assembly of small parts to material handling or inspection – the 4-axis KR SCARA robots are characterized by flexible installation, highly precise motion and low maintenance requirements.

The KR 12 R850 has a payload capacity of 12 kilograms and a reach of 850 millimeters.

click for more

Unbeatable price/performance ratio. 6 or 12-kilogram payload, utmost precision, extremely short cycle times, high speed, low weight – and all at an affordable price.

Optimally adaptable to almost any task. Media supply in the complete package to enable fast adaptation of the robot to virtually any desired application.

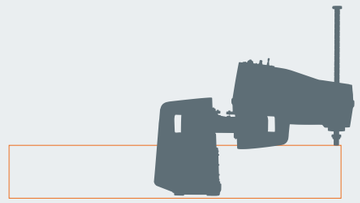
Robust in many working environments. Operational in the entire temperature range from 5° to 40° Celsius, protection rating IP 20.

Fast integration of peripheral equipment. Factory-prepared for the safe, quick and simple integration of peripheral equipment.

Certified quality. The KR SCARA robot is internationally certified according to the applicable EU standard.

Thanks to the cleanroom variant, companies with ultraclean production environments – such as those in the semiconductor industry – can also benefit from the strengths of the KR SCARA.

As a robot of the latest generation, the KR SCARA has an internally-routed media supply for air, power and data. A coordinated complete package for the simple integration of peripheral devices and fast adaptation of the robot to virtually any desired application.



Reach
500 – 850 mm

Payload
6 – 12 kg

KR SCARA	KR 6 R500 Z200-2	KR 6 R700 Z200-2	KR 12 R650 Z400	KR 12 R750 Z400	KR 12 R750 Z600	KR 12 R850 Z400
Controller	KR C5 micro	KR C5 micro	KR C5 micro	KR C5 micro	KR C5 micro	KR C5 micro
Number of axes	4	4	4	4	4	4
Payload (maximum/rated)	6 kg / 3 kg	6 kg / 3 kg	12 kg / 6 kg	12 kg / 6 kg	12 kg / 6 kg	12 kg / 6 kg
Reach	500 mm	700 mm	650 mm	750 mm	750 mm	850 mm
Pose repeatability	±0.02 mm	±0.02 mm	±0.02 mm	±0.02 mm	±0.02 mm	±0.02 mm
Weight	20 kg	22 kg	49 kg	50 kg	50.5 kg	51 kg
Variants	–	–	CR	CR	CR	CR
Installation position	Floor	Floor	Floor	Floor	Floor	Floor

The technical data in the table applies exclusively to standard versions.

KR 4 AGILUS.

New possibilities, shaped from greater functionality.

Custom-tailored for maximum performance in production. High performance in any installation position and with minimal space requirements – the KR 4 AGILUS will impress you with its compact design, long reach and high precision.

The KR 4 AGILUS combines ultra-compact, interference-free design with optimum performance: with a payload capacity of 4 kilograms and a reach of 600 millimeters, the compact robot performs a wide variety of tasks, such as handling and assembly in the electronics industry or in small automation cells. It works reliably and precisely even with the shortest cycle times.

Multi-functional applicability, flexible positioning and unbeatable reliability – the new KR 4 AGILUS pushes back the boundaries of technical feasibility in small robotics. With a payload of up to 3 kilograms, it will not fail to impress with a top cycle time as fast as 0.4 seconds*. Whether handling, continuous-path motion or working with pinpoint accuracy – the KR 4 AGILUS simplifies the automation of compact and ultra-compact cells. Flexible in installation, highly precise in motion, economical in maintenance.

With just one type of robot, your applications will sustainably reach new levels of performance and efficiency. For maximum performance over the entire temperature range of between 0 and 55 °Celsius. Furthermore, the KR 4 AGILUS has an internally-routed media supply for air, power and data, enabling the quick and easy integration of peripheral devices. A robot of the latest generation, the KR 4 AGILUS operates with the KR C5 micro, incorporating state-of-the-art control technology from KUKA. In order to solve and control tasks more efficiently and intuitively.

*Cycle time according to the “Small Adept Cycle” reference standard

Speed. Cycle times as fast as 0.4 seconds

Durability. Suitable for use in temperatures from 0 to 55 °Celsius, equipped with protection rating IP 40 and ESD protection

Precision. Repeatability of 0.02 millimeters and improved continuous-path accuracy

Integrated energy supply system. Compatible with most supply systems
4 × 4 compressed air
1 × M12 8-pin (24 V, 2 A)
1 × M12 8-pin Ethernet (optional)

click for more

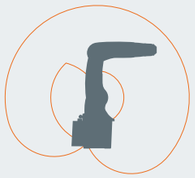
Utmost flexibility. Compact, interference-free design, flexible installation position and various interfaces for peripheral devices.

ESD protection. As standard, the robot is protected against uncontrolled electrostatic charging or discharging and is thus equipped for the safe handling of sensitive electronic components.

Maximum reliability. Particularly long service life and low servicing and maintenance requirements, e.g. thanks to fewer steps when exchanging cables.

Simple operation. Control via KR C5 micro and operation via the KUKA smartPAD.

Integrated media supply for air, power and data. For minimum disruptive contours and maximum reliability in operation.



Reach
601 mm

Payload
4 kg

KR 4 AGILUS	KR 4 R600
Controller	KR C5 micro
Number of axes	6
Rated payload	3 kg
Maximum payload	4.63 kg
Reach	601 mm
Pose repeatability	±0.02 mm
Weight	27 kg
Installation position	Floor, ceiling, wall, angle

KR AGILUS. Custom-tailored for maximum performance in production.

The KR AGILUS sixx is our compact six-axis robot designed for particularly high working speeds. Different versions, installation positions, reaches and payloads transform the small robot into a precision artist.

The KR AGILUS stands out due to its versatility that enables you to tap new fields of application. Irrespective of the installation position – whether on the floor, ceiling or wall – it achieves the utmost precision in confined spaces thanks to its integrated energy supply system and the new KR C5 micro controller. The Safe Robot functionality paves the way for innovative automation concepts. With a wide range of variants for operation in cleanrooms, potentially explosive environments, or with a particularly hygienic or splash-proof design: every version of the KR AGILUS is always precise and fast.

Hygienic Machine variant. The KR AGILUS is available as a Hygienic Machine. The design and the materials used in this variant are completely hygienic. This allows it to be used in applications involving direct contact with food and pharmaceutical substances.

Waterproof variant (IP 67). In the Waterproof variant, the KR AGILUS is completely splash-proof and achieves maximum performance even in the case of extreme external production conditions. Plastic parts have been replaced with stabilized stainless steel covers and resistant surface treatments and additional seals in the interior of the small robot allow it to be used in a machine tool environment, for example.

Cleanroom variant. The KR AGILUS CR is suitable for use in cleanrooms and meets the requirements of cleanroom class ISO 2. The KR AGILUS CR can thus be perfectly integrated into the smallest of spaces and complex applications with strict cleanliness requirements.

EX variant. The KR AGILUS can be adapted to even the most extreme environmental conditions: with the KR AGILUS EX, we have added explosion protection to the Waterproof variant. With this design, the KR AGILUS can also work with maximum precision in potentially explosive environments (zone 2).

click for more

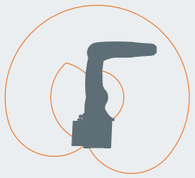
Agile in every environment. No matter how dirty, wet or sterile – the KR AGILUS achieves top performance in every production environment. A wide range of variants, such as Cleanroom, Hygienic Machine, EX – for potentially explosive environments – and Waterproof make it a specialist for many different tasks.

Extreme precision with any cycle time. Thanks to its robust design, the KR AGILUS achieves maximum repeatability and continuous precision. With its extreme speed, it reduces cycle times – and increases production quality, without ever breaking step.

Sustainably robust. Thanks to its lifetime lubrication, the KR AGILUS never needs a change of lubricant in the gear units and has minimal maintenance requirements. The robust design ensures continuous productivity.

Extremely compact. Inverted on the ceiling, sideways on the wall or fixed to the floor: the KR AGILUS adapts to any installation position. We have integrated the energy supply system so that you can integrate the six-axis robot into your space-saving cell concepts.

Protected against electrostatic charges. Electrostatic charges are a problem especially in electronics production. The KR AGILUS has ESD protection even in its standard version. It is thus optimally protected against charging.



Reach
706 – 1,101 mm

Payload
6 – 10 kg

KR AGILUS	KR 10 R1100	KR 10 R900	KR 6 R900	KR 6 R700	KR 10 R1100-2	KR 10 R900-2	KR 6 R900-2	KR 6 R700-2
Controller	KR C5 micro, KR C4 compact	KR C5 micro, KR C4 compact	KR C5 micro, KR C4 compact	KR C5 micro, KR C4 compact	KR C5 micro, KR C4 compact	KR C5 micro, KR C4 compact	KR C5 micro, KR C4 compact	KR C5 micro, KR C4 compact
Number of axes	6	6	6	6	6	6	6	6
Rated payload	5 kg	5 kg	3 kg	3 kg	10 kg	10 kg	6 kg	6 kg
Maximum payload	10 kg	10 kg	6 kg	6 kg	11.1 kg	11.3 kg	6.7 kg	6.8 kg
Reach	1,101 mm	901 mm	901 mm	706 mm	1,101 mm	901 mm	901 mm	726 mm
Pose repeatability	±0.03 mm	±0.03 mm	±0.03 mm	±0.03 mm	±0.02 mm	±0.02 mm	±0.02 mm	±0.02 mm
Weight	54 kg	52 kg	52 kg	50 kg	55 kg	55 kg	55 kg	53 kg
Variants	CR, EX, HM, WP	CR, HM, WP	CR, EX, HM, WP	CR, HM, WP	HO	–	HO	–
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle

CR Suitable for cleanrooms **EX** For potentially explosive atmospheres **HM** Hygienic Design **HO** Food compatible lubricants **WP** Splash-proof

The technical data in the table applies exclusively to standard versions.

Low payload meets maximum flexibility.
A wealth of variants for a wide range of processes.

KUKA's low payload category from 6 to 22 kilograms. KUKA robots with low payloads demonstrate unique strengths in bonding, sealing, foaming and all tasks requiring a high path accuracy. In ARC welding, KUKA robots for low payloads boast the best acceleration values on the market.

Even tasks such as component testing, small-part assembly or grinding, polishing, assembly, as well as machine loading and unloading are in the best of hands when performed by KUKA robots of the low payload category. With optimal reach and payload coverage, this range of robots offers a level of performance that is hard to beat.

KR CYBERTECH nano

KR CYBERTECH nano arc

KR CYBERTECH

KR CYBERTECH ARC

KR CYBERTECH nano.
Every variant: a master of speed.

Surpasses limits to master every task. Regardless of the application for which you use the KR CYBERTECH nano robots, both the in-line wrist and hollow-wrist variants achieve optimal results from the outset. For reducing the maintenance costs in small, compact cells, for complex tasks or in demanding, high-density production chains. Their deployment quickly pays off. Because the new KR CYBERTECH nano series combines maximized performance with minimized investment, integration and maintenance costs.

Ready for the dynamic markets of the future. The robots of the KR CYBERTECH nano series set new standards in terms of performance and flexibility. Developed to achieve optimal results in any conceivable application. Unrivaled spectrum of capabilities: outstandingly agile, extremely fast and yet uncompromisingly precise in continuous-path motion – all combined in a single machine. With their sleek and streamlined design, the robots look good even in harsh surroundings.

click for more

Utmost precision. The industrial robots of the KR CYBERTECH nano family offer a repeatability of 0.04 millimeters. They therefore take full advantage of their strengths even at high speed.

Streamlined and compact. Maximum performance with minimal disruptive contours: the new robots are extremely compact, light and streamlined – for a wide range of applications in industrial manufacturing.

Maximum freedom. The robots open up previously inaccessible workspaces: they can cover long distances, with an extremely large workspace to the rear and a long downward reach.

ESD protection. As standard, the robot is protected against uncontrolled electrostatic charging or discharging and is thus equipped for the safe handling of sensitive electronic components.

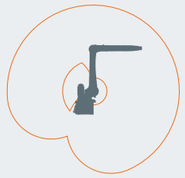
Any installation position. Install the KR CYBERTECH nano industrial robots on the floor, wall or ceiling, or at any other angle – for a wide range of different requirement profiles in any desired installation position.

Most streamlined in-line wrist. With a minimal interference radius, the KR CYBERTECH nano handling robots have one of the smallest in-line wrists in their class – worldwide. It enables work to be carried out in positions that are inaccessible for other robots.

Maximum flexibility. Simply integrate external axes via the robot controller and benefit from the innovative K-PIPE-ES energy supply concept.

Process-optimized motion sequences. The KR CYBERTECH nano family has optional digital plug-in Motion Modes. These are digitized motion modes that optimize the robot sequence for specific application scenarios. “Path Mode”, for example, enables high-precision continuous-path motion. “Dynamic Mode” allows a higher acceleration and velocity in order to minimize cycle times still further.

The KR CYBERTECH nano in a welding application



Reach
1,440 – 1,840 mm

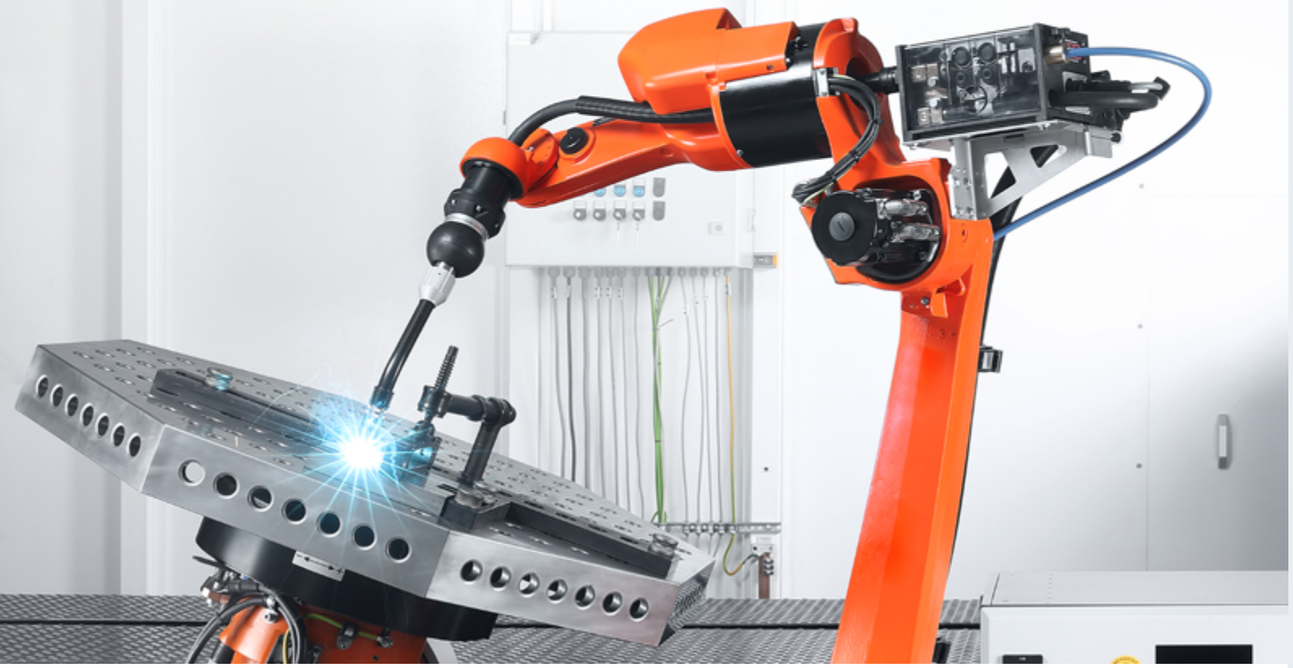
Payload
6 – 10 kg

KR CYBERTECH nano	KR 10 R1440-2	KR 8 R1640-2	KR 6 R1840-2
Controller	KR C5, KR C5 micro	KR C5, KR C5 micro	KR C5, KR C5 micro
Number of axes	6	6	6
Rated payload	10 kg	8 kg	6 kg
Reach	1,440 mm	1,640 mm	1,840 mm
Pose repeatability	±0.04 mm	±0.04 mm	±0.04 mm
Weight	153 kg	158 kg	162 kg
Variants	HO	–	–
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle

HO Food compatible lubricants

The technical data in the table applies exclusively to standard versions.

KR CYBERTECH nano ARC.
Extremely fast and uncompromisingly precise.



click for more

Maximum precision. With their repeatability of 0.04 millimeters, the KR CYBERTECH nano ARC robots work extremely exactly and precisely even at high speed.

New KUKA hollow wrist. The 50-millimeter hollow-shaft wrist is a future-oriented innovation: the hollow axis allows reduced main axis motion with short cycle times and utmost precision of movement.

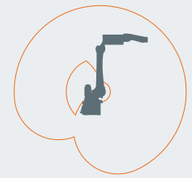
ESD protection. As standard, the robot is protected against uncontrolled electrostatic charging or discharging and is thus equipped for the safe handling of sensitive electronic components.

Simplified integration. Thanks to standardized mounting surfaces, the robot is easily integrated into existing production lines and allows the uncomplicated mounting of welding equipment.

High flexibility. The use of modern KUKA controllers facilitates the integration of external axes.

Maximum freedom. The KR CYBERTECH nano ARC robots have a large workspace to the rear and a long downward reach. This enables them to open up previously inaccessible workspaces.

Streamlined compactness. The industrial robots are particularly light, highly streamlined and exceedingly compact. They deliver maximum performance with minimal disruptive contours.



Reach
1,441 – 1,843 mm

Payload
6 – 8 kg

KR CYBERTECH nano ARC	KR 8 R1440-2 ARC HW	KR 8 R1640-2 ARC HW	KR 6 R1840-2 ARC HW
Controller	KR C5	KR C5	KR C5
Number of axes	6	6	6
Rated payload	8 kg	8 kg	6 kg
Reach	1,441 mm	1,641 mm	1,843 mm
Pose repeatability	±0.04 mm	±0.04 mm	±0.04 mm
Weight	167 kg	172 kg	175 kg
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle

Maximum performance with minimal costs. The KR CYBERTECH nano ARC product family is optimized for CP applications. The industrial robots offer ideal performance combined with a high power density – for maximum economy at low cost. With their new controller structures, the industrial robots of the KR CYBERTECH nano ARC family have extremely high path accuracy and speed. The acceleration values and the new ergonomic design with minimized disruptive contours ensure continuous-path motion at the very highest level – even deep inside the workpieces. With very fine payload intervals of 6 and 8 kilograms, you will find the ideal robot model for your application.

The KR CYBERTECH nano ARC features “Path mode” as standard, which enables high-precision CP motion. It is also calibrated for positional accuracy before delivery.

KR CYBERTECH nano ARC E. In the Edition variant, the KR CYBERTECH nano ARC E marks the entry into the world of welding automation. It has been created specifically for simple welding tasks. The KR CYBERTECH nano ARC E enables very cost-effective implementation of robot-based automation for processes of low complexity. At the same time, it is uncompromising when it comes to quality, accessories or software.

KR CYBERTECH nano ARC	KR 6 R1440-2 ARC HW E	KR 6 R2010-2 ARC HW E
Controller	KR C5	KR C5
Number of axes	6	6
Rated payload	6 kg	6 kg
Reach	1,441 mm	2,010 mm
Pose repeatability	±0.04 mm	±0.04 mm
Weight	195 kg	204 kg
Installation position	Floor, ceiling	Floor, ceiling

KR CYBERTECH. For space-saving cell concepts – with particularly low follow-up costs.

The specialist for handling applications. The industrial robots of the KR CYBERTECH family represent the world's largest range of models in the low payload category with the greatest power density. They are ideally suited to space-saving cell concepts and provide top performance – with particularly low follow-up costs.

The powerful multifunction robots of the KR CYBERTECH series are specially designed for handling applications: handling of large components, machining, assembling, palletizing and ARC welding. A central innovation of the KR CYBERTECH series: the industrial robots are even more compact. This enables you to benefit from the greater integration density and reduced disruptive contours. Choose the right industrial robot for every application from the wide-ranging portfolio.

click for more

Fast and accurate. The industrial robots of the KR CYBERTECH series reach exceptionally high speeds, allowing them to work even faster – without any loss of precision.

Extensive portfolio. The KR CYBERTECH series is suitable for handling large components, machining, assembly, palletizing and ARC welding.

Flexible installation. For planning security and low costs in the design of cells: the robots can be flexibly floor-, wall- or ceiling-mounted or even installed at a certain angle.

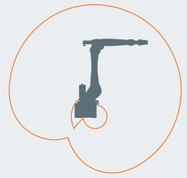
The space-saving and intelligently integrated cabling ensures that the KR CYBERTECH robots have maximum freedom of motion in any installation position.

Variety of energy supply systems. Separation of the cable set and the dress package means that you can choose from a large variety of compatible energy supply systems.

Streamlined design. The KR CYBERTECH family is set apart by a streamlined wrist and an extremely compact and athletic appearance.

Improved motion characteristics. The optimized controller structures make for smooth and sensitive motion characteristics – on the path and during positioning.

ESD protection. As standard, the robot is protected against uncontrolled electrostatic charging or discharging and is thus equipped for the safe handling of sensitive electronic components.



Reach
1,612 – 2,013 mm

Payload
8 – 22 kg

KR CYBERTECH	KR 22 R1610-2	KR 20 R1810-2	KR 16 R2010-2	KR 16 R1610-2	KR 12 R1810-2	KR 8 R2010-2	KR 20 R1810-1
Controller	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6	6	6	6	6	6
Rated payload	22 kg	20 kg	16 kg	16 kg	12 kg	8 kg	20 kg
Reach	1,612 mm	1,813 mm	2,013 mm	1,612 mm	1,813 mm	2,013 mm	1,813 mm
Pose repeatability	±0.04 mm	±0.04 mm	±0.04 mm	±0.04 mm	±0.04 mm	±0.04 mm	±0.04 mm
Weight	255 kg	255 kg	260 kg	255 kg	255 kg	260 kg	250 kg
Variants	–	–	–	–	–	–	CR, F, HO
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle

CR Suitable for cleanrooms **F** Foundry variant **HO** Food-compatible lubricants
The technical data in the table applies exclusively to standard versions.

KR CYBERTECH KR 20 E. With reduced functions, it focuses on the essentials and offers technical reliability in the usual quality. This makes the KR 20 Edition robot a cost-effective way to get started with automation, to serve price-sensitive market segments and dynamic requirements, and to fit the needs of small businesses. For handling or inspection tasks, the KR CYBERTECH KR 20 Edition robot provides reliable support in process automation.

KR CYBERTECH E	KR 20 R1820-2-E
Controller	KR C5
Number of axes	6
Rated payload	20 kg
Reach	1,820 mm
Pose repeatability	±0.04 mm
Weight	240 kg
Installation position	Floor, ceiling, wall, angle

KR CYBERTECH ARC.
Groundbreaking in terms of precision and ease of maintenance.

Specialized process robots for CP applications. The industrial robots from the KR CYBERTECH ARC product family are characterized by their utmost precision and top performance. The low-maintenance series ensures particularly low follow-up costs.

The industrial robots of the KR CYBERTECH ARC product family are specialized process robots for continuous-path applications such as ARC welding and the application of adhesives and sealants.

click for more

Fast and accurate. Particularly fast without compromising accuracy: the robots of the KR CYBERTECH ARC product family work even faster while maintaining the same precision.

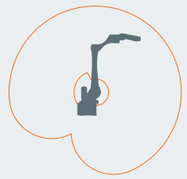
Flexible installation. Adapt the mounting arrangement of the robots to suit your requirements: install them on the ceiling, floor, wall or at an angle.

Athletic design. The industrial robots of the KR CYBERTECH ARC family are extremely compact yet streamlined in appearance.

Optimized motion characteristics. Thanks to optimized controller structures, the industrial robots move smoothly and sensitively both on the path and during positioning.

Broad portfolio. The KR CYBERTECH ARC product family is optimized for continuous-path applications, for example for ARC welding and the application of adhesives and sealants.

The KR CYBERTECH ARC product family is optimized for continuous flow applications, for example for ARC welding and the application of adhesives and sealants.



Reach
2,101 mm

Payload
8 kg

KR CYBERTECH ARC	KR 8 R2100-2 ARC HW
Controller	KR C5, KR C4
Number of axes	6
Rated payload	8 kg
Reach	2,101 mm
Pose repeatability	±0.04 mm
Weight	260 kg
Installation position	Floor, ceiling, wall, angle

Medium payload for superior performance.
Variety and precision for your automation.

KUKA robots for medium payloads perform numerous demanding tasks within automation solutions. Their streamlined wrist, stiff arm design and compact mounting surfaces mean they are suitable for a wide range of applications. They work with utmost precision even when subjected to high-process forces. That makes them ideal for process applications requiring path accuracy, such as milling, drilling, waterjet cutting, laser welding and other laser processing tasks. They competently handle, polish and assemble components, load and unload machines, and master complex operations such as measuring air currents in a wind tunnel. Whether installed on the ceiling or the floor, or as a shelf-mounted robot, they combine robustness, functional diversity, precision and efficient performance.

KR IONTEC

KR IONTEC. One robot – many applications.

With the KR IONTEC, you are opting for pure performance and the largest work envelope in the medium payload category. Maximum dynamics and minimum cycle times.

Whether mounted on the floor, on the wall, or in an inclined position, the KR IONTEC combines a compact design with optimum use of space. Equipped with a waterproof and dustproof in-line wrist and protected motors, it is suitable for almost every area of application. A Foundry option also enables use in extremely hot environments with an extended temperature range of 0 to 55 °Celsius.

KR IONTEC combines high output and a wide range of applications with a low total cost of acquisition, operation, and maintenance. This makes it a valuable investment in the future of your production.

Adaptable to processes at the push of a button. Thanks to digital Motion Modes, you can adapt the performance of the robot to various processes or substeps depending on the need for higher precision or speed.

Lowest maintenance requirements. With KR IONTEC, an oil change is only required every 20,000 operating hours. The robot also has an in-line wrist design without belts.

Flexible cell and system planning. The efficient use of the work area, the low space requirement due to a small footprint and the streamlined disruptive contour enable a compact cell design.

Low inventory costs. The robot requires 50 percent fewer spare parts than its predecessor model.

Convertible payload capacity. The payload capacity of the KR IONTEC can also be subsequently adjusted on a robot already installed – allowing for maximum flexibility in your production.

Simplified start-up. An optimized engineering tool and low training requirements using proven KUKA technology simplify start-up for you.

Optimized energy supply system. An A1 hollow shaft with a diameter of 119 millimeters ensures easy energy supply with a minimized footprint.

ESD protection. As standard, the robot is protected against uncontrolled electrostatic charging or discharging and is thus equipped for the safe handling of sensitive electronic components.

Maximum availability. The KR IONTEC has a technical availability of 99.999 percent with a mean time between failures of 400,000 hours.

Long reach. The enormous work envelope provided by the long arm and the long link arm of the KR 20 R3100 vastly expands the range of production options.

Reach
2,101 – 3,101 mm

Payload
20 – 70 kg

KR IONTEC	KR 70 R2100	KR 50 R2100	KR 50 R2500	KR 30 R2100	KR 20 R3100
Controller	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6	6	6	6
Rated payload	70 kg	50 kg	50 kg	30 kg	20 kg
Reach	2,101 mm	2,101 mm	2,501 mm	2,101 mm	3,101 mm
Pose repeatability	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Weight	536 kg	533 kg	559 kg	533 kg	549 kg
Variants	CR lite, F, HO	CR lite, HO	CR lite, F, HO	CR lite	–
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle

CR lite Robots with ISO 5 cleanroom class **F** Foundry variant **HO** Food compatible lubricants

The technical data in the table applies exclusively to standard versions.

High payload with long reach.
The safe choice for a wide range of production tasks.

KUKA robots for high payloads are the right choice when it comes to processes and handling tasks with a required range of up to 300 kilograms. The KR QUANTEC series will impress you with a clever range of reach and payload intervals. This makes it possible to determine the optimum robot for your requirements very flexibly. As veritable workaholics, our robots for high payloads excel with innovative features such as Motion Modes and availability assurance. At the same time, they stand for efficiency and significantly low running costs.

KR QUANTEC

KR QUANTEC. The smart robot family for efficiency and a wide range of applications.

The future of your production. The KR QUANTEC robots have the largest payload/reach portfolio on the market in the high payload category. The all-rounder from KUKA is designed for applications in virtually all market segments – from the automotive industry to the foundry and medical sectors.

Optimal portfolio for maximum flexibility and low total cost of ownership (TCO). The KR QUANTEC series was developed on the basis of KUKA's experience in the dynamic world of automation. The result: a reliable, versatile and efficient high-quality solution for your production environment. Customers benefit from the uniquely wide range of applications of the KR QUANTEC robots, which stand out for their performance, cost-effectiveness and flexibility.

An intelligent modular system ensures perfectly coordinated and flexible robots, and low TCO – due, for example, to minimized maintenance requirements and a reduced number of spare parts. The capability of upgrading payload capacity in the field and the Motion Modes for ideal process quality within production make the KR QUANTEC a secure investment in the future of your production operations.

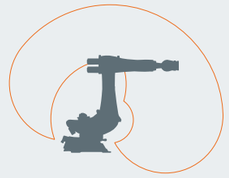
click for more

Best in class. With the KR QUANTEC series, KUKA presents a robot generation whose innovative features taken together set new standards – for both conventional and digitalized production worlds. The result goes way beyond technical details, also encompassing long-term aspects such as simplification of commissioning, maintenance requirements and process optimization of the system.

Sustainably low TCO. The KR QUANTEC will impress you not only with its outstanding production efficiency, but also with its economical start-up and maintenance concept. With energy efficiency, top values for the mean time between failures (MTBF) and a reduced number of components in the complete modular system, the series sets new market standards for TCO. Features contributing to a minimization of downtimes and maintenance requirements include the innovative cabling and energy supply concept. As a result, the KR QUANTEC series excels with a significant reduction in running costs. The energy supply concept is set apart by its durability and optimal availability.

Process-optimized motion sequences. The KR QUANTEC series were the world's first industrial robots to have digital plug-in Motion Modes. These are digitized motion modes that optimize the robot motion for specific application scenarios. "Path Mode", for example, enables high-precision continuous-path motion. "Dynamic Mode" allows a higher velocity in order to minimize cycle times.

Maximum flexibility. The KR QUANTEC series is distinguished by the optimal portfolio with its maximized performance and advanced design. Streamlined disruptive contours, extended permissible ambient conditions and an extremely small footprint ensure utmost flexibility in operation, as well as in cell and system planning. The perfected workspace in front of, over and behind the machine offers improved accessibility in a wide range of different applications.



Reach
1,573 – 3,904 mm

Payload
120 – 300 kg

KR QUANTEC	KR 300 R2700-2	KR 250 R2700-2	KR 240 R2900-2	KR 210 R3100-2	KR 180 R2900-2	KR 210 R2700-2	KR 150 R3100-2
Controller	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6	6	6	6	6	6
Rated payload	300 kg	250 kg	240 kg	210 kg	180 kg	210 kg	150 kg
Reach	2,701 mm	2,701 mm	2,900 mm	3,100 mm	2,900 mm	2,701 mm	3,100 mm
Pose repeatability	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Weight	1,101 kg	1,101 kg	1,120 kg	1,134 kg	1,105 kg	1,077 kg	1,105 kg
Variants	F	F	F, HO	F	F	F	F, HO
Installation position	Floor, ceiling	Floor, ceiling	Floor, ceiling	Floor, ceiling	Floor	Floor	Floor

KR QUANTEC	KR 150 R2700-2	KR 120 R3100-2	KR 120 R2700-2	KR 270 R3100-2 K	KR 210 R3300-2 K	KR 180 R3500-2 K	KR 120 R3900-2 K
Controller	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6	6	6	6	6	6
Rated payload	150 kg	120 kg	120 kg	270 kg	210 kg	180 kg	120 kg
Reach	2,701 mm	3,100 mm	2,701 mm	3,105 mm	3,305 mm	3,505 mm	3,904 mm
Pose repeatability	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Weight	1,072 kg	1,105 kg	1,069 kg	1,260 kg	1,266 kg	1,256 kg	1,280 kg
Variants	F	F	F, HO	F	F	F	–
Installation position	Floor	Floor	Floor	Floor (shelf)	Floor (shelf)	Floor (shelf)	Floor (shelf)

KR QUANTEC nano	KR 160 R1570 nano	KR 120 R1800 nano
Controller	KR C4	KR C4
Number of axes	6	6
Rated payload	160 kg	120 kg
Reach	1,573 mm	1,803 mm
Pose repeatability	±0.06 mm	±0.06 mm
Weight	677 kg	684 kg
Variants	–	–
Installation position	Floor, ceiling	Floor, ceiling

F Foundry variant **HO** Food compatible lubricants

The technical data in the tables applies exclusively to standard versions.

_Heavy payloads

Making difficult tasks easy. Greater ease for complex processes.

KUKA robots for heavy payloads from 360 to 1,000 kilograms. Where complex work sequences with large loads are involved, KUKA robots for heavy payloads give your business decisive productivity advantages. They master the reliable handling and processing of large and heavy parts, the linking of work processes, the tending of machines, and palletizing. Special variants, such as the heat-resistant Foundry variant, optimally adapt KUKA robots for heavy payloads to your specific task. Here you can keep a cool head even at high temperatures. The robots for heavy payloads are optimized for large and heavy tools. This means that tools with high mass inertias are no problem for these robots.

KR 360 FORTEC & KR 500 FORTEC

KR FORTEC

KR FORTEC ultra

KR 1000 titan

KR 360 FORTEC und KR 500 FORTEC.

Heavy-duty robot with open kinematic system and unique payload capacity.

The KR FORTEC is our six-axis, heavy-duty robot for intelligent system concepts. Due to its top precision and outstanding reach, this heavy-duty industrial robot is particularly suited to handling heavy assemblies.

The dynamic KR FORTEC jointed-arm robot is intended for handling heavy components. When it comes to workspace, modularity, dynamism and repeatability, this heavy-duty robot is one of a kind on the market. With the FORTEC series, KUKA has developed a flexible solution for spaces- and cost-saving cell concepts. Various installation positions and special variants pave the way for innovative solutions that execute heavy-duty tasks with ease in various industries, but particularly in the automotive industry. This involves the harmonious combination of extreme strength (FORce) and the latest technology (TEChnology): FORTEC.

Versatile and flexible. The FORTEC family provides you with a wide range of products for heavy-duty tasks, including variants for a large number of applications requiring resistance to heat, dust and water. A range of mounting positions allows for even more adaptability.

Powerful and efficient. Robots of the KR FORTEC series handle large and heavy components weighing up to 600 kilograms with great precision and ease. At the same time, they require very little maintenance and are characterized by cost-efficiency as a result.

Absolute precision. The KR FORTEC combines power and technology with a pose repeatability of 0.08 millimeters – for unbeatable product quality in the heavy-duty range.

Optimum utilization of the workspace. The new generation of heavy-duty robots is made up of FORTEC robots with a more streamlined design. This compactness enables the robots to enlarge their work envelope.

Reach
2,826 – 3,326 mm

Payload
240 – 500 kg

KR 360 FORTEC	KR 360 R2830	KR 280 R3080	KR 240 R3330
Controller	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6	6
Rated payload	360 kg	280 kg	240 kg
Reach	2,826 mm	3,076 mm	3,326 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm
Weight	2,385 kg	2,415 kg	2,421 kg
Variants	F	F	F
Installation position	Floor, ceiling	Floor	Floor, ceiling

KR 500 FORTEC	KR 500 R2830	KR 420 R3080	KR 340 R 3330
Controller	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6	6
Rated payload	500 kg	420 kg	340 kg
Reach	2,826 mm	3,076 mm	3,326 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm
Weight	2,385 kg	2,415 kg	2,421 kg
Variants	F	F	F
Installation position	Floor, ceiling	Floor	Floor

KR 500 FORTEC MT	KR 500 R2830 MT	KR 480 R3330 MT
Controller	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6
Rated payload	500 kg	480 kg
Reach	2,826 mm	3,326 mm
Pose repeatability	±0.08 mm	±0.08 mm
Weight	2,440 kg	2,475 kg
Variants	F	F
Installation position	Floor	Floor

F Foundry variant

The technical data in the tables applies exclusively to standard versions.

KR FORTEC. Big on handling, cost-efficient in operation.

The KR FORTEC is our all-rounder among the heavy-duty robots. It is energy-efficient and dynamic for handling applications in the heavy payload range up to 500 kg. Thanks to its use of our well-known industrial robot concepts, it requires little maintenance when in operation. This gives the robot a high reliability factor in your production.

The new KR FORTEC can be expanded flexibly, is economical in its energy consumption and requires little maintenance. With its payload capacity, the robot fits seamlessly in between the KR QUANTEC and the KR FORTEC Ultra – thus rounding out KUKA's portfolio. It is predestined for use in the automotive industry and the general industry sector. Thanks to the KR FORTEC, you can standardize your production processes at a high quality level through the use of automated handling. The low total cost of ownership of the robot also contributes to the cost-effectiveness of your production processes.

click for more

Compact and powerful.
- Great performance in a small space
- Fast performance with low energy consumption
- Low cycle times thanks to higher dynamics
- Compact shape: perfect for work such as handling and spot welding

Modular design.
- Identical spare parts for three robot families: KR FORTEC, KR QUANTEC, KR FORTEC Ultra
- Flexibility when planning new tasks and production processes
- Cost reduction in the storage and development of different robot configurations

Low TCO.
- Low energy consumption Reliability: up to 400,000 hours of trouble-free operation (Mean Time Between Failures)
- Proven service concepts, familiar from the KR QUANTEC and KR FORTEC Ultra

Low **maintenance**.
- Little testing required: No TÜV inspection of the counterbalance necessary
- Maintenance work can be carried out quickly and easily thanks to optimized accessibility

Reach
2,800 –3,400 mm

Payload
240 – 500 kg

KR FORTEC	KR 500 R2800-2	KR 420 R3100-2	KR 360 R2800-2	KR 340 R3400-2	KR 280 R3100-2	KR 240 R3750-2	KR 240 R3400-2
Controller	KR C5	KR C5	KR C5	KR C5	KR C5	KR C5	KR C5
Number of axes	6	6	6	6	6	6	6
Rated payload	500 kg	420 kg	360 kg	340 kg	280 kg	240 kg	240 kg
Reach	2,800 mm	3,100 mm	2,800 mm	3,400 mm	3,100 mm	3,750 mm	3,400 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm
Weight	1,671 kg	1,704 kg	1,660 kg	1,728 kg	1,687 kg	1,620 kg	1,597 kg
Variants	HI, F	HI, F	HI, F	HI, F	HI, F	HI, F	HI, F
Installation position	Floor	Floor	Floor	Floor	Floor	Floor	Floor

HI Hight Inertia (optimized for highest mass inertias) **F** Foundry variant
The technical data in the tables applies exclusively to standard versions.

KR FORTEC ultra.
Full control even with large loads.

The heavy-duty robots with payloads of up to 800 kilograms offer maximum performance in the smallest space and feature fast and precise handling of large components with high moments of inertia.

Designed for high moments of inertia when handling heavy and large workpieces. From battery handling to gigacasting. In production, the requirements for payload and reach are increasing sharply with ever higher moments of inertia of the workpieces. The KR FORTEC ultra robots have been designed to meet these requirements with maximum efficiency in the smallest possible space. As an intelligent modular and common parts concept, it is possible to select the optimum robot for an application and to adapt it in the field. Leading the way in performance, cost-effectiveness and flexibility. Today and in the future.

click for more

Unbeatable power in a compact design.
- Most powerful in its class: up to 800 kg payload
- Small footprint: 950 × 970 mm footprint
- Lightweight in the heavy-duty class: only 2.2 t
- High dynamics with low cycle times

Low TCO.
- Low energy consumption
- Highest availability: 99.998 %
- MTBF: up to 400,000 h
- Short maintenance time (MTTM)
- Fast repair time (MTTR)
- Low spare parts requirement

Highest performance and maximum flexibility.
- Compatible with tools of different sizes by selecting a HI (High Inertia) version
- Upgrade to HI version or higher/lower payload versions

Reduced maintenance costs.
- Components with low maintenance requirements
- Very good accessibility of the robot
- Low maintenance requirements with only 3 actions: Visual inspection, lubrication, oil change every 20,000 h.

Sophisticated energy supply system. Our complete solution for easy installation, low maintenance costs and long service life. From configurator-supported energy supply systems to energy supply systems with flexible K-pipe for more precise movements, we offer you individual solutions tailored to your needs. With equipment perfectly matched to the robot, you can get started immediately and save time and considerable costs during integration.

The advantages of the energy supply system on the KR FORTEC ultra.
- Saves on spare parts thanks to standardized components and lengths
- Optimized for minimum wear and increased service life
- Improved pinch protection
- Identical parts concept with energy supply systems of other robot series

Reach
2.800 – 3.700 mm

Payload
530 – 850 kg

KR FORTEC-2 ultra	KR 480 R3400-2	KR 480 R3700-2	KR 560 R3100-2	KR 640 R2800-2	KR 800 R2800-2
Controller	KR C5	KR C5	KR C5	KR C5	KR C5
Number of axes	6	6	6	6	6
Rated payload	480 kg	480 kg	560 kg	640 kg	800 kg
Reach	3,400 mm	3,700 mm	3,100 mm	2,800 mm	2,800 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm
Weight	2,140 kg	2,460 kg	2,170 kg	2,170 kg	2,400 kg
Variants	–	–	HI	HI	–
Installation position	Floor	Floor	Floor	Floor	Floor

HI Hight Inertia (optimized for highest mass inertias)

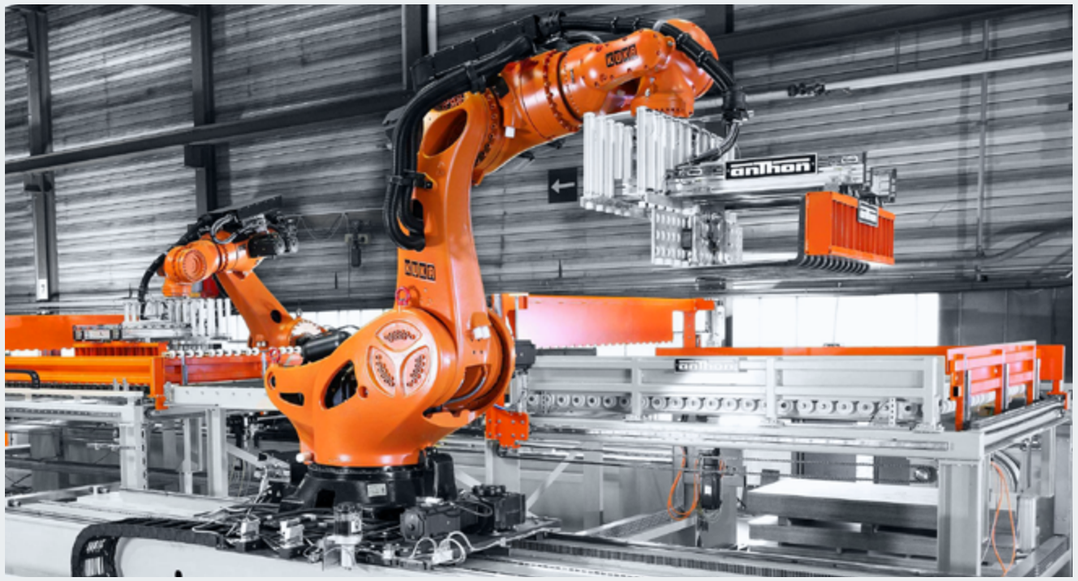
The technical data in the table applies exclusively to standard versions.

KR 1000 titan. Our powerful robot for heavy loads.

The heaviest workpieces and components even over long distances. The KR 1000 titan is our powerful robot for heavy loads and large, heavy tools with high mass inertias.

It is the first six-axis robot with an open kinematic system and an unparalleled payload capacity. It masters the handling of heavy loads precisely and quickly, even over long distances. Engine blocks, stones, glass, steel beams, components for ships and aircraft, marble blocks, precast concrete parts – all of these heavy loads are no problem for the KR 1000 titan. For special areas of application, we offer the Foundry variant with the best payload/reach ratio or the version as a palletizing robot for heavy loads of up to 1.3 tonnes.

click for more



High dynamic performance. The KR 1000 titan handles the heaviest workpieces and components precisely and safely. With high speed and dynamic acceleration, it ensures optimal cycle times.

Enormous productivity. Thanks to the accuracy of the KR 1000 titan robot, you can improve your manufacturing quality and reduce costs. The low interference contours extend the effectively usable workspace.

Greater flexibility. The KR 1000 titan offers you a wide range of possible applications: as a palletizer or combined with linear axes, its flexibility can be increased. It can be integrated into existing systems easily and without the need to adapt the foundations.

Reach
3,202 – 3,601 mm

Payload
750 – 1,000 kg

KR 1000 titan	KR 1000 titan	KR 1000 L750 titan
Controller	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6
Payload	1,000 kg	750 kg
Reach	3,202 mm	3,601 mm
Pose repeatability	±0.10 mm	±0.10 mm
Weight	4,690 kg	4,740 kg
Variants	F	F
Installation position	Floor	Floor

F Foundry variant

The technical data in the table applies exclusively to standard versions.

_Palletizing robots

Palletizing robots from the market leader. When speed is of the essence.

Largest possible work envelope, minimized interference contour and maximum robustness. KUKA palletizing robots combine everything that is required for perfect automation. As the leading palletizer manufacturer, KUKA covers the payload range of 40 to 1,300 kilograms, with an unparalleled variety of robots. All of our palletizing robots are specially designed for demanding palletizing and depalletizing tasks. The result is short cycle times and increased throughput combined with low space requirements and high cost-effectiveness.

Powerful. The robots from KUKA are among the fastest palletizers on the market – while also offering extreme precision and repeatability. With their streamlined, lightweight design, KUKA palletizing robots achieve greater dynamic performance, shorter cycle times and higher throughput – even in confined spaces.

Versatile. A wide range of different payload capacities, reaches and special variants ensure that our customers always find the right solution, no matter how challenging the palletizing task. All interfaces and energy supply systems are designed for versatility.

Compact. The compact and streamlined design of all robots for palletizing enables their simple integration into existing systems. Their low interference contours extend the effectively usable workspace and allow innovative cell concepts.

Low maintenance. All components of KUKA palletizing robots are equipped with low-wear drive trains. Thanks to their advanced and robust design, they have extremely long maintenance intervals – with an availability of 99.995 percent and maximum energy efficiency.

KR 40 PA

KR QUANTEC PA

KR 300-2 PA
KR 470-2 PA
KR 700 PA

KR 1000 titan PA

click for more

KR 40 PA. Our smallest and lightest palletizing robot.

The KR 40 PA picks and packs your goods in record time. It can palletize with a total load of up to 40 kilograms and reach net stacking heights of up to 1.8 meters – all in a very small space. Cycle times are shortened significantly thanks to its low weight.

Reach
2,091 mm

Payload
40 kg

KR 40 PA	KR 40 PA
Controller	KR C5 , KR C4
Number of axes	4
Payload	40 kg
Reach	2,091 mm
Pose repeatability	±0.05 mm
Weight	695 kg
Variants	–
Installation position	Floor

click for more

KR QUANTEC PA. Shorter cycles, best availability and low operating costs.

The KR QUANTEC PA robots are the most powerful robots in their class. The streamlined design and low weight enable unbeatable dynamic performance and precision. The KR QUANTEC PA robots are thus perfectly suited to challenging palletizing tasks with payloads from 120 to 240 kilograms and maximum reaches – including the Arctic variant designed specially for use in cold-storage rooms. They can be used to effortlessly stack multiple pallets to a great height.

Reach
3,195 mm

Payload
120 – 240 kg

KR QUANTEC PA	KR 240 R3200-1 PA*	KR 180 R3200-1 PA*	KR 120 R3200-1 PA*	KR 240 R3200-2 PA	KR 180 R3200-2 PA	KR 140 R3200-2 PA
Controller	KR C4, KR C5	KR C4, KR C5	KR C4, KR C5	KR C4, KR C5	KR C4, KR C5	KR C4, KR C5
Number of axes	5	5	5	5	5	5
Payload	240 kg	180 kg	120 kg	240 kg	180 kg	140 kg
Reach	3,195 mm	3,195 mm	3,195 mm	3,195 mm	3,195 mm	3,195 mm
Pose repeatability	±0.06 mm	±0.06 mm	±0.06 mm	±0.07 mm	±0.07 mm	±0.07 mm
Weight	1,103 kg	1,093 kg	1,075 kg	1,017 kg	1,017 kg	1,017 kg
Variants	A	A	A	HO	HO	HO
Installation position	Floor	Floor	Floor	Floor	Floor	Floor

***** Only available as Arctic version to –30 °C **HO** Food compatible lubricants

The technical data in the table applies exclusively to standard versions.

KR 300 PA, KR 470 PA and KR 700 PA. High flexibility with heavy-duty palletizers up to 700 kilograms.

KUKA palletizing robots for heavy loads can get to grips with far more. As well as their high payload capacity, combined with a reach of up to 3,150 millimeters, they stand out with their extremely high working speeds. They handle heavy payloads at high speed – with extremely long maintenance intervals. The hollow-wrist design with its extra-large opening, measuring an unbeatable 60 millimeters, enables space-saving cell concepts.

Reach
3,150 – 3,320 mm

Payload
300 – 700 kg

KR 300 PA, KR 470 PA and KR 700 PA	KR 300-2 PA	KR 470-2 PA	KR 700 PA
Controller	KR C5 , KR C4	KR C5 , KR C4	KR C5 , KR C4
Number of axes	5	5	4
Payload	300 kg	470 kg	700 kg
Reach	3,150 mm	3,150 mm	3,320 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm
Weight	2,150 kg	2,150 kg	2,850 kg
Variants	–	–	–
Installation position	Floor	Floor	Floor

click for more

KR 1000 titan PA. Handling of heavy loads over long distances.

With the palletizing robots of the KR 1000 titan series, you can lift the heaviest loads with ease. The KR titan PA is the world's first robot for payloads of up to 1,300 kilograms – with unrestricted dynamic performance and short cycle times, it is the strongest palletizing robot on the market. With their long reach and minimal disruptive contours, the strong robots of the titan series open up additional workspace.

Reach
3,202 – 3,601 mm

Payload
950 – 1,300 kg

KR 1000 titan PA	KR 1000 L950 titan PA	KR 1000 1300 titan PA
Controller	KR C5 , KR C4	KR C5 , KR C4
Number of axes	4	4
Payload	950 kg	1,300 kg
Reach	3,601 mm	3,202 mm
Pose repeatability	±0.10 mm	±0.10 mm
Weight	4,740 kg	4,690 kg
Variants	F	F
Installation position	Floor	Floor

F Foundry variant

The technical data in the table applies exclusively to standard versions.

_Press-to-press robots

Always there when something takes shape.
For the quick linking of presses.

A long reach and a wide range of payloads – these are the strengths of the KUKA press-to-press robots. Whether they are bridging short press gaps or transferring large or medium-sized panels, thanks to their modular design and our long experience of press linking, we can optimally tailor your robot to individual applications. The robust design with low-wear components increases the service life and extends the maintenance intervals, thereby reducing your costs.

KR QUANTEC P

KR QUANTEC P. First choice for linking press lines.

The KR QUANTEC P is the KUKA industrial robot specially designed for press linking and is the first choice for loading, unloading and linking press lines.

The KR QUANTEC P has been optimized for press shop integration. It can be used to implement a wide range of applications, for press linking across narrow or wide press gaps, transferring large and medium-sized blanks as well as loading and unloading press lines. Its faster axes enable high-speed press-to-press automaton, which is ideal for the automotive industry.

The KR QUANTEC press-to-press robots are available in floor and ceiling-mounted variants.

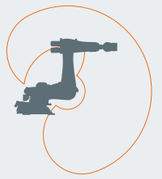
Robust with powerful gear units. The extremely robust design with reinforced axes and highly resistant gear units ensures reliable performance and availability even under constant high stress.

Fast with high throughput rates. Thanks to a specially adapted drive train, and machine data, the press-to-press robot shortens processing times, allowing it to achieve extremely high throughput.

Far-reaching, both downwards and upwards. The shelf-mounted robots have a reduced interference contour thanks to the hollow shaft in axis 1 for routing all cables. The robot knee, which is positioned lower down and further forward, enables greater downward reach.

Space-saving at a low height. The shelf-mounted robots from the KR QUANTEC P series make optimum use of the workspace from above. Thanks to their low height, they require very little space above the robot base, thus opening up new possibilities for space-saving cell concepts.

click for more



Reach
3,505 mm

Payload
120 kg

KR QUANTEC	**KR 120 R3500-2 P**
Controller	KR C5
Number of axes	6
Payload	120 kg
Reach	3,505 mm
Pose repeatability	±0.05 mm
Weight	1,281 kg
Installation position	Floor, ceiling

_Special variants

Anything but standard. KUKA robots for special operating conditions.

Special operating conditions place exceptional demands on robotics. We at KUKA are familiar with these challenges and offer a wide range of solutions that allow efficient robot automation even in extreme conditions.

The spectrum of special variants ranges from use in particularly cold or hot environments, through solutions for the food or hygiene sector, to robots that are suitable for cleanrooms, potentially explosive or even humid environments.

All special variants have highly specialized features in addition to our KUKA quality promise of precision, flexibility or process reliability.

HO	**Food compatible lubricants**
WP	**Splash-proof**
EX	**For potentially explosive atmospheres**
CR	**Suitable for cleanrooms**
HM	**Hygienic Design**
A	**Arctic version down to -30 °C**

HO robots. Safe handling of food: Uncompromisingly hygienic, safe and efficient.

Robotic automation has become indispensable in the food industry. Robots play an important role when it comes to palletizing, repackaging or food handling – such as sorting, transferring or packaging. The KUKA HO portfolio is the largest of its kind, thus expanding the range of applications in the food sector, where automation plays an ever-increasing role and where the need for flexible solutions is great. With our HO robots we only use NSF H1 lubricants, which are food compatible. Regarding cleanability, KUKA HO robots are also the perfect solution, and of course, they can be equipped with all standard software and hardware options.

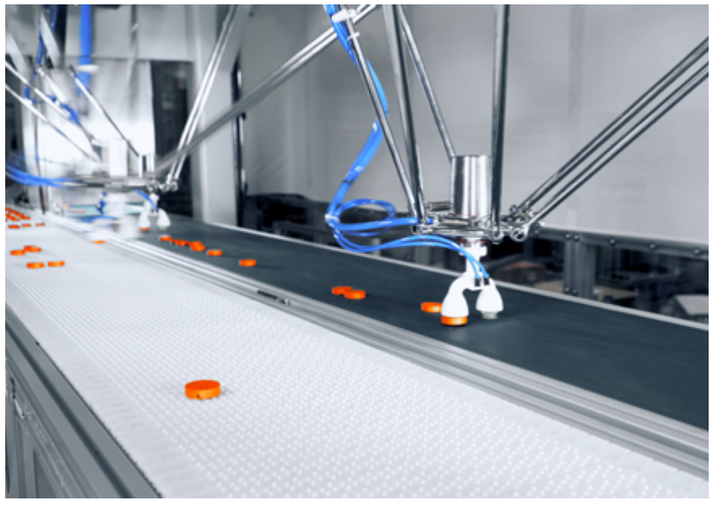
CR robots. No fear of emissions: Safe automation solutions for cleanrooms.

Especially in microelectronics, the pharmaceutical industry, microsystem production, the optics industry as well as medical technology, primary objective is to prevent the contamination of products and processes. KUKA has developed three types of robot that can be used in cleanrooms – KR AGILUS CR, KR CYBERTECH CR and LBR iiwa CR. All our cleanroom robots comply with cleanroom class 2 of DIN EN ISO 14644-1, the second highest of eight cleanroom classes. Due to a special powder coating, the cleanroom robots have extremely smooth surfaces. Air-bonded particles can thus be avoided, and special seals stop dust and seal abrasion to escaping from the robots. CR robots meet the strict cleanroom criteria of the Fraunhofer Institute.

WP robots. Due to its waterproof design, the KR AGILUS WP is suitable for permanent use in working environments with splashing water. One example is the inside of machine tools. The WP robot meets the requirements of protection class IP 67 and is, therefore, even protected against temporary immersion in water. This is made possible by additional seals, constant surface treatment and the use of plastic covers instead of stainless steel covers.

EX robots. Wherever an explosive atmosphere can occur – for example in paint shops or in the chemical industry – the KR AGILUS EX is a reliable contribution to secondary explosion protection. To achieve this, the robot is not only sealed (it meets protection rating IP 67), but can also be pressurized. This overpressure ensures that gas and dust cannot intrude and, therefore, ignite. For monitoring the pressure, the robot can be upgraded with an optional detection unit.

HM robots. Hygiene begins with design. The robots of the Hygienic Machine class (KR AGILUS HM and KR DELTA HM) are designed in such a way that dirt cannot settle. In particular, the electrical interface, which is difficult to clean, is not located in the primary contact area, but underneath the robot. In addition, all surfaces are corrosion-resistant. Cleaning is carried out with commercial detergents and can also be performed at high pressure. This means that HM robots can be safely used in direct contact with food and pharmaceutical substances.



A robots. Robots that work reliably in extremely cold temperatures are in demand in the food sector. With the KR QUANTEC PA Arctic, KUKA has designed a robot that will handle tasks with large ranges and short cycle times even at -30° Celsius (-22° Fahrenheit) without a protective cover. Despite depp freeze conditions, the mechanical systems do not need to be heated. The large operational range is not limited by additional insulation.

_Foundry

Our Foundry robots are all-rounders in the world of the foundry and forging industry.

Robots need to meet a number of requirements for the new, innovative casting processes: a surface that is resistant to heat, corrosion, alkalis and acid is essential, as are special seals on the motor and gear unit flanges. The Foundry wrists of the KUKA robots hold gripper tooling made of heat-resistant special steel and are provided with a special paint finish. This makes even higher heat resistance possible in this especially critical area. The robot wrist and in-line wrist are provided with redundant safety through sealing air and high-quality Viton seals with thermal and chemical resistance.

Wide product range. KUKA foundry robots for payloads of 20 to 1,300 kilograms can do almost anything.

KR CYBERTECH F

KR IONTEC F

KR QUANTEC F

KR FORTEC 360/500 F

KR FORTEC-2 F

KR 1000 TITAN F

KR CYBERTECH

The Foundry robot from our proven KR CYBERTECH family.

Reach
2,010 mm

Payload
20 kg

KR CYBERTECH	KR 20 R1810-1 F	KR 20 R2010-1 KS-F
Controller	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6
Rated payload	20 kg	20 kg
Reach	1,813 mm	2,010 mm
Pose repeatability	±0.04 mm	±0.04 mm
Weight	250 kg	242 kg
Variants	F	F
Installation position	Floor, ceiling, wall, angle	Floor (shelf)

KR IONTEC

The KR IONTEC combines compact design with the largest working envelope in its class for optimum use of space with a small footprint. Equipped with a waterproof and dustproof in-line wrist and protected motors, the robot is suitable for almost every area of application. A Foundry option also enables use in extremely hot environments with an expanded temperature range of 0 to 55 °Celsius.

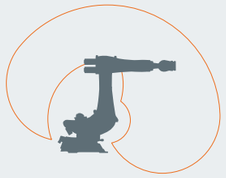
Reach
2,101 – 2,501 mm

Payload
50 – 70 kg

KR IONTEC	KR 70 R2100 F	KR 50 R2500 F
Controller	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6
Rated payload	70 kg	50 kg
Reach	2,101 mm	2,501 mm
Pose repeatability	±0.05 mm	±0.05 mm
Weight	536 kg	559 kg
Variants	F	F
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle

KR QUANTEC

KUKA has completely revised the standard version of its bestselling robot, ensuring that it remains state-of-the-art. KUKA presents the second generation of the special version for the foundry, forging and machining industries – more digitalized and even better than before.



Reach
2,701 – 3,505 mm

Payload
120 – 300 kg

KR QUANTEC	KR 300 R2700-2 F	KR 250 R2700-2 F	KR 240 R2900-2 F	KR 210 R3100-2 F	KR 180 R2900-2 F
Controller	KR C5	KR C5	KR C5	KR C5	KR C5
Number of axes	6	6	6	6	6
Rated payload	300 kg	250 kg	240 kg	210 kg	180 kg
Reach	2,701 mm	2,701 mm	2,900 mm	3,100 mm	2,900 mm
Pose repeatability	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Weight	1,101 kg	1,101 kg	1,120 kg	1,134 kg	1,105 kg
Variants	F	F	F	F	F
Installation position	Floor	Floor	Floor	Floor	Floor

KR QUANTEC	KR 210 R2700-2 F	KR 150 R3100-2 F	KR 150 R2700-2 F	KR 120 R3100-2 F
Controller	KR C5	KR C5	KR C5	KR C5
Number of axes	6	6	6	6
Rated payload	210 kg	150 kg	150 kg	120 kg
Reach	2,701 mm	3,100 mm	2,701 mm	3,100 mm
Pose repeatability	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Weight	1,077 kg	1,105 kg	1,072 kg	1,105 kg
Variants	F	F	F	F
Installation position	Floor	Floor	Floor	Floor

KR QUANTEC	KR 120 R2700-2 F	KR 270 R3100-2 K-F	KR 210 R3300-2 K-F	KR 180 R3500-2 K-F
Controller	KR C5	KR C5	KR C5	KR C5
Number of axes	6	6	6	6
Rated payload	120 kg	270 kg	210 kg	180 kg
Reach	2,701 mm	3,105 mm	3,305 mm	3,505 mm
Pose repeatability	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Weight	1,069 kg	1,260 kg	1,266 kg	1,256 kg
Variants	F	F	F	F
Installation position	Floor	Floor (shelf)	Floor (shelf)	Floor (shelf)

KR QUANTEC nano	KR 180 R2100 nano F exclusive	KR 120 R2100 nano F exclusive
Controller	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6
Rated payload	180 kg	120 kg
Reach	2,100 mm	2,100 mm
Pose repeatability	±0.05 mm	±0.06 mm
Weight	approx. 998 kg	963 kg
Variants	F	F
Installation position	Floor	Floor

F Foundry variant

KR FORTEC 360/500

KR FORTEC is the perfect choice for handling heavy parts. With an unparalleled range of models for payloads up to 600 kilograms.

Reach
2,800 – 3,400 mm

Payload
240 – 500 kg

KR 360 FORTEC	KR 360 R2830 F	KR 280 R3080 F	KR 240 R3330 F
Controller	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6	6
Rated payload	360 kg	280 kg	240 kg
Reach	2,826 mm	3,076 mm	3,326 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm
Weight	2,385 kg	2,415 kg	2,421 kg
Variants	F	F	F
Installation position	Floor, ceiling	Floor	Floor

KR 500 FORTEC	KR 500 R2830 F	KR 420 R3080 F	KR 340 R 3330 F
Controller	KR C5, KR C4	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6	6
Rated payload	500 kg	420 kg	340 kg
Reach	2,826 mm	3,076 mm	3,326 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm
Weight	2,385 kg	2,415 kg	2,421 kg
Variants	F	F	F
Installation position	Floor, ceiling	Floor	Floor

KR 500 FORTEC MT	KR 500 R2830 MT F	KR 480 R3330 MT F
Controller	KR C5, KR C4	KR C5, KR C4
Number of axes	6	6
Rated payload	500 kg	480 kg
Reach	2,826 mm	3,326 mm
Pose repeatability	±0.08 mm	±0.08 mm
Weight	2,440 kg	2,475 kg
Variants	F	F
Installation position	Floor	Floor

F Foundry variant

KR FORTEC

KR FORTEC is the perfect choice for handling heavy parts. With an unparalleled range of models for payloads up to 600 kilograms.

Reach
2,800 – 3,400 mm

Payload
240 – 500 kg

KR FORTEC	KR 500 R2800-2	KR 420 R3100-2	KR 360 R2800-2	KR 340 R3400-2	KR 280 R3100-2	KR 240 R3750-2	KR 240 R3400-2
Controller	KR C5	KR C5	KR C5	KR C5	KR C5	KR C5	KR C5
Number of axes	6	6	6	6	6	6	6
Rated payload	500 kg	420 kg	360 kg	340 kg	280 kg	240 kg	240 kg
Reach	2,800 mm	3,100 mm	2,800 mm	3,400 mm	3,100 mm	3,750 mm	3,400 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm
Weight	1,671 kg	1,704 kg	1,660 kg	1,728 kg	1,687 kg	1,620 kg	1,597 kg
Variants	HI, F	HI, F	HI, F	HI, F	HI, F	HI, F	HI, F
Installation position	Floor	Floor	Floor	Floor	Floor	Floor	Floor

F Foundry variant

KR 1000 titan

The KR 1000 titan F series – with a payload of up to 1,300 kg and a long reach – enables the precise handling of XL workpieces such as large engine blocks.

Reach
3,202 – 3,601 mm

Payload
750 – 1,300 kg

KR 1000 titan	KR 1000 titan F	KR 1000 L750 titan F	KR 1000 L950 titan PA-F	KR 1000 1300 titan PA-F
Controller	KR C5, KR C4	KR C5, KR C4	KR C4	KR C4
Number of axes	6	6	4	4
Payload	1,000 kg	750 kg	950 kg	1,300 kg
Reach	3,202 mm	3,601 mm	3,601 mm	3,202 mm
Pose repeatability	±0.10 mm	±0.10 mm	±0.10 mm	±0.10 mm
Weight	4,690 kg	4,740 kg	4,740 kg	4,690 kg
Variants	F	F	F	F
Installation position	Floor	Floor	Floor	Floor

F Foundry variant

_Robots in the medical industry

KUKA Medical Robotics. A head start in medical experience.

With a large portfolio of robots certified or adapted specifically for the medical industry KUKA can respond individually to customer requirements and support them in the development of medical products. An international KUKA team of experts from the areas of development, customer services, business development and quality management is available to customers and partners throughout the entire product life cycle. As such, KUKA is your partner in medical robotics.

LBR Med

KR QUANTEC HC

LBR Med. For integration into a medical product.

The LBR Med bundles all the robotic capabilities that are specifically required in medical technology.

With the LBR Med, KUKA supplies a robotic component for integration into a medical device.

The certification was achieved according to the **internationally established "IECEE CB Scheme"** – a procedure that certifies conformity to certain safety and quality standards. In order to receive the CB test certificate, the LBR Med lightweight robot must meet medical requirements and comply with the **international standards IEC 60601-1:2016 and IEC 62304:2006 (First Edition) + A1:2015.** These include extensive testing of the hardware and software of the two **7- and 14-kilogram payload variants** of the lightweight robot. Compliance with the safety requirements for medical electric devices stipulated in the international standards was assessed. The processes in the life cycle of medical software development were also verified and approved. In both cases, the inspection was carried out by an accredited certified body.

Media flange inside electrical Med. Connections for power supply, I/Os or EtherNet are available for customer-specific tools on the flange via the media flange inside electrical Med.

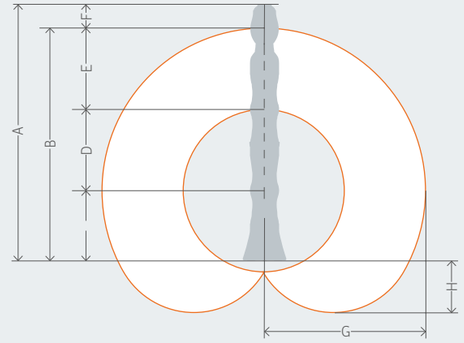
click for more

Precise
The LBR Med requires no additional devices for calibration or highly precise work. Thanks to its integrated mastering sensors, it calibrates itself fully autonomously and achieves an outstanding repeatability from ±0.1 mm to ±0.15 mm.

Safe
The LBR Med sets standards with its safety structures. Its safety-rated hardware and software processes the relevant data. Functions covered by the equipment include encoder signals, force/torque sensors, safety circuit, single fault safety, safety-rated interfaces and configurable safety events – in short: everything that predestines it for medical technology.

Sensitive
The LBR Med has redundant, integrated torque sensors. It can detect forces applied externally and react according to the freely programmable system responses specified by you. Benefit from its haptic capabilities for manual guidance, teleoperation with haptic support or gravity compensation. Use the LBR Med to apply predefined forces during a motion, or as a compliant robot that responds adaptively to process forces. Furthermore, the integrated sensors are also used for safe collision detection, thereby enabling human-robot collaboration (HRC).

The new generation of KUKA software Sunrise.OS Med 2.6 for the LBR Med.
The Java-based software generation for the LBR Med – Sunrise.OS Med 2.6 – meets the requirements of IEC 62304:2006 (First Edition) + A1:2015. The system software offers all functions needed for programming and configuring medical robot applications. Object-oriented programming enables fast commissioning and, based on Java 8 and Windows 10, access to high-end robotics. The software additionally offers a user-friendly program editor with many powerful option packages such as:
KUKA Sunrise.PreciseHandGuiding Med / KUKA Sunrise.IncreasedStiffness Med / KUKA Sunrise.BrakeHandling Med / KUKA Sunrise.FRI Med / KUKA Sunrise.Servoing Med / KUKA Sunrise.CollsionAvoidance Med / KUKA Sunrise.CollisionFreePath Med



LBR Med	LBR Med 7 R800	LBR Med 14 R820
Maximum payload	7 kg	14 kg
Number of axes	7	7
Maximum reach	800 mm	820 mm
Wrist variant	In-line wrist	In-line wrist
Mounting flange A7	DIN ISO 9409-1-A50	DIN ISO 9409-1-A50
Positioning accuracy (ISO 9283)	±0.1 mm	±0.15 mm
Axis-specific torque accuracy (at max. torque)	±2%	±2%
Weight	25.5 kg	32.3 kg
Protection rating	IP 54	IP 54
Installation position	any	any

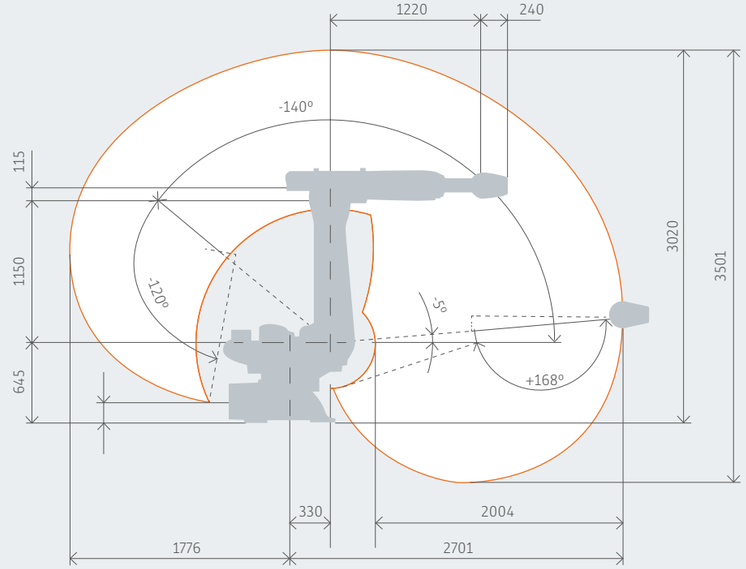
Workspace	LBR Med 7 R800	LBR Med 14 R820
Dimension A	1,266 mm	1,306 mm
Dimension B	1,140 mm	1,180 mm
Dimension C	340 mm	360 mm
Dimension D	400 mm	420 mm
Dimension E	400 mm	400 mm
Dimension F	126 mm	126 mm
Dimension G	800 mm	820 mm
Dimension H	260 mm	255 mm
Volume	1.7 m^3	1.8 m^3

KR QUANTEC HC.
The safest one in the family.

A strong partner in many fields.

The KR QUANTEC HC is based on the KR 300 R2700-2. A trademark feature is the high and versatile payload of up to 300 kg, which means the robot can be used in almost any area. In addition, the KR QUANTEC HC has a reach of up to 2,700 mm and additional brakes in the axes, which ensure even greater safety. The KR QUANTEC HC comes with a counterbalancing system and a pressure sensor, which allows the pressure to be checked when in use, and the robot to be stopped if the pressure drops. Thanks to the person rescue system, the brakes can be applied manually in case of unforeseen situations, for example, in order to be able to move the KR QUANTEC HC manually in the event of a power failure.

Additional brakes. Compared with the standard version of the KR QUANTEC series, additional brakes are integrated in axes 2 to 5. They ensure that the robot is stopped even if the first brake fails.



KR QUANTEC HC	KR 300 R2700-2 HC
Controller	KR C5
Rated payload	300 kg
Number of axes	6
Wrist variant	In-line
Reach	2,701 mm
Pose repeatability	±0.05 mm
Weight	1,150 kg
Protection rating	IP 65
Installation position	Floor

Extend your reach.
To keep your production on track.

Up to four robots can be operated on a single linear unit. KUKA linear units are available in various different sizes and payload categories, according to the robot series you are using.

KL 100 KL 250-3 KL 4000 KL 5000

Maximum productivity all along the line.

Maximize your productivity all the way down the line. KUKA linear units allow you to increase workspaces significantly.

Another major advantage: the linear units are implemented as an external axis – which means that no additional controller is required. The KUKA product range covers every payload category and every requirement. The spectrum ranges from ceiling-mounted units to the high-speed variant and even linear units with a protective cover. You thus hold all the options for decisively expanding your success margin.

Positionally accurate. Up to four robots can be operated on one linear axis. Multiple robot positions on the linear axis allow optimal adaptation to existing requirements and workspaces.

Flexible. Long travel extends the work envelope by several times the reach of the robot. The linear units are ideal for linking production lines.

Versatile. Floor, ceiling and wall-mounted variants are available, as well as a cover to provide protection from dirt during operations in harsh environments.

Powerful. Additional version with high torque (e.g. for milling applications) and a high-speed variant for tasks requiring extreme speed and short cycle times.

Productive. Moving workpieces/tools with additional carriages, driven or non-driven (tender carriages) help to shorten cycle times.

click for more

KL 100

The KL 100 is the linear unit for the KR AGILUS robot series. It can be installed on the floor, ceiling and wall and supports up to 100 kilograms.

KL 250-3

The KL 250-3 linear unit is suitable for the KR CYBERTECH robot series with a payload of up to 300 kilograms.

KL 4000

Suitable for the KR QUANTEC, KR FORTEC, KR 300 PA and KR 470 PA series. The KL 4000 is our linear unit for loads of up to 4,000 kilograms.

Linear unit	KL 100	KL 250-3	KL 4000
Rated payload	100 kg	300 kg	4,000 kg
Number of carriages	max. 4	max. 4	max. 4
Rated travel	max. 30 m	max. 30.1 m	max. 30.4 m
Velocity with rated payload	2.48 m/s	1.47 m/s	1.89 m/s
Pose repeatability	±0.02 mm	±0.02 mm	±0.02 mm
Variants	–	CV	S
Installation position	Floor, ceiling, wall	Floor, ceiling	Floor, ceiling

CV Covered **S** Speed

The technical data in the tables apply exclusively to standard versions.

KL 5000

The KL 5000 linear axis is our additional axis for robots with high payloads. The KUKA Lubricate Kit simplifies maintenance. Lubrication of the toothed rack and running rail is completely automatic.

Payload
5,000 kg

Linear unit	KL 5000
Rated payload	5,000 kg
Number of carriages	max. 4
Rated travel	max. 30.3 m
Velocity with rated payload	1.89 m/s
Pose repeatability	±0.02 mm
Variants	–
Installation position	Floor

_Positioners

Success is down to position. Fast and precise positioners for greater quality and productivity.

KUKA offers a broad portfolio of workpiece positioners for payloads from 250 to 12,000 kilograms.

Depending on the production task and workpiece, you will find the right solution for every application. For example, for ARC welding, spot welding or metalworking. The objective of every automation solution is to boost productivity and quality. With KUKA positioners, you can achieve this from all angles – they allow you to align workpieces quickly and precisely. Ideal for automating production operations. For this purpose, service-proven standard robotics components are used, which can be combined to form customized solutions. The result is highly dynamic automatic positioners with one to five axes. Depending on the specific task, kinematic systems of all sizes can be implemented for payloads ranging from 250 to 12,000 kilograms. With KUKA you are in a strong position to implement your automation ideas.

KP1-MD
KP1-MD HW
KP1-MDC
KP1-MDC HW
KP1-MC
KP1-MB HW

KP1-V
KP1-H
KP1-H HW
KP1-HC
KP1-V2T
KP1-V2T M

DKP
KP2-HV
KP2-HV HW
KP2-SV HW
KP3-V2H
KP3-H2H

KP3-V2MD
KP5-V2S2V
KP5-V2H2V HW

Whether standardized or customized – the optimum solution for every positioning task.

High productivity. Higher throughput, fewer rejects or the quick change of tool carriers: dynamic drives, perfect coordination between robot and positioner, and machine data that can be individually optimized for cycle time optimization all enable successful production.

Efficiency and profitability. Robot positioner systems make use of proven KUKA robot components with a high proportion of identical parts. Preconfigured elements ensure reduced integration time, while KUKA.Sim ensures complete and easy simulation capability.

Uncompromising quality. Robots and positioners from KUKA operate with high precision. The result of flexible, repeatable performance is consistently flawless workpieces.

Integration – simple, safe, fast. Electrically insulated face plates, easy mastering with the KUKA EMD and simple programming: Proven, familiar solutions and standardized interfaces stand for efficient integration and fast implementation of individual customer solutions.

Customized solutions from a single source. From robots and positioners to linear units and other components: the modular system ensures simple implementation of customer-specific solutions and thus precise coordination between positioners and workstations.

KP1-MD

	KP1-MD500-2	KP1-MD750-2	KP1-MD1000-2	KP1-MD1500-2	KP1-MD2000
Rated payload	500 kg	750 kg	1,000 kg	1,500 kg	2,000 kg
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle
Loading height	417 mm	417 mm	417 mm	417 mm	505 mm
Hollow shaft Ø	–	–	–	–	–

KP1-MD HW

	KP1-MD250 HW	KP1-MD500 HW	KP1-MD750 HW
Rated payload	250 kg	500 kg	750 kg
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle
Loading height	417 mm	417 mm	417 mm
Hollow shaft Ø	60 mm	60 mm	60 mm

KP1-MDC

	KP1-MDC500-2	KP1-MDC750-2	KP1-MDC1000-2
Rated payload	500 kg	750 kg	1,000 kg
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle
Loading height	417 mm	417 mm	417 mm
Hollow shaft Ø	–	–	–
Counterbearing hollow shaft Ø	68 mm	68 mm	68 mm

	KP1-MDC1500-2	KP1-MDC2000	KP1-MDC4000
Rated payload	1,500 kg	2,000 kg	4,000 kg
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle
Loading height	417 mm	505 mm	505 mm
Hollow shaft Ø	–	–	–
Counterbearing hollow shaft Ø	68 mm	69 mm	69 mm

KP1-MDC HW

	KP1-MDC250 HW	KP1-MDC500 HW	KP1-MDC750 HW	KP1-MDC1000 HW
Rated payload	250 kg	500 kg	750 kg	1,000 kg
Installation position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle
Loading height	417 mm	417 mm	417 mm	417 mm
Hollow shaft Ø	60 mm	60 mm	60 mm	60 mm
Counterbearing hollow shaft Ø	68 mm	68 mm	68 mm	68 mm

KP1-MC

	KP1-MC1500-2
Rated payload	1,500 kg
Installation position	Floor, ceiling, wall, angle
Loading height	417 mm
Counterbearing hollow shaft Ø	68 mm

KP1-MB HW

	KP1-MB2000-2 HW	KP1-MB3000-2 HW	KP1-MB4000-2 HW	KP1-MB6000
Rated payload	2,000 kg	3,000 kg	4,000 kg	6,000 kg
Installation position	Floor	Floor	Floor	Floor
Loading height	449 mm	449 mm	449 mm	593 mm
Hollow shaft Ø	136 mm	136 mm	136 mm	–
Turning time (180° / 360°)	3.4 s / 6.0 s	2.15 s / 3.7 s	3.9 s / 6.9 s	4.2 s / 8.6 s

KP1-V

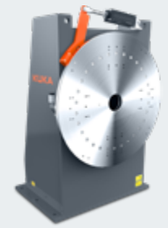
	KP1-V500	KP1-V1000
Rated payload	500 kg	1,000 kg
Installation position	Floor	Floor
Loading height	705 mm	705 mm
Hollow shaft Ø	60 mm	60 mm

KP1-H

	KP1-H500-2	KP1-H750-2	KP1-H1000-2	KP1-H1500-2
Rated payload	500 kg	750 kg	1,000 kg	1,500 kg
Max. tool radius (in steps of 200 mm)	800 mm to 1,200 mm	800 mm to 1,200 mm	800 mm to 1,200 mm	800 mm to 1,200 mm
Installation position	Floor	Floor	Floor	Floor
Loading height (in steps of 200 mm)	840 mm to 1,240 mm	840 mm to 1,240 mm	840 mm to 1,240 mm	840 mm to 1,240 mm
Hollow shaft Ø	–	–	–	–

KP1-H HW

	KP1-H1100 HW	KP1-H2600 HW	KP1-H5000 HW	KP1-H6300 HW	KP1-H12000 HW
Rated payload	1,100 kg	2,600 kg	5,000 kg	6,300 kg	12,000 kg
Max. tool radius (in steps of 100 mm)	900 mm to 1,200 mm	900 mm to 1,200 mm	1,100 mm	1,100 mm	1,100 mm
Installation position	Floor	Floor	Floor	Floor	Floor
Loading height (in steps of 100 mm)	930 mm to 1,230 mm	930 mm to 1,230 mm	1,200 mm	1,200 mm	1,200 mm
Hollow shaft Ø	135 mm	135 mm	80 mm	175 mm	175 mm



KP1-HC

	KP1-HC500-2	KP1-HC750-2	KP1-HC1000-2	KP1-HC1500-2
Rated payload	500 kg	750 kg	1,000 kg	1,500 kg
Max. tool radius (in steps of 200 mm)	800 mm to 1,200 mm	800 mm to 1,200 mm	800 mm to 1,200 mm	800 mm to 1,200 mm
Installation position	Floor	Floor	Floor	Floor
Loading height (in steps of 200 mm)	840 mm to 1,240 mm	840 mm to 1,240 mm	840 mm to 1,240 mm	840 mm to 1,240 mm
Hollow shaft Ø	–	–	–	–
Counterbearing hollow shaft Ø	68 mm	68 mm	68 mm	68 mm

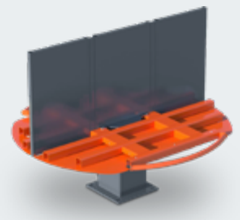
	KP1-HC2000	KP1-HC4000
Rated payload	2,000 kg	4,000 kg
Max. tool radius (in steps of 250 mm)	970 mm to 1,470 mm	970 mm to 1,470 mm
Installation position	Floor	Floor
Loading height (in steps of 250 mm)	1,000 mm to 1,500 mm	1,000 mm to 1,500 mm
Hollow shaft Ø	–	–
Counterbearing hollow shaft Ø	69 mm	69 mm

KP1-V2T

	KP1-V2T500	KP1-V2T1000
Rated payload per side	500 kg	1,000 kg
Installation position	Floor	Floor
Loading height	727 mm	575 mm
Station change	Electrical	Electrical
Possible work plates	1,200 × 800 mm	1,600 × 900 mm

KP1-V2T M

	KP1-V2T250 M
Rated payload per side	250 kg
Installation position	Floor
Loading height	727 mm
Station change	Manual
Possible work plates	1,200 × 800 mm



DKP HW

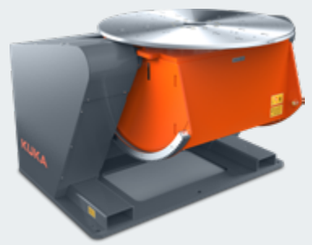
	DKP500-2 HW	DKP750-2 HW
Rated payload	500 kg	750 kg
Installation position	Boden	Boden
Loading height	850 mm	850 mm
Tilting range	±90°	±90°
Hollow shaft Ø	60 mm	60 mm

KP2-HV

	KP2-HV500
Rated payload	500 kg
Installation position	Floor, ceiling, wall, angle
Loading height	500 mm
Tilting range	±135°

KP2-HV HW

	KP2-HV1100 HW	KP2-HV2600 HW
Rated payload	1,100 kg	2,600 kg
Installation position	Floor	Floor
Loading height	1,085 mm	1,145 mm
Tilting range	±115°	±120°
Hollow shaft Ø	135 mm	135 mm



KP2-SV HW

	KP2-SV1100 HW	KP2-SV2600 HW	KP2-SV5000 HW
Rated payload	1,100 kg	2,600 kg	5,000 kg
Max. tool radius	1,030 mm	1,230 mm	2,200 mm
Installation position	Floor	Floor	Floor
Hollow shaft Ø	80 mm	175 mm	175 mm
Swivel range	±185°	±185°	±185°
Loading height	700 mm	700 mm	934 mm

KP3-V2H

	KP3-V2H500-2	KP3-V2H750-2	KP3-V2H1000-2	KP3-V2H1500-2
Rated payload per side	500 kg	750 kg	1,000 kg	1,500 kg
Distance between face plates (in steps of 200 mm)	1,600 mm to 3,000 mm	1,600 mm to 3,000 mm	1,600 mm to 3,000 mm	1,600 mm to 3,000 mm
Max. tool radius (in steps of 200 mm)	600 mm to 1,000 mm	600 mm to 1,000 mm	600 mm to 1,000 mm	600 mmm to 1,000 mm
Installation position	Floor	Floor	Floor	Floor
Loading height	835 mm / 950 mm	835 mm / 950 mm	835 mm / 950 mm	835 mm / 950 mm
Counterbearing hollow shaft Ø	68 mm	68 mm	68 mm	68 mm

KP3-H2H

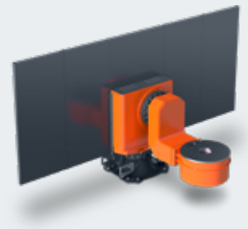
	KP3-H2H500	KP3-H2H750	KP3-H2H1000
Rated payload per side	500 kg	750 kg	1,000 kg
Distance between face plates (in steps of 400 mm)	1,600 mm to 4,400 mm	2,000 mm to 4,400 mm	2,000 mm to 4,400 mm
Max. tool radius (in steps of 100 mm)	600 mm	600 mm to 800 mm	600 mm to 800 mm
Installation position	Floor	Floor	Floor
Loading height	1,019 mm	1,019 mm	1,019 mm
Counterbearing hollow shaft Ø	68 mm	68 mm	68 mm

KP3-V2MD

	KP3-V2MD2000
Rated payload per side	2,000 kg
Installation position	Floor
Loading height	880 mm
Hollow shaft Ø	139 mm

KP5-V2S2V

	KP5-V2S2V500	KP5-V2S2V600	KP5-V2S2V1000
Rated payload per side	500 kg	600 kg	1,000 kg
Max. tool radius (in steps of 200 mm)	600 mm to 1,000 mm	750 mm	600 mm to 1,000 mm
Installation position	Floor	Floor	Floor
Swivel range	±185°	±185°	±185°
Loading height	700 mm	635 mm	700 mm



KP5-V2H2V HW

	KP5-V2H2V500 HW	KP5-V2H2V750 HW
Rated payload per side	500 kg	750 kg
Max. tool radius	400 mm	400 mm
Installation position	Floor	Floor
Tilting range	0° / 90°	0° / 90°
Loading height	863 mm	863 mm
Hollow shaft Ø	60 mm	60 mm

_Mobile platforms and mobile robotics

Mobile solutions for agile production.

If you want to get things moving, you have to stay in motion.

Mobility is an important driver of Industry 4.0. KUKA develops mobility concepts for the next stage in the evolution of more flexible industrial production. In the cyber-physical world of Industry 4.0, established structures are becoming a thing of the past. Static production facilities and assembly lines are obsolete. KUKA develops intelligent, mobile units that work together perfectly and find their destination autonomously.

KMP 600-S diffDrive

KMP 1500P

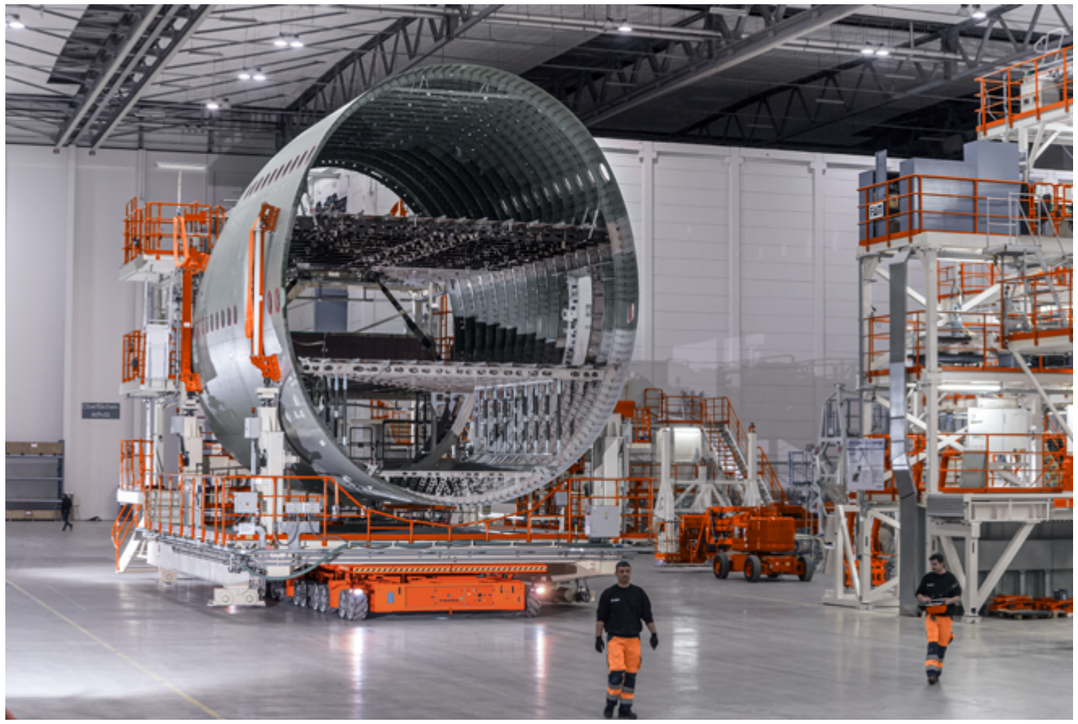
KMP 3000P

omniMove

KMR iiwa

KMR iisy

Get your production moving.



Mobile platforms from KUKA open up new dimensions of mobility in the age of Industry 4.0. Whether it is for the aerospace or automotive industry, or for many other sectors, it has never been easier to integrate autonomous robots and mobile platforms quickly and reliably into cells and systems.

All mobile platforms ensure maximum freedom of movement. The Mecanum wheel system enables high-precision transport – even with the heaviest loads.

Autonomously navigating systems are used for fully automatic operation. Our portfolio of omnidirectional mobile robot platforms provides the foundation for the flexible production facilities of the future.

The factory of the future demands mobility and flexibility. Static production lines are making way for the next generation of robots: intelligent, mobile robotic units are taking their place. Mobile robots navigate autonomously, act in swarms and offer total flexibility for industrial manufacturing. This is especially important for internal logistics. KUKA offers a vast mobility portfolio, from manually – movable to autonomously navigating solutions.

Our robots work hand in hand with humans and align to the workpiece to within a millimeter. In addition, the fully autonomous variants work without any induction loops, floor markings or magnets. Our range of mobile robots is heralding the next era of cyber-physical production.

_Mobile platforms and mobile robotics

KUKA.NavigationSolution. The reliable interface for your autonomous logistics.

Mobile robots receive their commands via Wi-Fi. They perform their driving and handling tasks fully autonomously. They use algorithms to position themselves, plan their route and take on loads.

All mobile robotic systems from KUKA can be equipped with KUKA.NavigationSolution. This makes them flexible and mobile. The navigation solution also includes an ideal fleet management system.

It meets the latest demands of mobile robotics with the appropriate interfaces – fully in keeping with Industry 4.0.

Our smart navigation solution consists of an industrial PC that is installed in the automated guided vehicle system and the actual navigation software – a software package that manages all vehicles and coordinates planning.

Autonomous control. KUKA.NavigationSolution enables autonomous navigation of mobile platforms – with no risk of collision and without the need for artificial markings.

The software acquires all the data from the safety laser scanners and wheel sensors and uses them to create a corresponding map of the surroundings by means of the SLAM method (Simultaneous Localization and Mapping).

The system responds to changes in the environment – which occur frequently in a flexible logistics system. The use of virtual tracks makes it possible to move the platform exclusively along defined routes.

Flexible software integration. KUKA offers an Eclipse-based development environment that can be used to program applications in Java. The modular Java API with suitable interfaces for the requirements of mobile robotics allows the integration of third-party software. The existing platform fleets can be easily updated, and other platforms can be added to or removed from the existing system.

Exact positioning. KUKA.NavigationSolution offers the following options for high-precision positioning of the mobile platform in its environment:

- Fine localization for precise determination of the vehicle position relative to the object, or in an environment
- Fine positioning for increased pose repeatability
- Relative positioning through CAD-based object recognition and tracking, e.g. for picking up loads

Hardware-independent software. The hardware-independent navigation software of KUKA.NavigationSolution can be used for different platform kinematic systems.

It can handle any motion principles, including holonomic vehicles with Mecanum wheels, such as the KUKA omniMove.

The machine parameters are configured via a standardized interface.

Freely scalable, modular setup. Additional features, such as object recognition and tracking and relative positioning, enable coordinated planning.

KMP 600-S diffDrive.

Mobile freedom thanks to AGVs: material transport in dynamic environments.

The KUKA Mobile Platform KMP 600-S diffDrive opens up new avenues and more flexibility for production intralogistics. The KMP 600-S diffDrive provides support as an automated guided vehicle (AGV) with a payload of up to 600 kilograms. In addition, it allows maximum freedom of movement for employees, as it does not require any protective fencing. The laser scanners at the front and rear provide maximum safety and allow high speeds in all directions when cycle times require it.

What advantages do the AGVs offer for in-house logistics? AGVs bring required goods and raw materials fully automatically to the right place at the right time. They take on physically demanding transportation tasks and are able to share passageways with human operators and conventional industrial trucks thanks to their comprehensive safety technology. Through the use of camera-based 3D object detection, they integrate seamlessly into existing production environments.

The KMP 600-S diffDrive can also be expanded with 3D object detection. This allows the AGV to autonomously detect obstacles that are between 30 millimeters and 2.10 meters above the ground. At the same time, the KMP 600-S diffDrive is ideally equipped for the tough everyday environment of industrial production: thanks to its IP 54 design, it is protected against splashes of water and dust, for example.

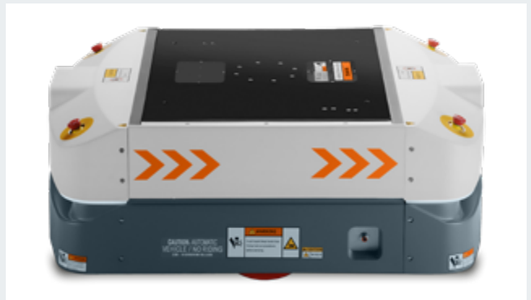
click for more

High safety standard
- Laser scanners at the front and rear
- 3D obstacle detection available
- Four emergency stops
- Eight safety zones at both the front and rear of the vehicle

Extremely fast
- The AGV travels up to 2 meters per second
- Full speed in all directions
- Integrated lift of up to 60 millimeters in under 3 seconds

Protection class IP 54
- Optimally equipped for the daily work of industrial production
- Protection against foreign objects such as (metal) dust
- Protected against water spray from any direction

Intelligent navigation
- Fleet manager software for the entire KUKA AGV portfolio
- Navigation via laser scanner and a pre-generated environment map
- Identifies the fastest route – even in complex environments



Automated guided vehicles from KUKA: Fast commissioning, simple maintenance. Applications can be programmed via JAVA. In order for KUKA's intelligent, autonomous vehicles to optimally support in-house material flows, they must first be taught. The KMP 600-S diffDrive is commissioned quickly and easily via a wireless controller. Maintenance is just as easy as start-up: No tools are required to access AGV components, such as rollers, laser scanners and service interfaces – for inspection, firmware updates, calibration, and repairs.

Eight security zones. There are eight safety zones in front of and behind the KMP 600-S diffDrive, which customers can customize to suit the application situation. The size of the protective field changes dynamically depending on the speed and direction of travel.

	KMP 600S-2 diffDrive
Dimensions (L×W×H)	1,000×750×353
Weight	246 kg
Rated payload	600 kg
Maximum speed straight ahead	2 m/s
Maximum acceleration	1.25 m/s
Maximum braking acceleration	1.5 m/s
Battery capacity	at least 8 hours
Charging time	2 hours
Interfaces	48 VDC, 24 VDC, EtherCAT, I/O, STO
Integrated lifting device	up to 60 mm
Pose accuracy	±10 mm

click for more

KMP 1500P. The smart AMR platform maximizes efficiency in production halls and warehouses.

The autonomous mobile platform, is designed to enhance intralogistics, material supply for production lines and process linkage applications. With its cutting-edge slam navigation, precision positioning, advanced load identification, 3D cameras, and innovative charging technology, this AMR offers a package of high-performance features, safety, and flexibility in automated transport and material handling.

The autonomous mobile robot (AMR) is a game-changing solution to optimize intralogistics operation. The KMP 1500P lifts all types of load carriers and could be easily implemented into existing industrial projects to deliver exceptional solutions, whether it is optimizing warehouse processes, streamlining assembly lines, or enhancing material handling in complex industrial environments.

The AMR platform can identify the load due to its technology and QR code readers, which improves material traceability and operational efficiency. In addition, the 3D cameras provide an additional layer of safety, detecting obstacles in three-dimensional space, and ensuring the well-being of the AMR, the load and equipment.

The KMP 1500P offers easy programming that allows workflows to be quickly adapted and optimized, reducing the time and resources required for implementation, and resulting in increased operational efficiency and flexibility.

The driverless transport system is the perfect solution for automating material supply. Small and medium-sized companies also benefit from lower operating costs and a high degree of flexibility when using mobile robotics.

Demands on mobile robotics in the age of Logistics 4.0

The autonomous mobile platform KMP 1500P provides a safe and autonomous transport solution for heavy loads in factories and logistics centers. With its flexible movement, the KMP 1500P can navigate complex and dynamic environments, adapt to changing requirements and optimize material flow. This provides agility and versatility in operations, ultimately helping businesses to respond quickly to evolving market demands and achieve higher productivity.

Versatile use of driverless robotics in intralogistics

The AMR automatically delivers the required goods and raw materials to the right place at the right time. The Autonomous Mobile Robot (AMR), with its differential drive technology, is optimally equipped for tasks in production and in-plant logistics. A wide range of applications can be supported.

- **Material supply to stations and lines.** Enables efficient just in time material supply from the warehouse or supermarket to stations, assembly and pre-assembly lines.
- **Process linkage/chaining.** Autonomous transport of components and workpieces from station to station by the KMP 1500P increases the flexibility in the production and makes unflexible conveyers obsolete.
- **Commissioning.** Flexible picking processes, goods-to-person, autonomous piece picking or flexible sorting.
- **Warehousing and point-to-point transports.** Reliable stock management and inventory control thanks to the KMP 1500P and its capable fleetmanager KUKA.AMR Fleet.

Configuring instead of programming – the KUKA.AMR Fleet navigation system

The No-Code-Platform with AI functionality is easy and intuitive to use. The navigation system KUKA.AMR Fleet makes it possible to configure settings by courser in the browser instead of programming them. This allows new or modified routes to be planned quickly and efficiently. Additional comfort and AI functions as automatic rack recognition increase the efficiency during integration.

The software also enables comprehensive fleet management of the entire AMR system. It fully regulates all fleet traffic and is able to automatically reschedule in the event of obstacles.

Smart traffic management for optimized material flow: different AMRs and AMRs on one digital platform.

The autonomous transport system is characterized by high flexibility, safety and scalability

Autonomous navigation

- Slam-Navigation
- Camera underneath the mobile platform, reading QR-codes for high positioning accuracy ±5 mm
- Easy to integrate, operate and maintain due to No-Code-Platform with AI functionality KUKA.AMR Fleet
- Connection via Wi-Fi, 5G capable

Highest safety standards

- Laser scanners for safe obstacle detection
- 3D cameras additionally detect obstacles and people, protecting AMR, load and employees
- Bumper / safety edge for extra safety
- Acoustic and optical signals, as well as 4 emergency stop switches (at each corner of the platform)

Intelligent charging management

- Docking station for conductive charging with digital touch screen
- As soon as the battery level gets low, the AMR is automatically routed to a free charging station
- No installation of special power supply required due to single phase
- 2 h charge for 8 h of use. 1 h charge for 20-80 % capacity
- Inductive charging available in 2024

Extras for flexible use

- Lift with treated hole grid pattern (for pins, etc.)
- Lifting height: 60 mm
- High load capacity up to 1,5 t
- Max. speed: 1.8 m/s without load, 1.5 m/s loaded
- On-platform camera for QR load identification
- Sound module for notifications, alarms, music

International certification

- IP 54 protection class: protection against splash water, dust, and chips
- ICE, UL, and FCC approval for the IoT devices

click for more

KMP 3000P. Working tirelessly for the perfect flow.

With the KMP 3000P platform, KUKA is introducing a real heavyweight in the area of AMR to the market. The platform can transport loads of up to three tonnes. Its omnidirectional drive guarantees maximum flexibility in the narrowest of spaces in intralogistics. Thanks to its inductive charging concept, the platform is constantly ready for operation, which allows for flexible charging in the process.

Transport capacity of up to three tonnes.

Mobile robotics is a crucial factor when it comes to optimizing intralogistical processes. The KMP 3000P builds on the success of its little sister, the KMP 1500P, and adds an extra one and a half tonnes in terms of transport capacity. With the ability to move up to three tonnes, it opens up a variety of possible applications for various sectors. Whether material supply in production, process linking without conveyor belts or classic point-to-point transport – the KMP 3000P effortlessly masters the transport of large, unwieldy and heavy components.

Functions in the smallest of spaces.

The KMP 3000P has an omnidirectional drive. This allows it to move in all directions. "This makes the platform extremely flexible. It can move diagonally and therefore handle narrow curves. This delivers considerable advantages in a cramped production environment," explains Julian Stockschlaeder, Head of AMR Business Development at KUKA. Four integrated 3D cameras and two laser scanners offer a 360° view, meaning that the platform can effortlessly detect and avoid obstacles. This not only increases efficiency, but also increases safety in various working environments.

Ready to operate, day and night, thanks to the new inductive charging principle.

The best platform is one that operates 24 hours a day, 7 days a week. Thanks to its inductive charging principle, the KMP 3000P does just that. This means that the platform can be charged wirelessly, both centrally at the station as well as non-centrally within the application area at various, freely selectable locations. It can also be charged via inductive pads, which are attached to the floor of the hall. Based on the operational plan for the KMP 3000P, breaks that arise during operation – for example while the robot is loading a machine – can be used to charge the platform during the process. This guarantees round-the-clock operation.

New drive concept reduces maintenance requirements.

The new, omnidirectional drive concept of the KMP 3000P combines the advantages of mecanum wheels from the OmniMove series with the cost-effective diffDrive: The driven casters guarantee extremely smooth running and allow for high speeds. Each of the two drive units consists of two wheels each. Since the weight is distributed over two wheels, there is a lower point load on the individual wheel, which reduces wear. In addition to replacing the entire drive unit, it is also possible, if required, to replace the covering on individual casters. The fact that the parts that are used are common standard components that are widely available contributes to the simple and cost-effective maintenance. "If something has to be replaced, parts are easy to access: A service hatch provides easy access to the inside of the platform," reports Julian Stockschlaeder.

Intuitive configuration with the KUKA.AMR Fleet software instead of tedious programming.

The KMP 3000P is controlled using the suitable software KUKA.AMR Fleet – an intelligent, AI-based and easy-to-use fleet management system. Furthermore, the VDA 5050 standard communication interface guarantees maximum compatibility between the AMR and different control systems.

KUKA omniMove.
We move big things – with millimeter precision.

Simply move underneath and lift. The KUKA omniMove mobile heavy-duty platform can move your XXL loads with ease.

Specially developed wheels allow the mobile heavy-duty platform to move in any direction – even from a standing start. The sophisticated navigation system KUKA.NavigationSolution ensures autonomous maneuvering without risk of collision and without requiring artificial floor markings.

The KUKA omniMove can be freely scaled in size, width and length within a modular system – to suit your requirements.

Mecanum wheel for maximum mobility: the specially developed KUKA omniMove drive technology based on the Mecanum wheel ensures that the KUKA omniMove can maneuver omnidirectionally. The wheels with individual, barrel-shaped rollers can move independently of each other. This allows the KUKA omniMove to perform translational and rotational motions in the tightest of spaces from a standing start. It can thus move swiftly in all directions and is characterized by maximum positioning accuracy.

Powerful. Depending on the vehicle variant, the KUKA omniMove can move even the heaviest XXL components safely and conveniently. It has a payload capacity of up to 100 tonnes and – in the maximum version – reaches a length up to 30 meters.

Precise. The KUKA omniMove positions even enormous payloads to within ±3 millimeters without contact.

Modular. We design your ideal solution. You can choose from different vehicle variants, and we will then personalize your selection with individual option packages and modules – fully in accordance with your requirements and wishes.

click for more

Wheel sizes E375	3000	7000
Payload	3,000 kg	7,000 kg
Height	420 mm	420 mm
Length (with laser scanner)	2,750 mm	3,650 mm
Width (with laser scanner)	1,600 mm	1,600 mm
Number of wheels	4	8
Weight	1,650 kg	2,600 kg
Travel speed	3.0 km/h	3.0 km/h

Wheel sizes E575	7000	12000	17000	25000
Payload	7,000 kg	12,000 kg	17,000 kg	25,000 kg
Height	650 mm	650 mm	650 mm	650 mm
Length (with laser scanner)	3,220 mm	3,520 mm	4,620 mm	5,610 mm
Width (with laser scanner)	2,050 mm	2,050 mm	2,050 mm	2,050 mm
Number of wheels	4	6	8	12
Weight	3,700 kg	4,500 kg	5,200 kg	8,700 kg
Travel speed	3.0 km/h	3.0 km/h	3.0 km/h	3.0 km/h

Operating condition	
Ambient temperature	+5 to 40 °C

Power supply connection	
Charger, type 1	400 V / 50 Hz / 32 A CEE
Charger, type 2	480 V / 60 Hz / 30 A Hubbell HBL2731; UL

KMR iiwa.
Always spot-on safely.

Significantly optimizes your production. The KMR iiwa is a combination of the sensitive LBR iiwa lightweight robot and a mobile, flexible platform. As the name and the individual components already suggest, the KMR iiwa stands out with its high degree of mobility and flexibility.

Manufacturing processes are changing constantly. This is why mobile robot systems must be very adaptable. Maximum mobility and autonomous working methods significantly optimize your production.

Combinable. Design your individual turnkey system solution. The modular KMR iiwa system offers numerous combinations of robot technology, mobile platforms and industrial components.

Sensitive. Seven special joint torque sensors on each axis of the LBR iiwa lightweight robot make it highly sensitive to its environment. It navigates safely and without protective fencing – external contact will cause it to stop immediately.

Autonomous. Thanks to the laser scanners, the mobile platform can navigate fully autonomously. It monitors its environment. And it reacts immediately if a person or object is in the way.

Agile. Specially developed Mecanum wheels allow the mobile platform to move omnidirectionally and execute 360° rotations. A wheel consists of several rollers that are each aligned at an angle of 45° relative to the axle. This top-notch maneuverability shortens throughput times and reduces idle times in the manufacturing process.

Precise. The KMR iiwa achieves a positioning accuracy of up to ±0.1 millimeters, even in the tightest spaces.

Intelligent. With KUKA.NavigationSolution, the KMR iiwa can reliably move around obstacles and find a new route.

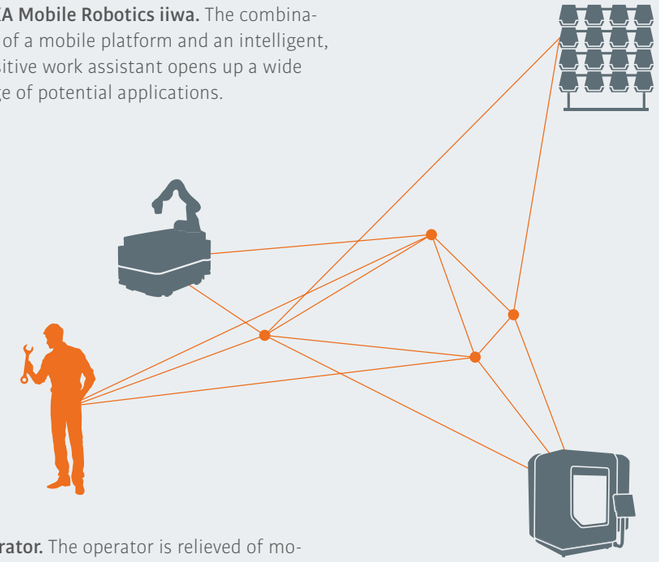
Independent. The vehicle and robot are supplied directly with power from Li-ion batteries.

User-friendly. KUKA Sunrise Cabinet and KUKA Sunrise.OS for vehicles and robots simplify the operation and use of the KMR iiwa.

click for more

Intelligent system.

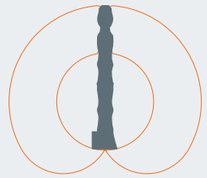
KUKA Mobile Robotics iiwa. The combination of a mobile platform and an intelligent, sensitive work assistant opens up a wide range of potential applications.



High-bay racking. Thanks to its innovative navigation system, the KMR iiwa operates autonomously and is able, for example, to set down machined workpieces or independently fetch -required components.

Machine tool. The KMR iiwa takes over the tending of machine tools and relieves the human operator of strenuous and tiring tasks.

Operator. The operator is relieved of monotonous, non-ergonomic tasks and can concentrate on important processing steps.



LBR iiwa	LBR iiwa 14 R820	LBR iiwa 7 R800
Rated payload	14 kg	7 kg
Number of axes	7	7
Reach	820 mm	800 mm
Wrist variant	In-line wrist	In-line wrist
Mounting flange on axis 7	DIN ISO 9409-1-A50	DIN ISO 9409-1-A50
Pose repeatability	±0.15 mm	±0.1 mm
Axis-specific torque accuracy	±2%	±2%
Weight	29.9 kg	23.9 kg
Protection rating	IP54	IP54
Variants	CR	CR
Installation position	Floor, ceiling, wall	Floor, ceiling, wall

Mobile platforms	
Dimensions (H × W × B)	700 × 1,080 × 630 mm (with scanners and protected areas)
Weight	390 mm
Maximum payload	170 kg / 200 kg without LBR iiwa
Velocity in longitudinal direction	max. 3.6 km/h
Velocity in lateral direction	max. 2.0 km/h
Wheel diameter	250 mm
Cleanroom class	ISO 5

CR Suitable for cleanrooms

The technical data in the tables apply exclusively to standard versions.

click for more

KMR iisy. Flexibility and reliability combined: the autonomous mobile cobot as the optimal solution for industrial environments.

Autonomous, flexible and with an eye on all obstacles – the KMR iisy is a smart partner in warehouse logistics and production as a fully integrated combination of cobot and transport platform.

The autonomous mobile robot KMR iisy enables the dynamic use of cobot at different workstations and is therefore indispensable as an automation solution. With the HRC-capable KMR iisy, we offer an AMR (Autonomous Mobile Robot) that can move quickly and safely. This is made possible by safety scanners and 3D cameras in combination with cobot LBR iisy. It detects not only humans around the platform with it`s lidar scanner, but also potential collisions with humans and the cobot LBR iisy. 3D cameras spot obstacles up to two meetwers above the ground.

Mobile cobots in cleanrooms: efficient automation for demanding environments. Due to its low particle and emission levels and its ESD certification, the KMR iisy is also suitable for use in cleanrooms. Pick-and-place applications, material transport and palletizing tasks in the semiconductor or electronics industry can be carried out more efficiently and cost-effectively.

Design and intelligent technology of AMR: ideal for collaborative operation in assembly, intralogistics and as a service robot system. Due to its adaptability, high flexibility and free navigation, the KMR iisy can be used in the warehouse or as a workpiece carrier.

Get more out of Industry 4.0 with the use of mobile cobot platforms

Safe collaboration between humans and robotics, automation of more complex, physically demanding tasks for humans, flexible travel paths, collision protection and uninterrupted operation – the autonomous mobile cobot KMR iisy offers numerous advantages for loading and unloading, quality testing in the production line as well as workpiece and material transport. It enables companies to design processes more cost-effectively and efficiently than before.

Demands on our autonomous mobile cobot

Flexible and cost effective transportation. The mobile KMR iisy Cobot links any number of stations in the desired sequence, without the limitations of conventional material transport solutions. This allows smaller batches and different products to be produced in parallel, enabling rapid response to changing customer requirements. Additionally, the AMR allows switching between products fast and less costly, resulting in the ability to deliver small batches with competitive pricing.

Smart operation. Both the cobot and the mobile platform are controlled by a single teach pendant, smartPAD pro. This is integrated into the platform and acts as a status display. Decoupling the smartPad pro is therefore not required, preventing misplacement and ensuring direct access if needed. There is no need for an additional control pannel.

Autonomous navigation. Free navigation via Slam ensures that the robot can drive autonomously and stop in front of unforeseen obstacles. QR codes can be used to increase the positioning accuracy in workstations.

High safety. The collaborative AMR is equipped with safety components. Sensors, safety scanners and 3D cameras detect workers and obstacles up to 2 m above the ground. A high level of collision protection is guaranteed.

Predictability. KMR iisy documents its tasks automatically and on-the-fly and constantly transmits its coordinates, so the status and location of the load is known at any time. This increases the material traceability, prevents failures in the material supply.

24/7 operation. The AMR platform can be used in 24/7 operation thanks to its inductive charging pads. The lithium-ion battery can be charged in a charging station as well as in workstation during the process.

Easy maintenance. Maintenance on the KMR iisy is quick and easy. The platform components are easily accessible via the large access hatches on both broad sides. A control cabinet provides space for additional customer-specific applications.

Protected construction. IP 54 protection makes the KRM iisy a reliable AMR solution in demanding environments. Clean room class 3 and ESD protection to ISO 61340-5-1 and ANSI ESD S20.20 further qualify it for sensitive workspaces.

Designed to work dynamically.
- Load capacity cobot: 11 kg or 15 kg
- Mobile platform capacity: up to 200 kg
- Size of platform area: 695 × 850 mm
- Max. speed: 1,5 m/s
- Precise positioning using QR code technology in workstations

International certification
- ICE, UL, and FCC approval for the IoT devices
- TÜV Saar tested MRK system (robotics, grippers)

_Robot controller

Intuition meets performance. The beating heart at the center of tomorrow's production.

Maximized performance, connectivity and flexibility – with the ground-breaking latest generation of robot controllers from KUKA that set the pulse of automated production racing: the KR C5 can be seamlessly integrated into existing infrastructures, and immediately delivers added value with more efficient performance in all areas of application.

The KUKA smartPAD teach pendant was designed to master even complex operating tasks easily. KUKA ready2_pilot expands your programming options with teaching via manual guidance.

KR C5 | KR C5 micro | KUKA smartPAD | KUKA smartPAD Pro

KR C5 controller.
The heartbeat of intelligent automation.

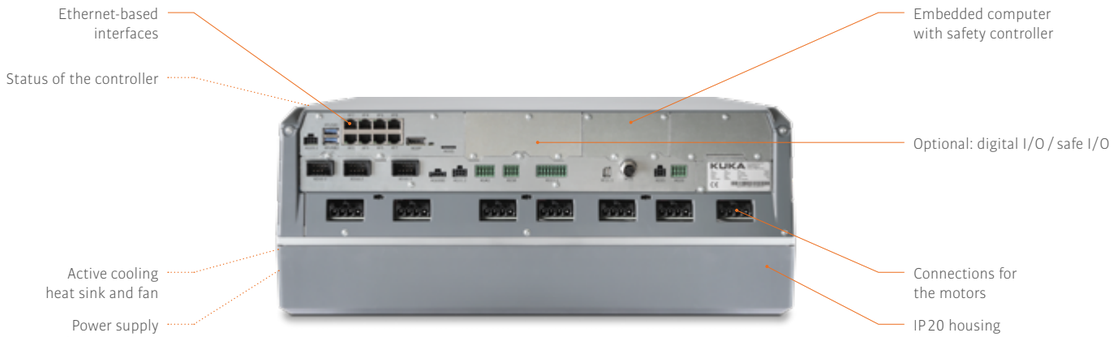
The production of the future is smart and operates on a whole new level with the KR C5. KUKA's latest platform for robot controllers enables space-saving solutions, delivers supremely efficient performance and conserves resources. It can thus also be seamlessly integrated into heterogeneous automation landscapes, enabling a wide variety of robot applications.

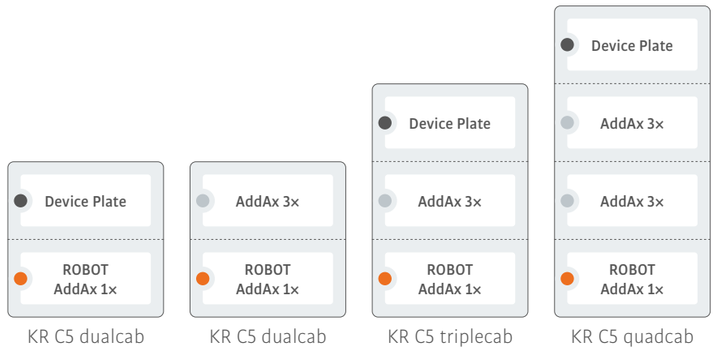
The reduced hardware and lower energy requirements offer more application options with maximum cost-effectiveness. And thanks to the interconnectivity of the open platform design, mere data is transformed into valuable information.

Compatibility. The current system software is functionally compatible with the KR C4 and has identical software applications and software technologies.

Low training requirements. The easy integration into control cabinets and the availability of service-proven system software enable a fast start-up.

Many control options. Diverse options and hardware expansion possibilities, e.g. various IO and communication options for a wide variety of system concepts.





The cabinets of the KR C5 are available in different sizes and can be equipped in a modular fashion.

click for more

Interfaces for input / output signals
16 input / output signals 24 V
Safe signals for cell safety
Safe signals for SafeOperation technologies
PROFInet / PROFIsafe
EthernetIP / CIP Safety
Expansion module EtherCAT Slave / FSoE
Expansion module PROFIbus Master / Slave
Expansion module DeviceNet Master / Slave
Integrated Ethernet switch

Supplied accessories
KUKA smartPAD
Plug pack

Controller options
Reserved installation space and device plate
US1 / US2 peripheral power supply
Various IO and communication options
Front panel interfaces
Various cabinet locks
Set of rollers
Cable holder
Fork slots
Exchangeable SSD mass storage medium
KUKA smartPAD cable reel
Transformer

Supported robot series
KR CYBERTECH nano
KR CYBERTECH nano ARC
KR CYBERTECH
KR CYBERTECH ARC
KR IONTEC
KR QUANTEC
KR FORTEC
KR 1000 titan
Palletizing robots

Technical data	
Infeed	380 – 480 V AC 3-phase (without transformer), 380 – 575 V AC 3-phase (with transformer)
Axes	6 robot axes, up to 6 additional external axes
CPU ARChitecture	Intel X86 (main CPU) + ARM (for safety functions)
Internal memory	60 GB (SSD M.2)
Dimensions (H × W × D)	dualcab 720 × 720 × 600 mm triplecab 960 × 720 × 600 mm quadcab 1,210 × 720 × 600 mm Controller 207 × 392 × 500 mm
Weight	dualcab approx. 83 kg triplecab approx. 107 kg quadcab approx. 131 kg Controller approx. 22 kg
Protection rating	IP 54 (for the cabinet)
Ambient temperature during operation	0 °C to +45 °C
Safety	ISO 10218-1 Robots and robotic devices, ISO 13849-1 Cat. 3 / Performance Level d
Certification	UL / CSA

KR C5 micro.
Small footprint with big-time performance.

Maximum performance, connectivity and flexibility in the smallest of spaces. This is the new KR C5 micro robot controller for small robots. The KR C5 controller generation from KUKA is programmed for the future. For instance, the KR C5 micro unites robot, PLC, motion and safety control in an ultra-compact housing of 16 liters.

Smaller, more flexible, smarter. Developed as an open and flexible platform with no compromises, the KR C5 micro represents the next quantum leap in robot control. Not only can the controller integrated seamlessly into existing automation landscapes, for example, but it can also easily take on KR C4 applications as a “functional twin”.

The wide range of technology products enables the quick and easy implementation of robot applications. The controller meets current field bus standards for cell and line integration via software options. At the same time, the KR C5 micro is equipped with the necessary hardware resources and flexible I/O ports in order to adapt quickly to future tasks and standards.

The KR C5 micro cabinet is the complete control cabinet solution in protection class IP 54 for the operation of KUKA small robots and also offers optional space for compact additional axis drives and further peripheral functions.

click for more

Ready for digital
- Seamless integration into OT, IT and cloud environments
- Ethernet and digital I/O interfaces, supports various cloud systems

Compatibility
- Simple integration into existing infrastructures
- Seamless integration into the KUKA robot portfolio
- Easy and intuitive to operate via KUKA smartPAD (KSS) and KUKA smartPAD pro (iiQKA.OS)

Low TCO
- Reduced energy consumption
- Minimized complexity
- Increased reliability

Ready for use worldwide
- Meets globally relevant ISO standards
- 25 languages available, including the most widely-spoken Asian languages

Features	Supplied accessories	Supported robot series
Drive axes (6 axes)	KUKA smartPAD	KR CYBERTECH nano
Embedded computer with safety controller	External battery box	KR AGILUS
Ethernet interfaces	Plug pack	KR DELTA
Digital I/O interfaces	Mounting brackets	KR SCARA
Discrete safety signals	Power supply lead	LBR iisy
Active cooling		

Technical data	
Infeed	200 V – 240 V AC, 1-phase 50 Hz – 60 Hz, 2-phase
Axes	6 axes / 3 × 12 A + 3 × 5 A
CPU ARChitecture	Intel X86 (main CPU) + ARM (for safety functions)
Internal memory	60 GB (SSD M.2)
Dimensions (L × W × H)	392 × 300 × 134 mm (without attachments and without bases)
Weight	9.8 kg
Protection rating	IP 20
Wide range of line integration options	Digital I/O: 16 inputs / 16 outputs (pnp or npn) EtherCAT (KUKA Extension Bus) PROFINET + PROFIsafe EthernetIP +CIP Safety EtherCAT slave + FSoE (via external gateway)
Ambient temperature during operation	0 °C to +45 °C
Safety	ISO 10218-1 Robots and robotic devices, ISO 13849-1 Cat. 3 / Performance Level d
Certification	UL / CSA

KUKA smartPAD.
A firm grip on all tasks.

Simple programming with the KUKA smartPAD. Whether you're a novice or programming expert, the KUKA smartPAD will help you achieve your goal quickly. It offers the suitable programming options for every requirement. This single control panel enables you to perform the most varied of tasks.

Incredibly efficient: programming with inline forms. KSS-based KUKA robot controllers offer inline forms for fast, error-free programming of tasks and motion steps. They can be called via menus and are available as standard. This even simplifies the programming of RoboTeams, with up to six synchronized robots.

Customer-defined program modules. KUKA integrators can expand the library of available KUKA inline forms according to customer requirements. This leads to the creation of special applications which can easily be programmed for recurring tasks. A competitive advantage for system integrators: specially developed inline forms allow for unique solutions, optimally tailored to the requirements of the companies which use them.

KUKA smartPAD cable reel – simple, flexible, safe. With the KUKA smartPAD cable reel, KUKA offers a functional retraction system for the KUKA smartPAD connecting cable. The system convinces through its easy handling and installation while also ensuring a safe work environment.

Universally deployable in the KUKA world. All KUKA robots running on KSS and Sunrise.OS can be operated in the desired language with the KUKA smartPAD.

Comfortable handling. Straps and handgrips that can be used with both hands greatly ease operator control. An optional shoulder strap enables the operator to work without tiring – particularly during time-intensive projects.

Simple robot jogging with ergonomic 6D mouse. The 6D mouse offers intuitive jogging and reorientation of the robot in three or six degrees of freedom.

Eight jog keys. Up to eight axes or external axes can be controlled directly using separate jog keys on the KUKA smartPAD with no switching required.

Integrated protectors. Integrated protectors offer the greatest possible protection in the event of dropping. The scratch-resistant display and IP54 protection rating enable operation in harsh industrial environments.

Simple data transmission. Two easily accessible USB ports enable direct saving and loading of application programs and connection of other supported USB devices.

Efficient operator control. Inputs are made quickly and easily via a brilliant, capacitive touch display with an 8.4" screen and high luminosity.

Maintenance-friendly design. A service flap enables simple exchange of the cable as required.

click for more

Integrated protectors. This provides the KUKA smartPAD with maximum protection in the event of dropping. The scratch-resistant display and IP54 protection rating enable operation in harsh industrial environments.

Comfortable, relaxed handling. The KUKA smartPAD features impressively pleasant handling. Straps and handgrips that can be used with both hands greatly ease operator control. An optional shoulder strap enables the operator to work without tiring – particularly during time-intensive projects.

State-of-the-art hardware. Thanks to the latest hardware, the KUKA smartPAD will impress you with its strong performance. Two easily accessible USB ports enable direct saving and loading of application programs and connection of other supported USB devices.

Simple robot jogging with the ergonomic 6D mouse. It offers intuitive jogging and reorientation of the robot in three or six degrees of freedom.

Efficient operator control with brilliant, capacitive touch display. Input can be made quickly and easily via the 8.4" screen.

Elements for ergonomic left- and right-handed operation. The user-friendliness of the KUKA smartPAD is topped off with a service flap for easy cable exchange.

KUKA smartPAD	
Display	Scratch-resistant industrial touch display
Display size	8.4"
Dimensions (L × W × H)	292 × 247 × 63 mm
Weight	1,100 g

KUKA smartPAD pro.
The intuitive iiQKA interface.

KUKA smartPAD pro. The future is in your hands. With the KUKA smartPAD pro and the new iiQKA.OS operating system, KUKA is revolutionizing robot control – simply and intuitively.

One teach pendant for all. The ergonomic KUKA smartPAD pro gets your robots moving. With this iiQKA interface, you can operate all KUKA products that run with iiQKA.OS.

In conjunction with the new iiQKA.OS operating system, the next-generation teach pendant delivers precise results and virtually unlimited application possibilities. Thanks to its intuitive handling, even complex tasks can be implemented quickly – without programming knowledge.

click for more

Flexible. One teach pendant for all: with a variety of expansion options for even more functionalities of the KUKA smartPAD pro.

Robust. Designed for use in industrial environments: scratch-resistant display, protected against falls from up to 1.5 meters and certified to IP54.

Versatile. Equipped with a 10.1-inch touch screen that can be operated while wearing gloves, with 5 MP camera and 6D mouse and a variety of ports and interfaces.

Ergonomic. Designed for fatigue-free use, even in prolonged operation, and with intuitive user interface.

	KUKA smartPAD pro
Dimensions	320×220×125 mm
Weight	1.4 kg
Protection class	IP54
Interfaces	1× USB-C
Display	Capacitive, operation with finger, pen, gloves
Display dimensions	10.1", 1280×800 px
Ambient temperature operation	from -5°C to 45°C

_Robot controller

KUKA.Handguiding with ready2_pilot.
Guide your production to success.

click for more

Teaching instead of programming. Robot handling is easier than ever. As the world's first control package of its type, KUKA.ready2_pilot makes robot control mere child's play. The package is quickly mounted on the robot and can be used immediately, without complex programming. Manual guidance of the robot is all that is required to teach it the desired sequences. From precise welding to rough palletization, and from small robots such as the KUKA KR AGILUS to heavy-duty giants such as the KUKA KR 1000 titan, KUKA.ready2_pilot enables you to easily master a wide range of different requirements.

Intuitive, reorienting 6D mouse. Operation of KUKA.ready2_pilot is child's play and is carried out using an intuitive 6D mouse with no training required. Fastened with adapter plates, this mouse can be used from different positions, always within the user's reach.

Freedom of motion to the right degree. Move the robot exclusively on the desired paths by simply deactivating directions that are not required. This prevents unintentional slipping during motion and saves time-consuming corrections.

Connectivity and flexibility. The wireless concept of KUKA.ready2_pilot is compatible with all standard KUKA robots and offers maximum freedom for operator control.

Adaptable navigation buttons. Two buttons on the side of the 6D mouse enable quick access to freely selectable functions. From opening and closing a gripper to adjusting process parameters or saving motions in the robot program – a simple click suffices and saves precious time.

_Application software

Supremely equipped for all tasks. Application software for successful robotic automation.

The software options are tailored to the most common robot applications – each application is easy to program, ensuring high process reliability. The optional features can be installed on the controller easily and quickly and can also be tailored to the specific production environments.

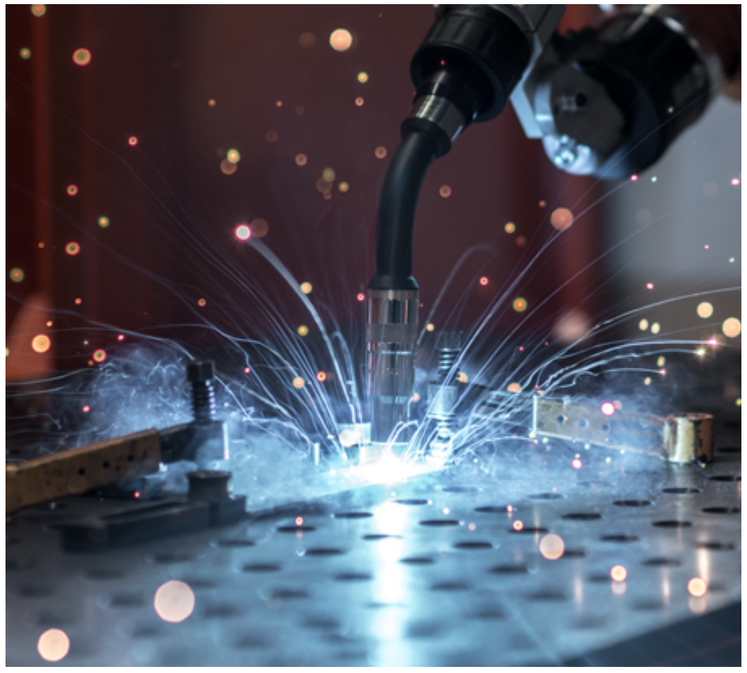
KUKA.ArcTech
KUKA.SeamTech
KUKA.TouchSense
KUKA.Tracc TCP
KUKA.LaserTech
KUKA.ForceTorqueControl
KUKA.VisonTech
KUKA.CNC
KUKA.Gripper&SpotTech
KUKA.PalletTech
KUKA.PickControl
KUKA.SmartBinPicking
KUKA.EqualizingTech
KUKA.RoboSpin
KUKA.ServoGun
KUKA.ProcessScreen
KUKA.HMI
KUKA.ConveyorTech

KUKA.ArcTech. For automated arc welding with easy programming and fast operation.

The KUKA.ArcTech family adds intuitive commands, structured menus and practical status keys to a KUKA robot system for robotic ARC welding.

With our application packages for ARC welding, KUKA offers a wide range of functions enabling easy operation of ARC welding processes as well as efficient and fast programming. Preconfigured libraries ensure high compatibility with all power sources commonly available on the market and enable uncomplicated integration into the production facility. By mirroring the integrated EasyTeach status keys to the KUKA. ready2_pilot keys of the 6D mouse, welding technology commands can be programmed without taking your eyes off the weld seam.

Areas of application: additive manufacturing, 3D printing, ARC welding, other welding



Easy start-up and programming for fast start-up time
- Simple and fast configuration based on predefined weld power sources
- Fast programming with inline forms – accessible via the “EasyTeach” row of keys

Flexibility and a wide range of applications
- Large number of predefined weld power sources as well as the possibility of integrating any weld power source via customized configuration
- Various weave patterns enable easy and flexible implementation of a wide range of different welding tasks
- Individual enabling of additional functions opens up the possibility of perfect adaptation of the parameters to the required process

Assures performance and welding quality
- Optimization of the welding process while an application is running via online modification of the weld parameters
- User-defined “weld parameter sets” – defined in advance by welding experts – prevent operator errors by limiting the permissible range of values during programming and operation
- Display of important weld parameters from the power source on the KUKA smartPAD – no need to look at the welding source or go into the cell to monitor all system parameters
- Easy fault diagnosis through continuous logging of process data with the ‘ArcTech Technology LogBook’ in WorkVisual
- Avoidance of quality problems through continuous monitoring of the correct weld-seam length
- Predefined strategies for responding to typical welding errors

KUKA.SeamTech. For operating line laser sensors for seam detection and tracking purposes.

The KUKA.SeamTech Tracking and KUKA.SeamTech Finding application software can be optionally added to the KR C5 robot controller. With the aid of an intelligent triangulation sensor, the robot can use KUKA.SeamTech Finding to detect components and seams prior to welding and use KUKA.SeamTech Tracking to track edges and seams during the welding process.

Areas of application: additive manufacturing, 3D printing, ARC welding, adhesive bonding, sealing, laser welding and cutting, measuring and inspection

Smooth communication between sensor and controller. KUKA.SeamTech Finding and Tracking are options for controlling and programming intelligent triangulation sensors via Ethernet – SeamTech Tracking even makes use of a powerful real-time protocol.

Programming made easy with KUKA programming aids. The application programming of robot sensor commands is carried out as usual with clear inline forms that can be programmed quickly. Status keys which enable robot and sensor functions to be operated quickly also support this process.

Flexibly combinable technology packages. KUKA.SeamTech Finding and Tracking are independent technology packages that can be combined with other options, for example with ArcTech Basic, ArcTech Advanced, LaserTech or GlueTech.

KUKA.TouchSense. Deviations in shape or position of workpieces are reliably detected and compensated.

KUKA.TouchSense is an option package that determines and compensates for deviations in the shape or position of weld seam preparations and workpieces by means of comparative measurements prior to welding. The application software is normally used for ARC welding tasks.

The component position can be determined by tactile or non-contact methods. Any deviations that occur can be compensated in up to six dimensions. Combining this with fast measurement input enables a higher search velocity and more precise measurement results.

Highly precise measurement results. Very precise position data can be determined using fast measurement input.

Custom-tailored correction calculation. Fast and custom-tailored application programming through preconfigured correction commands.

Programming made easy with KUKA programming aids. The application programming of robot sensor commands is carried out as usual with clear inline forms that can be programmed quickly. Status keys which enable speedy operator control during start-up and maintenance also support this process.

Areas of application: ARC welding, other welding

KUKA.Tracc TCP. Robots automatically monitor and update the TCP in production operation.

KUKA.Tracc TCP is a highly precise software- and hardware-based TCP (Tool Center Point) calibration and checking system. KUKA.Tracc TCP is normally used for spot welding, ARC welding and adhesive application tasks.

The option package determines the actual TCP values (X, Y, Z) and thus ensures correct positioning on the workpiece. This safeguards productivity and process reliability, which can be impaired by welding torch deformation or the production-related tolerances of wearing parts, among other things. KUKA.Tracc TCP requires a fork-type photo-electric barrier and a connecting cable.

Areas of application: additive manufacturing, 3D printing, palletizing, painting, ARC welding, adhesive bonding, sealing, other welding

Highly precise measurement results. Very precise TCP position data is determined via the unique measuring algorithm.

Full system integration. The measuring system includes a comprehensive interface to the higher-level controller.

Transparent measurement results. The measurement results are saved and depicted graphically over time.

KUKA.LaserTech. Easy to program and quick to implement laser welding and laser cutting.

KUKA.LaserTech is an add-on option package for configuring and programming laser applications – for example, for laser cutting or laser welding.

KUKA.LaserTech enables the integration of laser controllers and other devices of the application periphery, e.g. gas valves, consumables (welding wire, welding powder) and optics, into the robot controller.

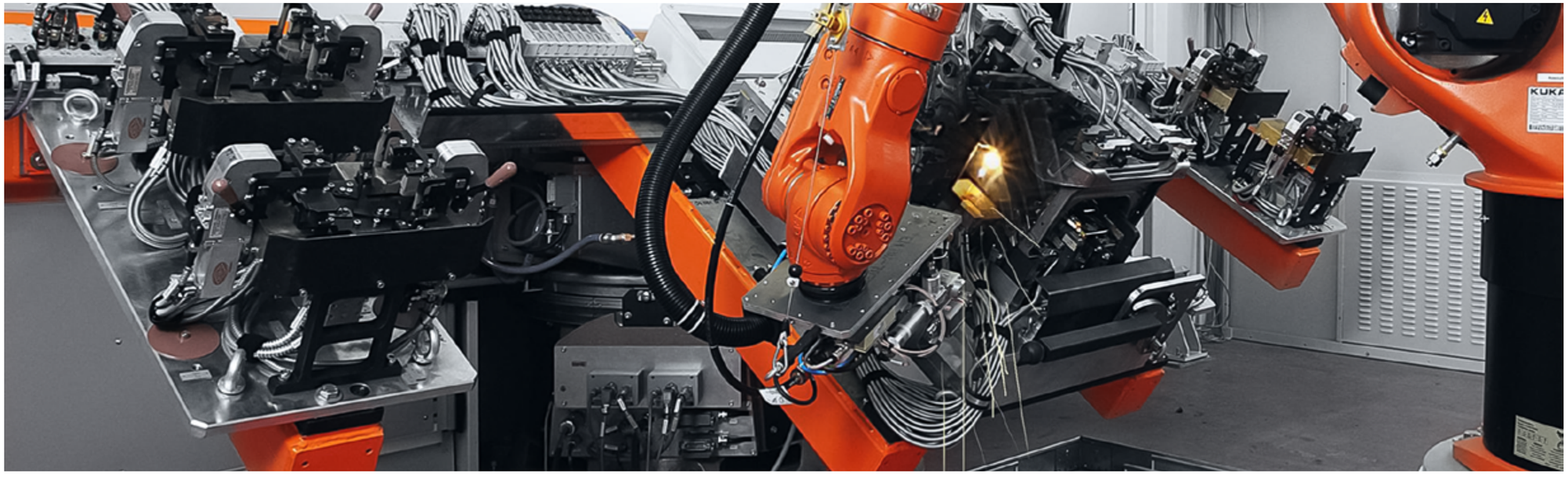
Areas of application: additive manufacturing, 3D printing, cutting, deburring, laser welding and laser cutting

Flexibility
- One software package for various laser applications, for example, welding, cutting, brazing or soldering
- Close cooperation with partners to integrate processing optics, for example, Solid Cutter from Precitec
- Interfacing of laser equipment possible, using various field buses
- Combinable with other KUKA software packages such as KUKA.SeamTech for straightforward integration of sensor systems, seam tracking and component detection

Quality
- Control of the laser power proportional to the velocity
- Support for extremely precise motion sequences
- Time and distance-based slopes for laser power

User-friendly design
- Quick and simple programming of process commands using the KUKA standard inline forms
- All process-relevant parameters (laser, wire, gas, etc.) can be controlled via the robot
- Quick access to important functions using icon status keys

Productivity
- Access to the laser can be switched between several robots very quickly in order to optimize utilization of the laser source
- Numerous functions to facilitate programming – for example, the step seam function, ready-made geometries and wire cutting function



KUKA.ForceTorqueControl.
Allows the use of a force/torque sensor.

The KUKA.ForceTorqueControl option package allows the use of a force/torque sensor on the robot for implementing special applications in which the robot has to apply defined forces and torques or modify its behavior on the basis of the forces and torques that occur.

Areas of application: assembly, deburring, machining and polishing, riveting, clinching, fastening, grinding, polishing, screw-driving

Integration
- Intuitive programming interface for creating force-controlled tasks: KUKA.ForceTorqueControl wizard + inline forms
- Graphic representation of the process: forces, torques, detected paths and angles via FTCtrl – RSI monitoring function
- Sensor connection possible via Ethernet (KLI and KONI) and RSI inputs and outputs

Performance
- Best control performance in its class: KUKA.ForceTorqueControl processes within 4 milliseconds
- Distinction between gravity and applied forces and torques: integrated gravitational force compensation
- Implementation of assembly in motion tasks: combinable with KUKA.ConveyorTech

Flexibility
- Expert programming for the implementation of sophisticated applications: FTCtrl jobs customizable and expandable through RSI Visual

KUKA.VisionTech. Powerful 2D object, code and OCR recognition with integrated quality control.

With the high-quality camera in its IP 67 housing, object recognition allows flexible robot operation, even in unstructured environments. Code recognition simplifies the traceability of your products and is able to safeguard quality and reduce costs in the long term due to automatic checks.

Cost-effective and robust
- Only camera required, no additional image processing hardware needed as image processing is handled by the KUKA controller
- Flexible software platform to upgrade the system over time without new hardware
- Fewer parts lead to longer operating time
- Works with any KUKA robot

Reliable and powerful flexibility
- The industry-leading COGNEX library provides powerful and robust algorithms
- Detects a large number of parts with a high degree of reliability

Less effort for integration
- Wizard-supported programming in WorkVisual
- Easy-to-use technology package installed via WorkVisual
- Workshop settings during start-up and operation can be made on the KUKA smartPAD
- Wizard-supported calibration on the KUKA smartPAD
- Web server-based image viewer during production operation

_CNC Processing series

KUKA.CNC. Enables you to operate your robots as with a CNC controller.

With KUKA.CNC, an NC controller kernel has been completely integrated on a KR C5, making it possible to process NC programs (G-code) directly on the KUKA KR C5 controller.

Areas of application: additive manufacturing, 3D printing, drilling, cutting, deburring, grinding, polishing

Ready for immediate use. NC programs that have been programmed offline using a CAD/CAM system can be processed and executed with the robot without prior conversion to KRL (KUKA Robot Language).

In addition to the CNC kernel, KUKA.CNC offers a dedicated CNC-specific user interface. The CNC user interface "CNC-HMI" (CNC operator control) is thus available on the KUKA smartPAD alongside the KRL user interface "smartHMI" (KRL operator control).

Intuitive operator control and far greater precision. The KUKA.CNC user interface incorporates typical operator control elements of a CNC controller, enabling machine operators with experience of CNC machine tools to start operating the CNC robot quickly and easily. The CNC control now makes it possible to process even large programs consisting of a large number of program blocks.

Programs with up to one million path points have been successfully processed. The short distances between the individual CNC path points, together with advance path planning with a range of 150 path points, result in substantial improvements in the path accuracy and continuous-path performance of a KUKA.CNC robot.

Familiar user interface for fast programming. KUKA robots perform machining tasks like machine tools – and can be programmed like them too in G-code (DIN 66025) thanks to the KUKA.CNC user interface. Users understand them straight away, can create programs using a CAD/CAM process chain and, after simulation, execute them on the robot without having to compile them into the robot language. Already included: tool radius correction, sister tools and many other familiar CNC functions.

_Handling series

KUKA.Gripper&SpotTech. Simple control for grippers and pneumatic spot weld guns.

KUKA.GripperSpotTech is an add-on technology package for the configuration, control and programming of up to 32 grippers for industrial applications. For each gripper, up to 16 switching states can be defined, and multiple signals can be used. Up to 512 input signals and 512 output signals can be defined.

Areas of application: handling, resistance spot welding

Advantages
- 32 freely configurable grippers
- 256 configurable welding programs
- Gripper conditions statically and dynamically monitored
- Unlimited user-defined gripper icons
- Freely programmable error handling routines
- Graphic user interface with indicator lamps, status display and online adaptation
- Adaptation via WorkVisual and, for production-relevant elements, on the KUKA smartPAD

KUKA.PalletTech. Allows easy configuration of complex palletizing tasks.

KUKA.PalletTech is an add-on option package that can be used for the simple implementation of palletizing applications. KUKA.PalletTech supports so-called mono-palletizing, i.e. the unmixed palletizing of products on pallets using a robot in a palletizing cell. KUKA.PalletTech takes into consideration all major cell components of a palletizing cell, such as infeed and outfeed stations, grippers, pallets, products and slipsheets.

Quick configuration of cell components. The PalletTech editor in KUKA.WorkVisual ensures guided and complete configuration of cell components such as grippers, infeed stations and outfeed stations.

Simple definition and modification of palletizing tasks. The layers and items on a pallet as well as their patterns can be configured and modified in a user-friendly manner. Modification, in particular, is possible without advanced software knowledge.

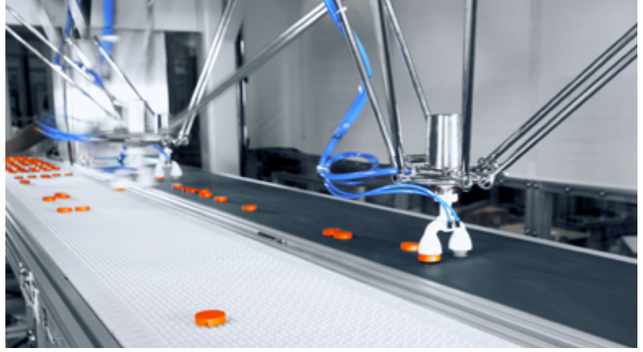
Maximum system availability. The available error strategies and monitoring functions minimize downtimes during operation.

Custom adaptability to meet specific requirements. The automatically generated robot programs offer entry points for flexible expansion of the program code.

Areas of application: palletizing / packaging / pressing / pick & place / handling / material transport

_Handling series

KUKA.PickControl. Simply package more productively by coordinating multiple robots.



PickControl is an add-on option package for control, management and monitoring of pick & place systems. PickControl can be used to pick up parts quickly using one or more robots and place them in an organized manner, no matter what orientation the parts have or what position they are in. The size and shape of the parts can vary. The work area can be a fixed work area (e.g. a fixed location) or a moving work area (e.g. a conveyor).

Areas of application: handling, material transport, pick & place

Complete package with hardware and software. KUKA supplies you with everything you need for the automation of pick & pack tasks. From the hardware, such as cameras and lenses, to standardized cabling and software solutions.

Integrated KUKA.WorkVisual simulation tool. The KUKA.WorkVisual engineering suite enables you to design and configure your system. Even if you use an industrial PC for your image processing. Configuration interfaces and runtime are strictly separated from one another.

Fast start-up with wizard. A wizard helps you with programming by providing step-by-step start-up assistance: Among other things, this helps you to avoid errors and save time when calibrating conveyors or image processing systems.

Scalability. The processing power is insufficient? No problem: KUKA.PickControl is scalable. If required, you can simply offload the processing power to one or more industrial computers to increase your capacity.

KUKA.SmartBinPicking. Unsorted parts no longer pose a challenge.

KUKA.SmartBinPicking. With the intelligent software expansion KUKA.SmartBinPicking, even objects lying loose in containers can be gripped and moved quickly and easily. The system uses a 3D environment for visualization. Motions are determined on the basis of a powerful library.

Less downtime. Collision-free path planning incorporating the entire structure of robot, gripper, and environment avoids downtime.

Suitable for beginners. The simple workflow enables the implementation of bin-picking solutions even for beginners. As user, you can create your project flexibly.

Low integration effort. Integration at the partner company requires little effort, thanks to predefined and compatible components.

Automatic path planning. The robot path is planned by SmartPathPlanning without singularity and collision in a highly efficient way to empty the box as fast as possible, thanks to the bin-picking application.

Easy import from KUKA.SIM. Direct connection to configuration UIs via WorkVisual allows easy import of the KUKA.SIM model to activate SmartPathPlanning.

Optimized object recognition. Workpiece recognition using artificial intelligence enables optimized recognition even in difficult scenarios.

_Spot Welding series

KUKA.EqualizingTech. Compensates servo spot-welding guns through motions of the robot.

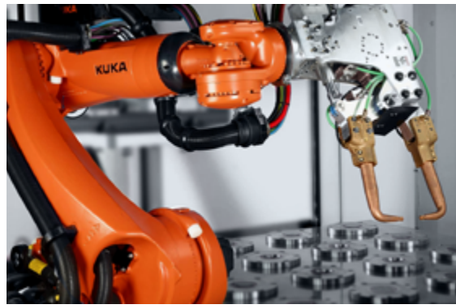
KUKA.EqualizingTech is an add-on option package for KUKA.ServoGunBasic and KUKA.ServoGunAdvanced. It enables the robot to compensate for incorrect positioning of workpieces.

Maintenance and costs. The complicated commissioning required for pneumatic compensation systems can be eliminated through use of the application software. The elimination of conventional components in the compensation system through KUKA.EqualizingTech also saves you investment costs and reduces maintenance requirements.

No additional elements required. Thanks to the KUKA.EqualizingTech software, additional components (such as linear bearings, support brackets or valves, pressure reducers and hoses) can be dispensed with. Sensors, electrical control systems and a compressed air infrastructure are also no longer required.

Weight reduction. The use of KUKA.EqualizingTech substantially reduces the overall weight (compared to conventional spot weld guns) by 10 to 15 percent.

Areas of application: resistance spot welding



KUKA.RoboSpin. Better welding due to rotary motion.

KUKA.RoboSpin is an add-on option package for KUKA.ServoGun Basic and KUKA.ServoGun Advanced.

KUKA.RoboSpin makes it possible to execute a spin motion about the TCP. The spin improves the weld quality and reduces the tip wear due to tip dressing. It can be executed during or after welding. If RoboSpin is installed on the robot controller, backward motion is not possible.

Areas of application: resistance spot welding

Higher weld quality. By having the robot rotate the electrode tips during the process, you improve the weld quality. In addition, KUKA.RoboSpin is easily able to handle sheet metal joints that are difficult to weld, as well as coated panels.

Efficient operation. The improved welding process protects the tip against wear due to tip dressing, resulting in a longer tip life.

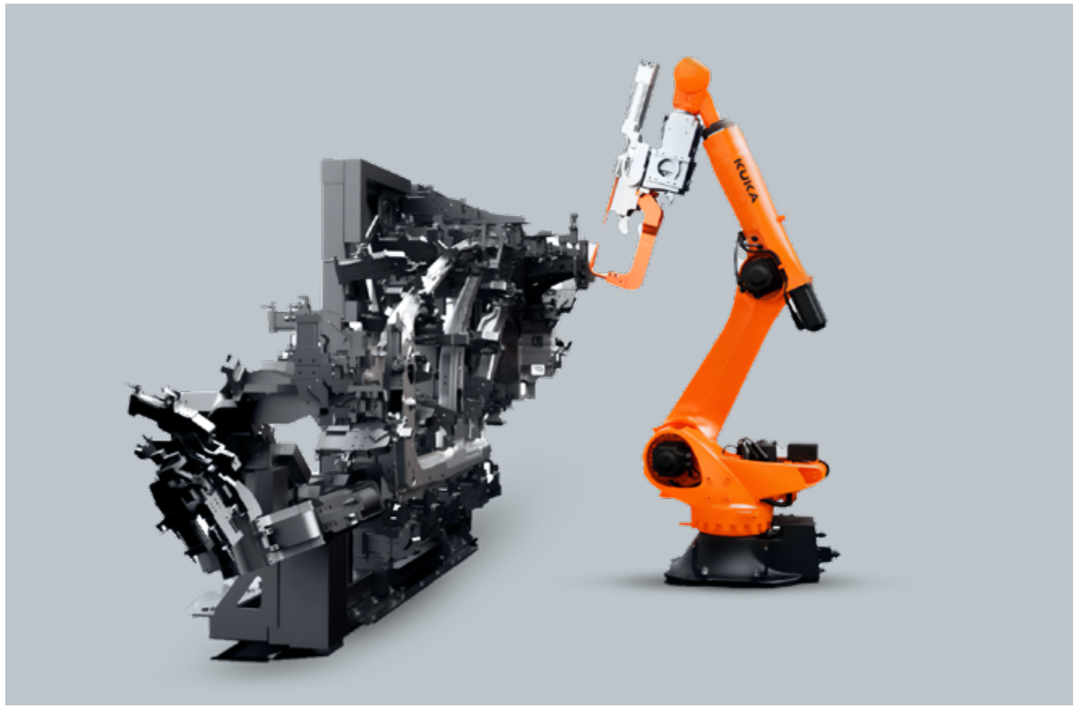
_Spot Welding series

KUKA.ServoGun. Enables electric control of spot welding guns.

The KUKA.ServoGun software technology package is a software option for controlling spot welding guns with an electric servomotor. It enables you to use the external axes of the robot controller to control the servo gun.

Two technology variants are available in the KUKA.ServoGun technology package: One is KUKA.ServoGun Advanced for use with a force sensor installed on the welding gun, and the other is KUKA.ServoGunBasic, in which electric servomotors are used after force calibration by the robot controller. The two variants therefore cover different applications.

Areas of application: resistance spot welding



Easy installation. KUKA.ServoGun is easy to configure thanks to its start-up wizard. Status keys make operating the basic functions very straightforward. Thanks to the detailed acceptance documentation, you can improve diagnosis and logging after start-up.

Flexible application. With KUKA.ServoGun, you can use any servomotors on the market that are compatible with KUKA controllers. An integrated operator control concept makes it possible to use inline forms for all applications. In addition, the software provides freely configurable weld timer interfaces and numerous expansion options. The effective welding gun force is independent of gravitational force, age and temperature.

Efficient calibration. The software allows for automatic force calibration using an external, controller-supported force sensor which is operated via the standard interface of the mastering sensor. In addition, background processes such as robot handling provide greater process efficiency during stationary tip dressing.

Precise compensation. Thanks to the new force control mechanism, you achieve greater force accuracy with KUKA.ServoGun. This ensures a higher level of quality, precision and resistance to external influences.

Economical. For KUKA.ServoGun Advanced, external force external force sensors can now also be used in accordance KUKA specification can now also be used.

_Process Monitoring series

KUKA.ProcessScreen. Visualize, monitor and document comprehensively in real time.

The KUKA.ProcessScreen process – monitoring software enables overall and component-oriented documentation, evaluation and analysis of your production data – particularly for continuous-path processes, but also for point-to-point processes.

Through comparison with individually configurable limit values, the software can detect any violation of these limits and thus allows you to keep an eye on the quality of your production. The results are available in tabular and graphic overviews at the touch of a button.

Areas of application: additive manufacturing, 3D printing, application / painting / bonding, ARC welding, adhesive bonding, sealing, laser welding and cutting, measuring and inspection, other welding (grinding, polishing, spot welding)

Simple operation
- Freely configurable for various applications
- One software package for the entire production process
- Reduced training requirements

Scalability
- Easy expansion to further processes: ARC welding, laser welding, laser cutting, adhesive bonding, CNC

Increased quality
- Direct feedback from the manufacturing process
- Data-driven analysis
- Efficient process optimization
- Optimal troubleshooting

Web-based software
- Visualization on any end device
- All important data at a glance
- Local storage of process data
- Transfer of data to distributed customer networks possible

KUKA.HMI. Makes communication between humans and machines easier and more efficient than ever.

The KUKA.HMI product family offers perfectly tailored software solutions for operating, controlling and monitoring robots in industrial production. Depending on requirements, the KUKA.HMI easy and KUKA.HMI zenon variants allow you to quickly convert the generic user interface on the KUKA smartPAD to a customized appearance that is optimally adapted to the user's needs and can be used with no training required. Compatibility with the KR C5 robot controller makes KUKA.HMI the ideal visualization software for individual industrial robots as well as for complex robot cells.

Productivity & safety
- Visualization of current and target status as well as provision of guided work instructions via HMI (e.g. for start-up & tool change)
- Quick overview of frequently used KPIs for process control
- Interaction between KRL programs and HMI possible – control and querying of HMI views with KRL
- Targeted fault diagnosis through fault visualization via HMI

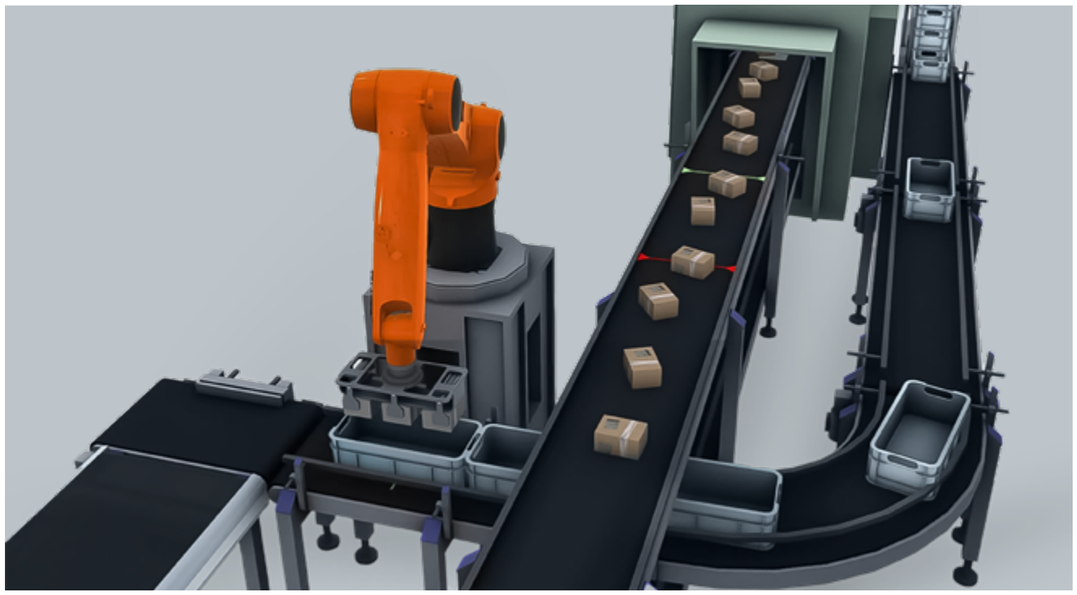
Efficiency & convenience
- "What you see is what you get" editor in WorkVisual
- Simple configuration using drag & drop function
- No programming knowledge required
- Multilingual user interfaces

Cost-effectiveness
- No additional editor required
- Compared to HMI.Zenon – cost savings of up to 85 % per robot

KUKA.ConveyorTech. Organizes the coordination of robot actions and conveyor motions.

The KUKA.ConveyorTech option package is designed as a solution for applications that require synchronization between the robot motion and the motion of workpieces through a conveyor system. Through synchronization, the robot can process, grip or set workpieces down on the conveyor system. The position of the workpiece on the conveyor system and the motion of the conveyor system must be clearly known for this purpose. Conveyors of various designs or mobile platforms can be used as conveyor systems.

Areas of application: handling, material transport



Shorter cycle times. The robot uses the KUKA.ConveyorTech software in the background to synchronize with the conveyor motion. This means that it is not necessary to stop the conveyor during the production process. The new motion command DynamicLIN makes it possible to optimize the velocity of the robot for linear motion.

Synchronization "on the fly". When changing from a non-synchronized to a synchronized program section, the software independently calculates the motion to be synchronized with the conveyor. As the conveyor runs continuously, the entire production process is thus more flexible. Robot and conveyor can be stopped synchronously in case of a stop request (e.g. Emergency Stop).

Greater flexibility. The KUKA.ConveyorTech technology package will impress you with its high precision which means that it can also be used flexibly in assembly processes. External axes (linear units) can be coupled to the conveyor progress (EO driver), with the result that the robot can work longer parallel to the conveyor. The "External conveyor" option offers the possibility of transferring the position and workpiece information from a linear conveyor or even AGVs (6D) via a PLC.

_System expansions

Here’s to great cooperation. Software packages for the cooperation of machine, human and robot.

Base technologies can be used with any KUKA robot – irrespective of the payload, variant or application. Be it software for sensor communication, for the intelligent networking of robots or for enabling safe human-machine interaction: KUKA base technologies boost the flexibility and competitiveness of your production operations.

KUKA.UserTech
KUKA.PLC mxAutomation

KUKA.SafeOperation
KUKA.RoboTeam

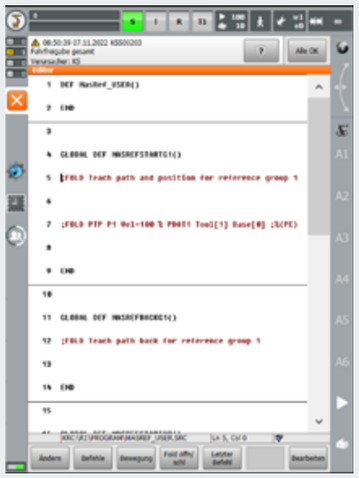
KUKA.UserTech.
Intuitive robot control directly on the KUKA smartPAD.

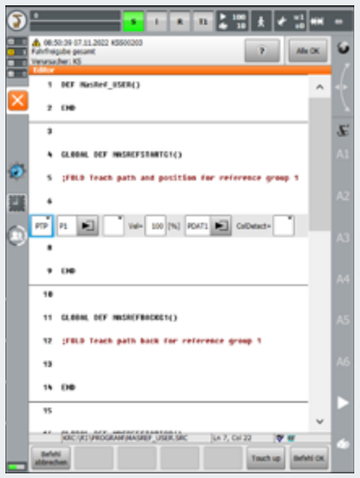
With KUKA.UserTech, your application can be implemented on the robot controller with maximum ease. It allows you to use your own application commands without the need for expert programming skills.

KUKA.UserTech is a system extension that is installed on KSS-based robot controllers. Be it for setting up automated robot applications, for manual intervention to teach new component positions or for maintenance work – robot control is made much easier by KUKA.UserTech via inline forms and status keys.

The setup of the inline forms and status keys is quick and intuitive thanks to the greatly improved interface. Here, a new editor is used, which offers the possibility to use own commands with usual comfortable inline forms on the control. Any inconsistent entries are immediately detected and prevented by the system.

Status keys and scripted actions can be freely selected and configured. All commands created can be grouped together in optional packages, saved and thus also used for other robots. With the editor of the KUKA.UserTech interface, not only can existing application commands be used, but new functions can also be created quickly or commands can be provided with variables. KUKA.UserTech can be installed on all KUKA robot controllers from KR C5 upwards.





The advantages of KUKA.UserTech

Less training. KUKA.UserTech makes it easier to create your own robot applications and reduces the risk of operating errors.

Quicker process. Status keys and scripted actions can be used directly on the KUKA smartPAD to integrate common applications into the robot controller.

A better overview. Individually configurable technology commands allow an easier overview and improve user-friendliness.

Functions of KUKA.UserTech

- Creation of own inline forms
- Messages and buttons
- Status keys
- Scripts for own inline forms and status keys

click for more

KUKA.PLC mxAutomation. The convenient, universal interface makes KUKA robots extremely easy to operate.

Operate robot-based production machines independently of the controller. With the KUKA.PLC mxAutomation control software, external controllers can command KUKA robots with all basic motion commands. This provides an easy route to implementing a central, customer-friendly operator control concept for robot-controlled production machines. The outstanding kinematic and safety-relevant functions of the KUKA controller are still available. This is because the mxAutomation command interpreter of the robot controller communicates the commands to the path-planning system, which sets the robot in motion with the usual precision and reliability.

Simple programming. With KUKA.PLC mxAutomation, the user requires minimal knowledge of robot programming. The mxAutomation function blocks allow the KUKA robot to be commanded within the familiar programming environment.

High flexibility. If the requirements in production are changed, the appropriate modifications or expansions can be implemented at any time with mxAutomation-based operator control. The flexibility made possible by using robots with regard to processing new series of parts or performing additional tasks is made available for the operator in his usual environment.

Certified in accordance with PLCopen. KUKA is the first robot manufacturer to meet the requirements of the PLC Open organization with KUKA.PLC mxAutomation software and is thus certified in accordance with “PLCopen Motion Control Part 4”. Access functions predefined by KUKA are available to the customer.

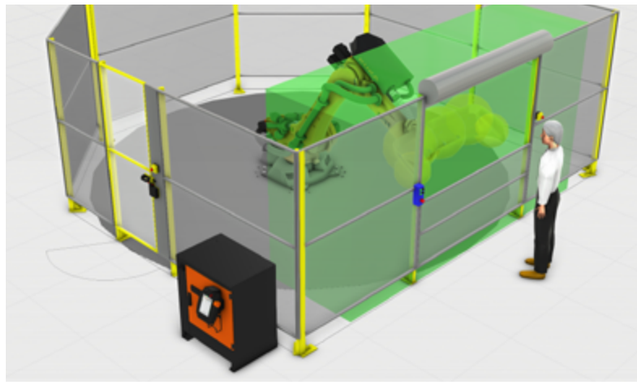
Picking up moving workpieces. Connecting KUKA.PLC mxAutomation to KUKA.ConveyorTech enables robots to pick up moving workpieces. The motions of the robot are adapted by the application software to those of assembly lines and conveyors. Using KUKA.VectorMove enables the robot to be switched vectorially to “soft” mode in order to facilitate the removal of components from injection molding machines and die-casting machines.

Simple control. The combination of robot and machine control by means of KUKA.PLC mxAutomation enables KUKA robots to be integrated effortlessly into existing operator control concepts. The robot can therefore also be controlled via the customary human-machine interface. Teach pendants for the machine can be used for setting the robot as well, provided appropriate safety precautions are implemented. A good integration example in this context is the incorporation of KUKA robots into the Sinumerik/Simatic world on the basis of mxAutomation, as offered by Siemens®.

KUKA.SafeOperation. Safe human-robot collaboration.

You want to produce quickly, safely and in a space-saving manner? The KUKA.SafeOperation software supports human-robot collaboration in every respect.

KUKA.SafeOperation combines the latest safety-relevant software and hardware components. You can simultaneously define and monitor the workspaces and protected spaces. In this way, you can dispense with mechanical monitoring of the workspaces. Moreover, you reduce the cycle times. KUKA.SafeOperation supports safe and efficient cooperation by means of human-robot collaboration (HRC). Safe operational stop can be used in manual loading stations, for example, to reduce the distance to the operator.

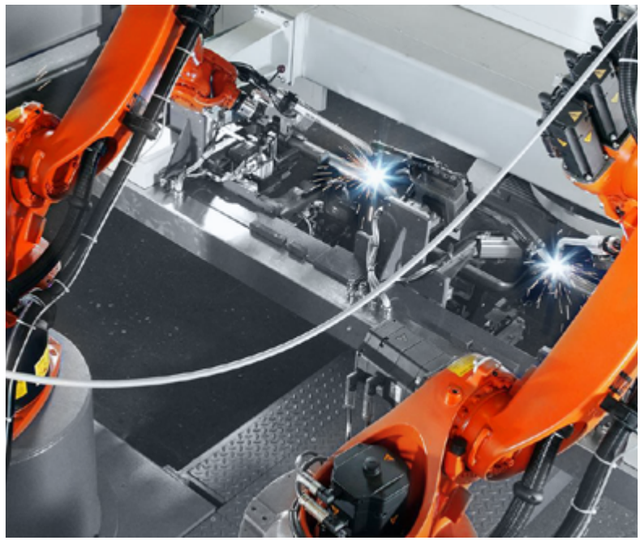


Monitoring spaces with KUKA.SafeOperation. The focus is on safety. The software package provides up to 16 monitoring spaces and a fixed cell area for safe reduction of the theoretical workspace – the definition of these monitoring spaces determines the response of the robot.

Each area can be defined individually. Choose between Cartesian and axis-specific definition. A further distinction is made between these types of space:

- Workspace
- Protected space
- Alarm protected space (non-stopping)
- Alarm workspace (non-stopping)
- Cell area (non-switchable)

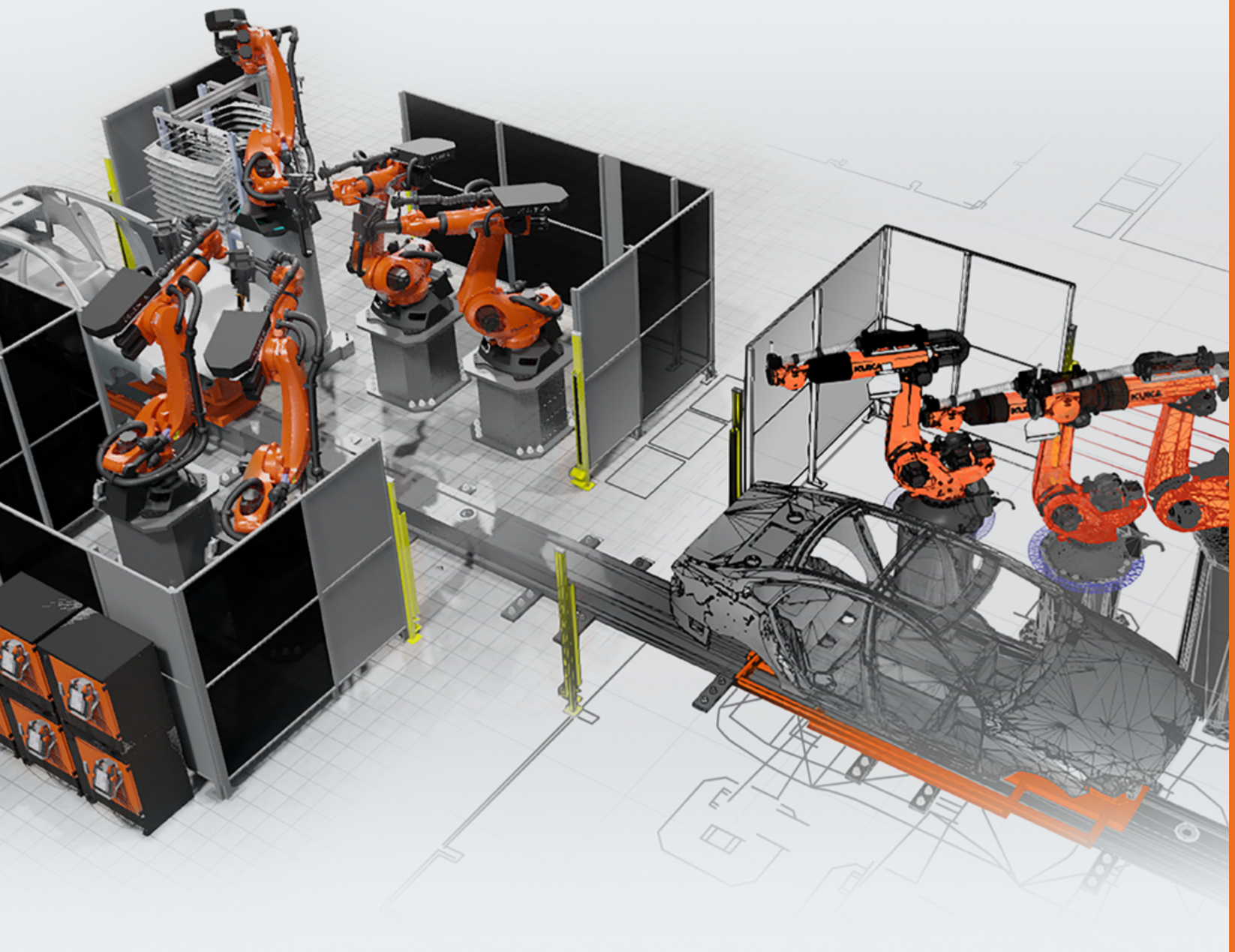
KUKA.RoboTeam. Turns robots into real team players.



With the KUKA.RoboTeam software, up to four robots can work together. Geometric coupling guarantees a significantly shorter cycle time.

Synchronization of robots. KUKA.RoboTeam software transfers responsibility for conventional, centralized PLC functions, such as the interlocking of workspaces or program synchronization, directly to the robot group. In this way, all tasks that directly affect the robot group are carried out autonomously by the group.

Geometric coupling of robots. The geometric path and transfer coupling of multiple robots is linked to various different processes. This enables state-of-the-art assembly line production and ensures significantly shorter cycle times. Geometrically coupled robots provide an extremely flexible solution for all handling tasks in which heavy loads need to be transferred and ensure process-optimized positioning even of pliant workpieces. This function can also be used for the application of parallel processes alongside the transfer of materials.



_Simulation

Planning reliability and time savings. Realistic simulation for rapid integration.

Our program modules will support you in planning your new systems or optimizing existing ones. They enable you to plan and calculate future production processes with a high degree of reliability.

KUKA.Sim

KUKA.MixedReality Assistant

KUKA.OfficeLite

KUKA.Sim. Smart simulation software for efficient offline programming of KUKA robots.

With KUKA.Sim, you can optimize the operation of your systems and robots outside the production environment – quickly and easily.

Time savings
Plan your system and robot concepts quickly, easily and individually – without actually having to build them in the real world.

Increased sales
KUKA.Sim helps your sales team to professionally present your solutions to end customers and to increase your sales success.

Planning reliability
Design system concepts in advance with very accurate cycle times for increased planning reliability and competitiveness.

Verifiability
The reachability check and collision detection features allow you to test the viability of your robot programs and cell layouts.

Modular
KUKA.Sim can be expanded in accordance with the modular principle using add-ons for advanced modeling, virtual commissioning or ARC welding.

More productivity, safety and competitiveness. The future-oriented KUKA.Sim software brings robot applications to life virtually – before the system has even been put into operation. The robot motion sequences programmed offline are depicted in real time and analyzed and optimized with regard to their cycle times. With features such as a reachability check and collision detection, you can make sure that robot programs and work cell layouts can actually be implemented. Digital simulation thus offers maximum planning reliability for your manufacturing processes at minimum cost and effort. At the same time, production downtimes are kept as short as possible.

From offline programming to virtual commissioning. KUKA.Sim creates a digital twin and thus an identical image of the subsequent production process. The 3D simulation covers the entire planning process: from the design of the process to the PLC code. The data is 100 percent consistent, which means that the virtual controller and the actual controller work with exactly the same data. In this way, KUKA.Sim creates a basis for virtual commissioning, so that new production lines can be tested and optimized in advance.

Overview: the most important functions of KUKA.Sim

Analysis. Analyze reaches and identify collision hazards.

Forecast. Measure energy consumption and optimize the cycle times of your overall system.

Modeling. Generate virtual models of your system. Use a large number of interfaces and exchange formats as well as the extensive component library for this purpose.

Offline programming. Access the original robot data. Teach motions of the robots collision free in the virtual space. Use all options that are also available in the subsequent robot controller. Seamlessly push your simulated data to the controller of the actual system.

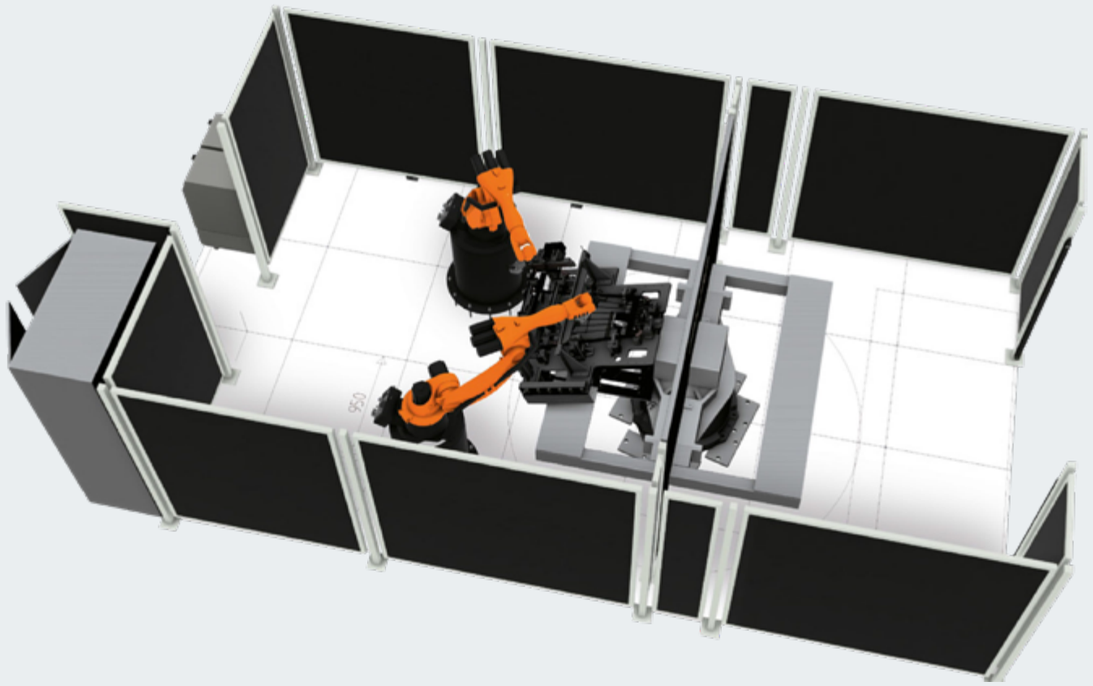
Safety. Configure cells and safety zones using the SafeOperation application editor, including advanced functions such as braking before restricted areas and export all the results for practical application.

Virtual commissioning. Exclude potential obstacles that may occur during subsequent commissioning. Make commissioning faster, more predictable and safer.

Application programming. Use the application modules of the KUKA software portfolio even before a system is implemented, and develop, test and optimize the applications that will be used at your plant.

Material flow. Determine the ideal components for your automation task (e.g. conveyors, grippers, etc.).

Presentation. Use KUKA.Sim and the wide range of output channels (e.g. 3D PDF, video, animation, VR) to present the planned system to your team or your customer even before it is implemented.



Add-ons for KUKA.Sim. Our demand-optimized add-ons make KUKA.Sim even more powerful:

The **KUKA.Sim Modeling AddOn** expands the standard modeling functions of KUKA.Sim. This makes it possible to create individual component libraries from your own CAD data. This naturally also includes the kinematic system, the sensors, the material flow and the physical behavior of the components.

With the **KUKA.Sim Connectivity AddOn**, you expand the interfaces to include behavior emulators such as WinMOD or SIMIT. This allows you to analyze PLC communication more reliably and predict the feasibility of your planned work cell with even greater certainty.

The **KUKA.Sim ARCWelding AddOn** offers additional functions for welding applications – such as a path generation function – and thus enables the reliable simulation of such complex processes.

KUKA simulation service. KUKA simulation services ensure planning reliability and efficiency.

The KUKA.Sim simulation software is powerful and intuitive at the same time. If you do not wish to simulate your processes yourself, we will be happy to support you. Our experts determine – risk-free in a virtual environment – which solution concepts are most suitable for your application. From consulting on error and feasibility analyses through to the concrete planning and implementation of your production processes, we work together to ensure that your vision is implemented successfully. On request, our application engineers can take over complete tasks or support your team in various phases of the project.

These include, for example:

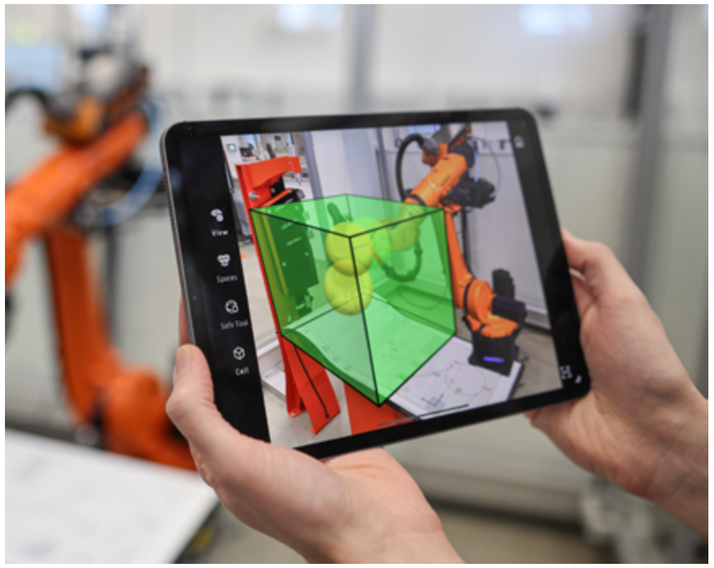
- Creation of a simulation cell with KUKA.Sim
- Preparation of CAD data for simulation
- Accessibility investigation of the robot
- Collision analysis of the robot cell
- Offline programming of KUKA industrial robots
- Cycle time analysis of the robot motions
- Load data analysis of the tool used (e.g. the gripper)
- Implementation of individual workshops
- Digital KUKA.Sim training courses with Microsoft Teams

All these services are available to you worldwide.

KUKA.MixedReality Assistant.
Augmented reality makes new robots easier to start up.

The new KUKA.MixedReality software visualizes the environment of robot cells live on the smartphone, making commissioning easier and supports fast, safe and intuitive robot start-up. The mobile app displays tools and interference geometries to enable early detection of potential hazards so users can eliminate them before a robot starts work.

Augmented Reality (AR) enables intuitive robot startup. It connects the real and virtual worlds to enrich the environment of the robotic cell with clear, uncomplicated digital information. Users can detect and correct errors quickly, which accelerates installation and increases safety. For example, the software can simulate robot motion with a virtual gripper. To prevent damage to the robot or gripper, any potential collisions that show up in the AR environment can be prevented early in the real environment. The software can be used to simulate robot movement with a virtual gripper, for example. If potential collisions are detected in the AR environment, they can be prevented at an early stage in the real environment so that neither the robot nor the gripper is damaged.



Set up quickly– with a free app and very little hardware.

KUKA.MixedReality is easy to set up and operate: Users install the free KUKA.MixedReality Assistant on their smartphone or tablet via the Apple App Store or Google Play Store. All relevant information about the robot transmits directly to the mobile end device via WLAN through a router or access point (not a KUKA product) and displays visually on the mobile device. No AR headset or additional hardware is required. Simply install the KUKA.MixedReality Safe technology package on the robot controller as a data source, along with one of the KUKA.SafeOperation technology packages to use with Safe functions.

Graphical display options with KUKA.MixedReality

The KUKA.MixedReality Assistant app graphically displays all relevant variables directly on the robot in real time, including Cartesian or violated monitoring spaces, safety-oriented tools and tool spheres. Users also can view the corresponding configuration parameters of the spaces or tools. Interested parties already can download and test the free application. The integrated demo mode enables function testing without a real robot.

Augmented reality as an opportunity for robotics and automation.

»Augmented or mixed reality is a future-oriented topic that also offers promising opportunities in robotics,« said Roland Ritter, Portfolio Manager Simulation at KUKA. »KUKA.MixedReality makes robot installation more user friendly and safe. This benefits customers at all levels of experience in the field of automation.«

KUKA.OfficeLite. Virtual programming system for seamless transition to automation practice.

The software uses the original KUKA SmartHMI and KRL syntax, so offline operation and programming correspond exactly to those of the robot.

The programming system has the same characteristics as the KUKA System Software:

- Each KUKA System Software release is available in full with all of the functions (a hardware periphery connection is not possible)
- KRL syntax check by the compiler and interpreter provided
- Executable KRL application programs can be created
- Sequence control of robot application programs in real time: improved cycle times
- Programs can be optimized on a standard PC at any time and on a regular basis
- Digital input signals can be simulated to test signal polling in the KRL program

- **Immediate productivity.** The KRL programs that are created can be transferred one-to-one to the KUKA robot controller and ensure immediate productivity.

- **Independent and flexible thanks to the virtual machine.** The installation is thus independent of the host system and its operating system. Different versions of KUKA.OfficeLite can be installed at the same time and are therefore flexible in terms of their application.

Use of KUKA.OfficeLite. KUKA.OfficeLite is the virtual KUKA robot controller and primarily intended for offline programming and application development. It can, however, also be used in conjunction with: KUKA robot training, application development, KUKA.WorkVisual 6.0 or higher.

The programs that are created using the virtual controller can be transferred to the robot one-to-one and ensure immediate productivity.

Open, flexible, powerful and intuitive. KUKA operating systems for the reliable implementation of your application.

The linchpins of the entire control system for KUKA industrial robots are the operating systems KUKA.SystemSoftware, KUKA Sunrise.OS and the new KUKA iiQKA.OS.

KSS

KUKA.SystemSoftware

KUKA iiQKA.OS

KUKA Sunrise.OS

KUKA.SystemSoftware.

Established, flexible and safe: the open operating system for the entire robot control system.

The KUKA.SystemSoftware – KSS for short – is the operating system and thus the heart of the entire robot controller for the majority of the KUKA robot portfolio – including traditional five-axis and six-robots, as well as the new SCARA and DELTA robots.

KSS enables you to implement an extensive range of robot-based applications. KSS helps you to achieve your goals faster and more efficiently, whether you are planning, installing, commissioning, operating or maintaining a robot-based system. It is subjected to continuous further development by KUKA as an open, flexible and secure platform to meet the high demands in the robotics environment.

Open & flexible

As the only system software from a major robot manufacturer that is based on Windows 10, KSS offers a number of unique advantages. There are no limits to your imagination when it comes to using KUKA robots and the connected peripheral equipment. Whatever it is, KSS makes it possible, with unrivaled access to modification and adaptation for your solution within a familiar and convenient platform.

Secure & protected

In today's world, where productivity and competitiveness are heavily dependent on networked hardware and software, it has never been more important to ensure a stable and protected system. Safety and security at the highest level – KUKA is synonymous with safety and security. For us, there is no middle ground on this issue, which is why we place it at the foundation of every KUKA.SystemSoftware development.

Get it done faster

With industry-leading connectivity options based on an open and flexible platform, the "functional twins" KSS 8.6 and 8.7 provide a solid foundation for getting your work done faster – and we have incorporated additional user-friendly functions to reduce commissioning and integration times.

Designed for any application. The "functional twins" KSS 8.6 and 8.7 offer new functions without changing the existing programming environment and user interface – if you are familiar with KUKA.SystemSoftware and KRL, you will immediately feel at home. And thanks to the expertise that we have built up over decades, combined with feedback from our customers, the current KSS versions 8.6 and 8.7 are the result of internal and external feedback. In combination with assistance from inline forms, project-based engineering and project-independent online programming, it is clear that KUKA has listened to the suggestions and wishes of users during the development of KSS.

Basic functions

Programming for different skill levels. From simple programming using inline forms to expert programming in the high-level language KRL (KUKA Robot Language).

Interpreter. In addition to the robot interpreter, up to eight parallel cyclical (submit) interpreters are available.

Field bus communication. Configuration and I / O mapping of the field buses supported by the KUKA.SystemSoftware (ProfiBus, DeviceNet, PROFINET, ETHERNET / IP, EtherCAT) is carried out via KUKA.WorkVisual.

Multilingual user interface. Up to 26 languages are available for selection in the KUKA.SystemSoftware user interface.

Rights management. The system is supplied with the rights for operating modes and functions preassigned to the hierarchical user groups so that no adaptation is required for most customers. Nevertheless, this assignment can be configured by the administrator via function groups if required.

Flexible configuration of additional drives and / or customer kinematic systems. Operation of asynchronous, infinitely rotating or force-controlled external axes and master-slave drives in a group.

Backup / restore. Server-triggered, project-based backups of the system configuration and installed options through the integrated backup manager.

Connection to iiQoT pre-installed. With the pre-installed KUKA.DeviceConnector, KUKA systems are quickly integrated and connected to iiQoT – the Industry 4.0 solution from KUKA.

Optional functions

Safe robot. Extended safe monitoring of the robot and assurance of system safety with KUKA.SafeOperation, KUKA.SafeRangeMonitoring or KUKA.SafeSingleBrake.

Cooperating robots. Both in terms of shared workspaces and in the form of load sharing between multiple robots in teams of up to 6 robots using KUKA.RoboTeam.

Data exchange. TCP / IP data communication (binary / xml) to external systems with KUKA.EthernetKRL.

Sensor applications. Real-time capable sensor connection / communication through KUKA.RobotSensorInterface or KUKA.ForceTorqueControl.

IT security. Protection of the controller against malware through the KUKA.Ikarus antivirus solution or the KUKA.CPC whitelisting procedure.

Conveyor. Synchronization of robot motion with the motion of components / conveyor systems using KUKA.ConveyorTech.

Safe communication. Available as a discrete dual-channel technology interface or as safe field bus communication via Ethernet-based protocols to the safety PLC (PROFIsafe via KUKA.Profinet M / S, CIP Safety via KUKA.EthernetIP or FSoE via EtherCAT master-master gateway).

User login. Additional login methods – enabled by KUKA.Userkey.

Expansion of the basic functionality. Integrated deterministic Soft PLC with all the advantages of access to the I / O system and the existing system through KUKA.ProConOS.

Customer-defined technology modules. KUKA integrators and end customers can expand the library of available KUKA inline forms and status keys according to customer requirements by using KUKA.UserTech technology. In interaction with the KUKA.OptionPackageEditor, these modules can be quickly and easily integrated into a KUKA system. Other possible modules are represented by preconfigurations (including dependency mapping) of KUKA technology packages – such as a KUKA.HMI solution, a KUKA.GripperSpotTech configuration or a KUKA.RobotSensorInterface context.

Customer-specific interfaces. With the KUKA HMI product family, we provide the capability of entering the domain of customer-specific user interfaces at two different levels of complexity. For simple applications – KUKA.HMI Easy – and for the demanding user – KUKA.HMI Zenon.

Vision – in 2D and 3D. KUKA.VisionTech offers tools for 2D object recognition, quality recognition, and code and optical character recognition (OCR). KUKA.PerceptionTech enables the perception of the environment in 3D. Customers can implement any of the 3D vision applications from Roboception.

Engineering functions

Project-based. Configuration of the controller using database and catalog-based projects – created using KUKA.WorkVisual.

Soft PLC interface. Integrated interface in KUKA.WorkVisual to KUKA.Multiprog – the Soft PLC engineering environment of KUKA.ProConOS.

Load data determination. Determination of the load parameters of real tool attachments by means of pendulum motions using the KUKA.LoadDataDetermination option.

Simulation. Installation and evaluation of complete robotic cells using KUKA.Sim.

Virtual robot controller. Virtualized version of KUKA.SystemSoftware KSS available as KUKA.OfficeLite.

Customer-specific technology packages. Creation of your own customer-specific software packages using KUKA.OptionPackageEditor. Further modules are provided here by the add-on technologies KUKA.UserTech and KUKA.HMI Easy.

Recovery. Image-based backup solutions through KUKA.Recovery.

KUKA iiQKA.OS. Robots for the People.
A new era of KUKA robotics.

KUKA has written robotics history. As a trailblazer and pioneer trailblazer for new technologies and smart solutions. For example, KUKA has broken down the boundaries in safe cooperation between humans, and the boundaries of safe cooperation between humans and machines.

With iiQKA, KUKA is now taking it a decisive step further: iiQKA is an intuitive operational and digital ecosystem that makes automation easier for everyone – whether you are an expert in robotics or want to create your first application with a robot. The Cobot LBR iisy is the first KUKA robot to run on the new iiQKA.OS operating system.

In just a few clicks to a fully-functional robot application. iiQKA creates a robotics world in which everything fits together at the touch of a button, works quickly and can be controlled intuitively. Get everything you need to easily install and operate your robot. Unlock the benefits of robotic automation, with or without prior knowledge of robot programming.

The keys to simple industrial automation for everyone. With the perfect interplay of the iiQKA.OS operating system and the open ecosystem Robotic Republic, the world of KUKA Automation is sustainably simplified. Closely interlocked, both building blocks ensure that the simple automation of production processes becomes possible for everyone. **Robotics for everyone – newcomers and experts alike.**

Configure your robot application in under 90 minutes. This is how robotics works for everyone: in the automation world of iiQKA, all available building blocks of a robot application fit together seamlessly. The iiQKA.OS operating system and the available hardware and software components from the Robotic Republic, KUKA's ecosystem, make the path to your own robotic automation intuitive and easy. From planning and purchasing to installation, commissioning, and efficient use. Ideal for companies planning to enter automation and for industry experts to solve their tasks faster with maximum performance and more efficiently.

The graphic user enterface of iiQKA.OS is self-explanatory and makes all functions of a robot application intuitively operable.

Automation as easy to use as your smartphone. Complex made simple. iiQKA was developed to make the creation of KUKA robot applications as easy as possible. The biggest advantage of iiQKA.OS is its ease of use, which is based on a powerful software architecture: easy to understand, reliable in performance and intuitive operation – throughout the entire customer journey.

The self-explanatory, graphic user interface of iiQKA.OS is easy to understand for newcomers and fast and efficient for experts. Step by step iiQKA.OS supports the user with integrated help functions.

Even beginners without expert knowledge can easily start up and program robots. Ideal for small and medium-sized companies to get started with automation. And for experts from industry to make their processes much easier.

Linux at its core

- Open-source
- Well-supported
- Large range of hardware compatibility
- IT and industry standard
- Flexible and robust
- Security as a design principle

Modular and containerized

- Architectural elements separated with clear communications interfaces
- Easy and fast development of new functionality
- Allows for major changes while performance of the entire system remains stable
- A key foundation for the future-proof platform

Open interfaces

- Application programming interfaces (APIs) allow standardized system interaction
- Foundation for offering extended value in an ecosystem
- Stable and consistent access to subsystem

Web-based user interface

- Responsive design that works in many formats
- Easy and fast development of custom user interfaces and elements
- Accelerates scaling and addition of new features and components

The iiQKA basic components.

LBR iisy 3 R760
for 3 kg payload

LBR iisy 6 R1300
for 6 kg payload

LBR iisy 8 R930
for 8 kg Traglast

LBR iisy 11 R1300
for 11 kg payload

LBR iisy 15 R930
for 15 kg payload

KR C5 micro. Small footprint with big-time performance. Smaller, more flexible, smarter. Developed as an open and flexible platform with no compromises, the KR C5 micro represents the next quantum leap in robot control. It offers maximum performance, connectivity and flexibility in the smallest of space. The KR C5 micro unites robot, PLC, motion and safety control in an ultra-compact housing with a volume of just 16 liters.

KUKA smartPAD pro. The intuitive iiQKA-Interface. The future is in your hands. Combined with the new iiQKA.OS operating system, the next-generation teach pendant delivers precise results and virtually unlimited application possibilities. Thanks to its intuitive handling, even complex tasks can be implemented quickly – without any programming knowledge.

The LBR iisy is flexible, intuitive operable and quickly ready for use. It works safely together with human colleagues – even hand in hand. This makes it an all-round cobot for automated production.

Intuitive. The programming is simple. The cobot can easily learn positions and movements by hand.

Collaborative. It can directly work with humans – without safety fences.

Sensitive. It detects collisions and measures process forces.

Flexible. Simple installation of components, fast re-use in new applications.

Robotic Republic.
The KUKA ecosystem.

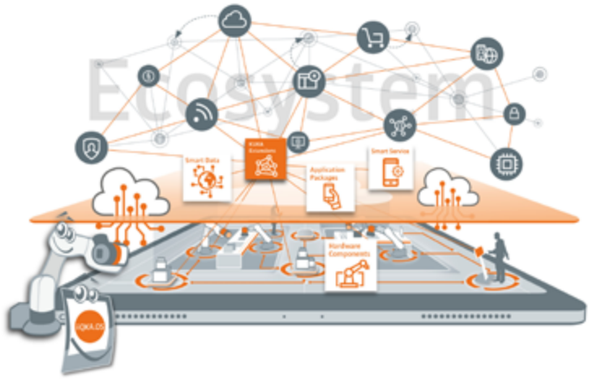
The Robotic Republic is a multi-vendor ecosystem that offers all the components of high-performance robot applications on an open platform. KUKA's ecosystem is characterized by a rapidly growing range of hardware and software components. This allows you to put together individual automation packages that are safe, compatible, and ready for use.

An ecosystem that makes automation flexible and easy for everyone.

In the Robotic Republic, KUKA joins forces with third-party providers to jointly enable all users to automate manufacturing easily and independently. KUKA's ecosystem continuously offers new applications, advanced functionalities, and digital services that are easy to use and implement.

All components are compatible with each other, making it quick and easy to get ready for use. It has never been easier to create a KUKA robot application, operate it and adapt it to your own needs.

The Robotic Republic offers a smart way to efficiently automate your processes. Today and in the future.



Certified components from the Robotic Republic, KUKA's ecosystem.

Hardware components such as grippers for handling systems and more. Certified, fully integrated tools make the application simple and flexible, according to your requirements. In the automation world of iiQKA, all available hardware and software components of an application fit together seamlessly. iiQKA makes automation with KUKA robots incredibly easy.

Safety sensors and vision system. Be it the vision system or the safety sensor technology, you can expand the automation system with a variety of functions depending on your needs. iiQKA is a paradigm shift in automation. Even demanding handling, testing and production processes can be effortlessly automated by anyone. With iiQKA, companies can automate production, handling or testing processes in the simplest way possible.

KUKA and third-party software solutions. iiQKA.OS is a powerful and scalable robot operating system with open APIs (Application Programming Interfaces). Ordered software components or solutions are pre-installed by KUKA at the factory and are fully functional upon delivery.

Become part of Robotic Republic as an **iiQKA Creator,** the ecosystem of KUKA.

Listen, learn and cooperate with partners worldwide. That is the successful model behind iiQKA. With the goal of dramatically lowering the barriers for newcomers to robot-based automation – and enabling experts to achieve automation goals faster and more efficiently.

Your benefits as an iiQKA Creatorr:
- Reach new target groups
- Let KUKA do your selling for you
- Work with KUKA, a trusted brand
- Benefit from know-how exchange

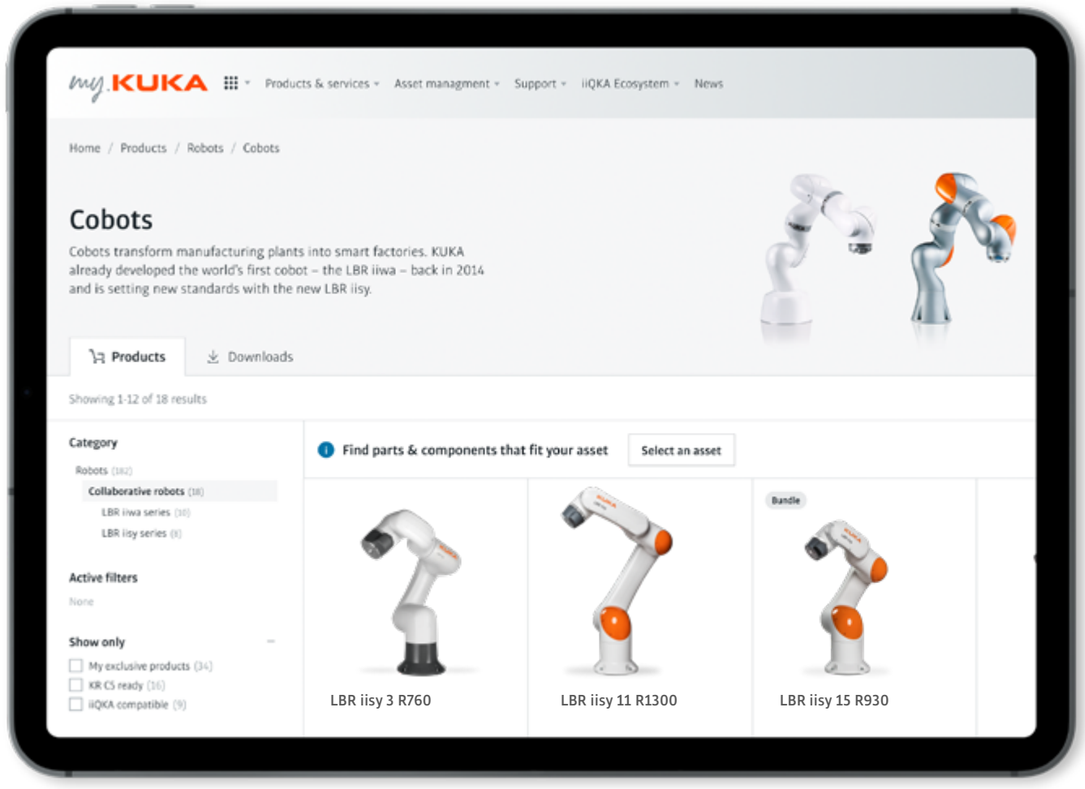
In the Robotic Republic, KUKA joins forces with third-party suppliers to provide users with simple, useful automation tools. Become part of this KUKA ecosystem now. Become an iiQKA Creator.

Find out now about the iiQKA Creator Program for manufacturers and solution providers.

Learn more at: **kuka.com/iiQKA-Creator**

Quickly configured online. Just a few clicks to the complete application in the my.KUKA customer portal.

With iiQKA, you can configure and order your individual robot application with just a few clicks in the my.KUKA customer portal and selected partner sites. On site, the individually equipped applications with all ordered extensions are unpacked, set up and ready for use within a few minutes.



Easy registration in the my.KUKA customer portal. Here you can find all iiQKA compatible products, view your order history and check availability or delivery times of components.

my.KUKA.com

Developed for practice. Together with customers and partners.

iiQKA's functionalities and usability are continuously being developed. Fast, regular feature updates are designed and implemented in ongoing dialogue with users and partners. KUKA has implemented the KUKA User Forum, among other things, to closely involve users in the development process. Users can participate in discussions there, post suggestions, and receive direct support from KUKA experts and other users in the implementation of their robotics applications.

Equipped with cameras, an LBR iisy cobot in conjunction with the iiQKA.OS operating system, checks quality in the plastics industry.

The handling of flexible, easily deformable, flexible textiles and cut parts, is possible with an LBR iisy robot.

KUKA Sunrise.OS.

The operating system for graphic programming of sophisticated robot applications.

KUKA Sunrise.OS is the current operating system software for the KUKA LBR iiwa and other KUKA Mobility products. Together with KUKA Sunrise.Workbench, KUKA Sunrise.OS offers all the functions needed for programming and configuring sophisticated robot applications.

Graphic programming with KUKA Sunrise.OS

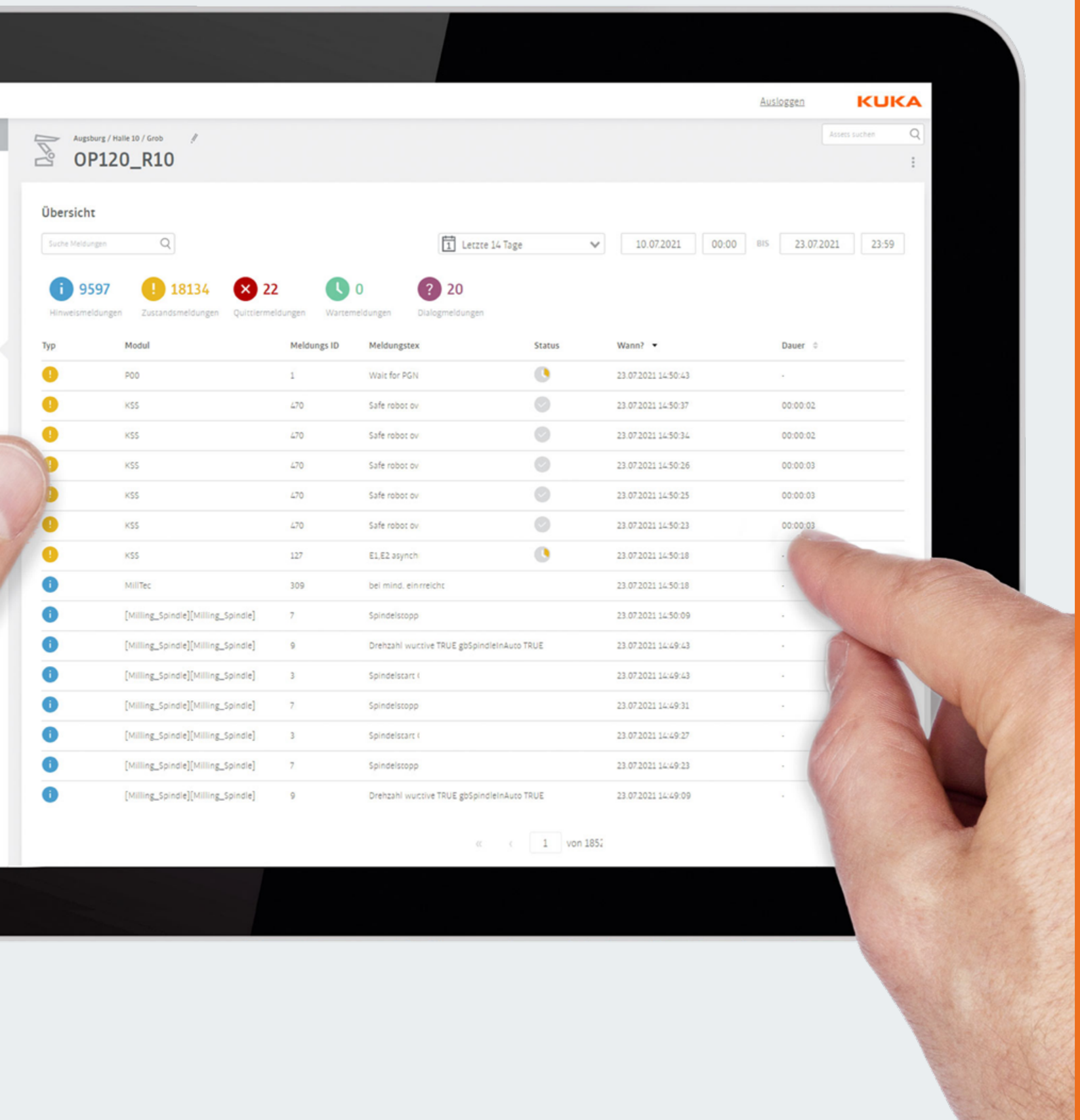
The approach to programming with Sunrise.OS: the Application Framework provides an editor that assists you in modeling the robot's work sequences graphically. Using the KUKA smartPAD, it is also possible to check the individual work steps that you modeled previously and, if necessary, intervene manually at any time. The fact that the JAVA program code is displayed in so-called blocks means that planners are also able to generate processes without programming knowledge. At the same time, it is possible to switch back to expert mode and use the full power of JAVA.

Other advantages of graphic programming

- **Structured.** The process diagram automatically illustrates the sequence in a structured manner due to its form. So-called wizards provide assistance during planning.
- **Consistent.** The block diagram can be used throughout the entire design process (planning, programming, planning, maintenance).
- **Reusable.** Each block can be used again in other applications and expanded as desired.
- **Efficient.** Many steps are transferred to the offline design process and expedited as a result – saving time and cutting costs.
- **Scalable.** The blocks can be used in a hierarchical manner and also merged into a group.

KUKA Sunrise.Workbench engineering suite

- Ergonomic user interface
- Program editor with many powerful user-friendly functions
- Object-oriented programming with JAVA
- Fast start-up
- User-friendly diagnostics
- Integrated user manual
- Professional debugging



_Cloud-based services

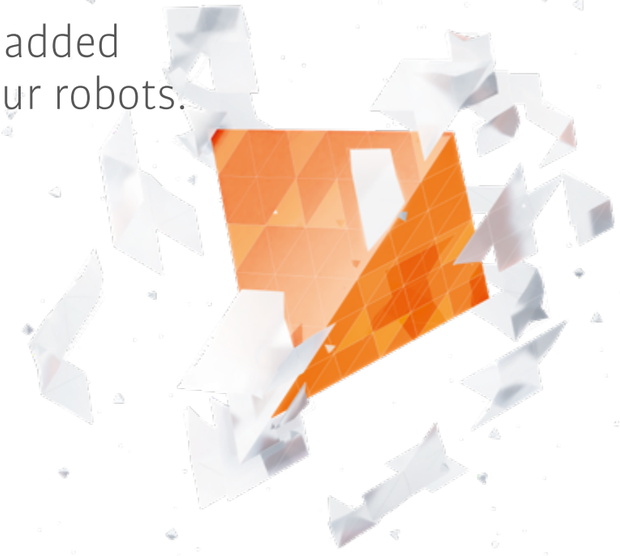
Keep an eye on your robot systems. Wherever you are.

Cloud-based software is one of the cornerstones of Industry 4.0. Cloud-based services from KUKA digitalize and optimize your production.

KUKA iiQoT KUKA Xpert

KUKA iiQoT. Data-based added value through IIoT for your robots.

Data-based automation made easy. Maximize the operating time of your robot fleet with KUKA iiQoT. The central IIoT (Industrial internet of things) platform supplies all important data in real time, making not only remote monitoring of the robot systems but also troubleshooting more efficient.



Optimization of the fleet
- Management of systems and machines
- Checking safety
- Robot maintenance

Fault finding and troubleshooting
- Notification of problems
- Saving time during fault finding
- Increasing availability

Clear and quick overview
- Transparency across the entire robot fleet due to IIoT technologies
- Remote monitoring outside production halls
- Access to all required data from all devices

Increased efficiency
- Safeguarding system productivity
- Identifying potential for improvement in the industrial environment
- Targeted actions

One platform for all robots: monitoring, visualization and troubleshooting. What condition is your robot in? How efficiently is it working? And what about your company's entire robot fleet? KUKA iiQoT has an eye on all the condition data: from hardware to software, and on to the controller. The central platform leverages the advantages of the Industrial internet of things and bundles the data of a complete robot fleet transparently and clearly in one dashboard. You can gain access from anywhere, around the clock. The most important functions include systems management, preventive maintenance, fault detection as well as warning messages. Instead of simply visualizing raw data, KUKA iiQoT delivers supplementary orientation parameters, enabling messages to be easily interpreted and faults efficiently rectified. The IIoT platform, implemented by KUKA subsidiary Device Insight, is suitable for small and large fleets – and paves the way for the smart factory.

IIoT: easy to use, for any industrial requirement. KUKA iiQoT is characterized by an expandable software ARChitecture. iiQoT is modular in structure, which allows us to respond flexibly to a wide range of customer requirements. This makes it easy to find your way around and provides you with valuable functions depending on your industrial application requirements.

Avoiding production downtime thanks to IIoT application
The IIoT software from KUKA is strongly oriented towards the needs of companies: minimizing downtime and maximizing operating time. This is achieved through the optimal interaction of various modules, such as “Condition Monitoring”, “Fault Diagnosis” and “Changelog”. It is thus possible to identify and respond to faults quickly. KUKA iiQoT users can log into the corresponding robot in the selected line and cell in order to view the problem. If troubleshooting does not succeed in the first step, you can quickly access diagnostic data via “Fault Diagnosis”.

Premium version iiQot.Advanced. With the premium version KUKA iiQoT.Advanced, which is subject to a fee, we offer you additional applications beyond the core functions that enable you to plan maintenance and servicing work even more precisely, avoid downtimes, optimise production cycles and measure energy consumption.

KUKA cloud solution: uncomplicated, secure, cost-effective

One platform for all robots: Big Data for monitoring, visualization and troubleshooting. What condition is your robot in? How efficiently is it working? And what about the entire robot fleet at your company? KUKA iiQoT has an eye on all the condition data: from hardware to software and on to the controller. The central platform leverages the advantages of the Industrial Internet of Things and bundles the data of a complete robot fleet transparently and clearly in one dashboard. You can access it around the clock from any location. The most important functions include systems management, preventive maintenance, fault detection as well as warning messages. Instead of simply visualizing raw data, KUKA iiQoT delivers supplementary orientation parameters, enabling messages to be easily interpreted and faults efficiently rectified. The IIoT platform, implemented by KUKA subsidiary Device Insights, is suitable for small and large fleets – and clears the way for the Smart Factory.

The advantages of our cloud-based IIoT solution

Secure connection. Security matters: the data are located on a European server. They are optimally protected from loss and failures.

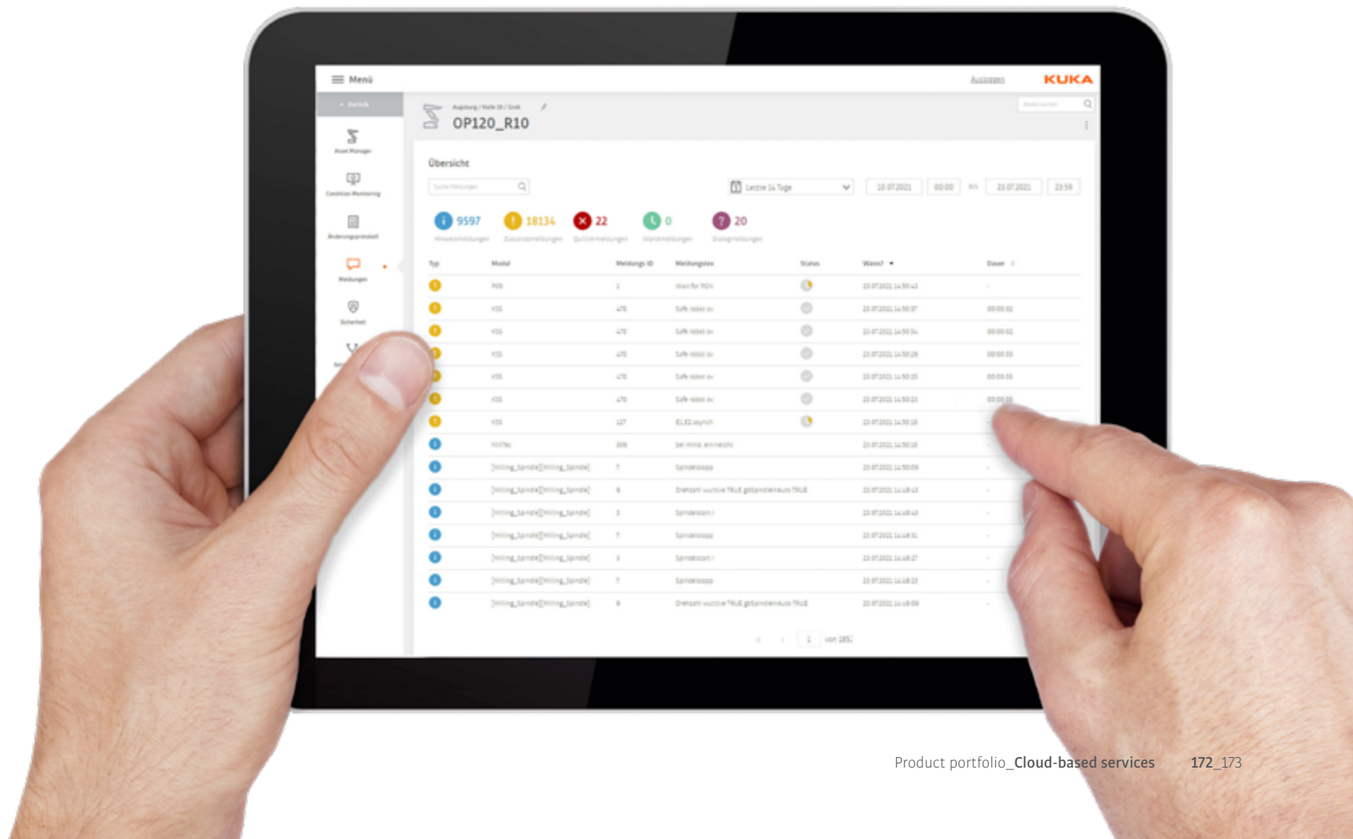
Up to date at all times. You do not have to worry about operation or maintenance, but always have access to the latest version.

Scalability. Scaling tailored to your needs: robots can be added to or removed from the fleet as desired.

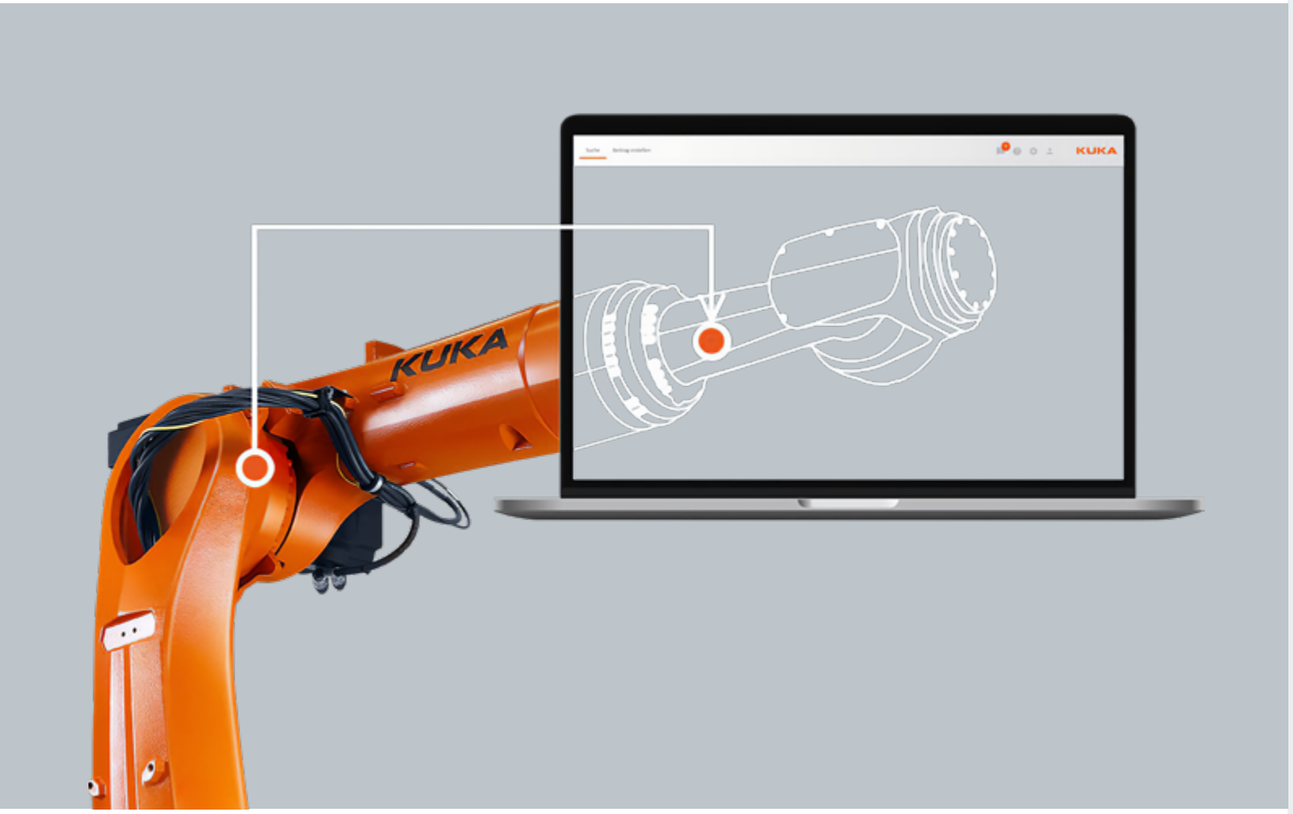
High availability. Enhanced performance and availability: Your processes run reliably and there is no need for time-consuming system recovery.

Reduced costs. No complex hardware (expensive maintenance) at your company required. A gateway or existing hardware can be used.

Independent of location and device. Access robot fleet data from anywhere at any time: KUKA iiQoT offers maximum flexibility.



KUKA Xpert. Knowledge. Anytime. Anywhere.



A digital knowledge database covering all KUKA products, accessible from anywhere, at any time. KUKA Xpert provides comprehensive technical information especially for service technicians, planners, programmers, operators and start-up technicians.

Instructions and documentation for all KUKA products always at hand. With our digital knowledge database for technically relevant information and documentation about all KUKA products. Independently solve problems as they arise and save valuable time.

Manuals, product instructions and more: what content does KUKA Xpert offer? KUKA Xpert offers you bundled and digitalized know-how about KUKA products in a web-based application. In addition to the paid version KUKA Xpert Pro, the free version KUKA Xpert Basic is also available for our customers, containing all the required documents and information for your KUKA products.

	KUKA Xpert Pro	KUKA Xpert Basic
Product Information	✔	✔
Spare Parts	✔	✔
Specifications	✔	✔
Safety	✔	✔
Assembly Instruction	✔	✔
Instruction Manual	✔	✔
Operating / Programming Instructions	✔	✔
CAD & Simulation Data	✔	✔
Case Database with Symptom, Cause and Solution	✔	
Detailed Operating Instructions	✔	
KSS System Variables	✔	
Compatibility Overviews	✔	
Guidelines	✔	
Function Descriptions	✔	
Downloads of Code and Configurations	✔	

Minimize downtimes. Gain a better understanding of system messages through causes, symptoms, and solutions. Fix problems with high-quality work instructions.

Increase your efficiency. Find urgently needed information with the help of free text search and filters for products and information types.

High-quality content. The content is created by technical editors and reviewed by product experts. KUKA Xpert is also used by KUKA Support.

Knowledge available 24/7. Get the right information when you need it most, without wasting valuable time.

Linked and interactive information. Interactive content such as videos* with semantically linked data help you to obtain all relevant information for the selected product.

Helping people to help themselves. Work instructions help you to complete tasks from commissioning to maintenance and repair of KUKA products.

_Global Customer Services

Our service.
Your success.

German engineering, quality, creativity and a tireless commitment to our users: at KUKA, this has been the basis for decades of exceptional technologies that have helped our customers gain a decisive competitive advantage. We were the pioneers in the world of robotics. Today, we are a global leader in innovation. Our passion is to create future-oriented solutions that make even complex automation tasks easy.

KUKA Global Customer Services.
For perfect customer service.

With our global network, and by using the latest means of communication, we can offer our customers the outstanding service of a global market leader.

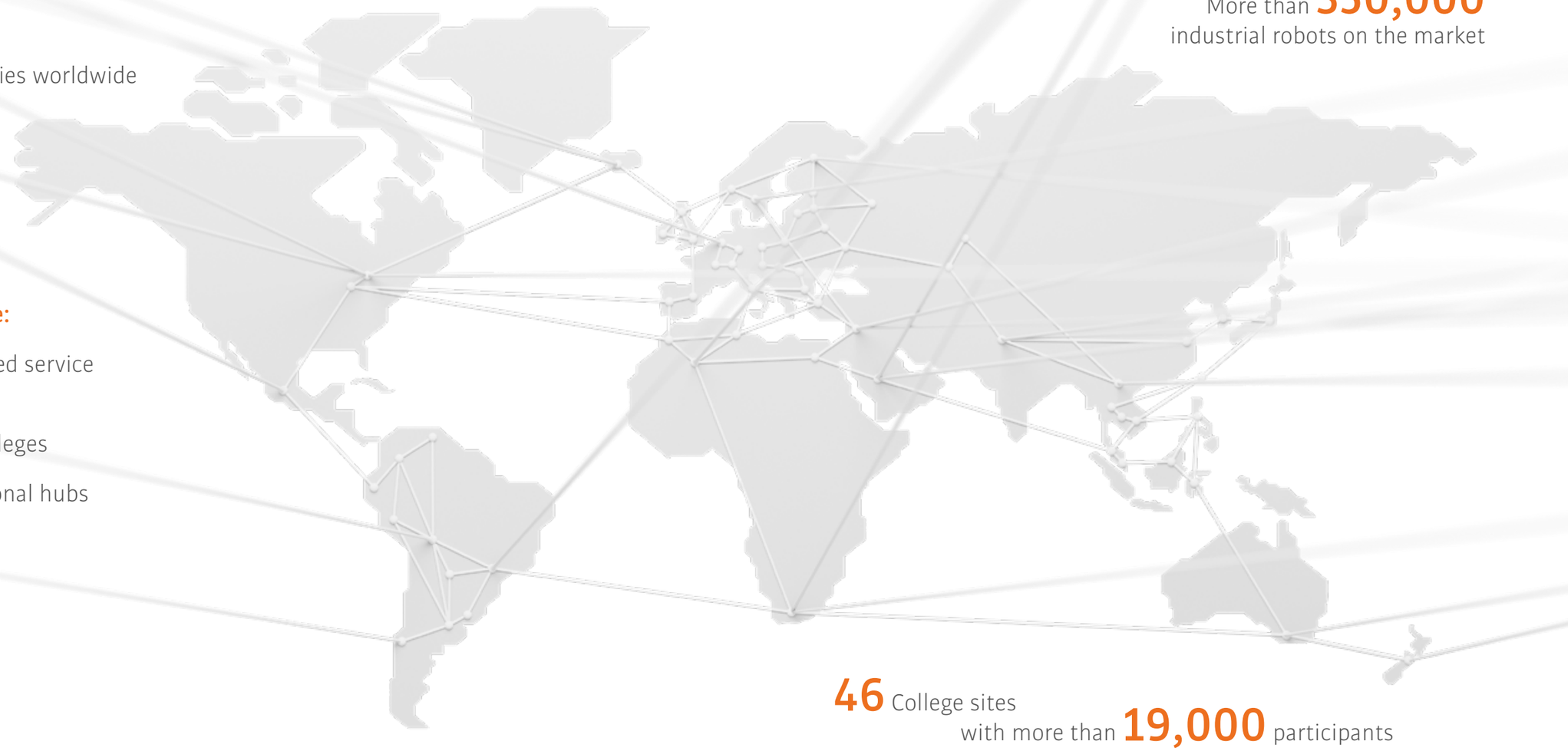
Speed, reliability and professionalism are essential in guaranteeing efficient production processes – throughout the entire life cycle of your automation solution.

For this reason, we take an open-minded approach to your specific and individual requirements. In addition to our experience from everyday operations and findings from research and development, feedback from our customers also helps us to deliver the best service possible.

8,000 different parts in stock
1,000 deliveries per week

More than **350,000**
industrial robots on the market

70 subsidiaries worldwide
in **4** regions



Always there for you worldwide:

_Qualified and excellently trained service technicians & programmers

_Certified and standardized Colleges

_Global infrastructure and regional hubs for rapid spare parts supply

_24/7 professional support

Find the right contact person –
we will be happy to help you:
www.KUKA.com/customer-service

46 College sites
with more than **19,000** participants

Over **1,400** employees
in Customer Service

KUKA Global Customer Service.
To maximize your success.

Our business does not end with the sale of a robot. We offer a wide range of services for the robot, stretching from the decision phase for automation to training, programming, maintenance and refurbishment of used machines.

All the products offered by Customer Service have been designed with one goal in mind: maximizing your success. We exercise our passion and enthusiasm to this end.

We are always there for you – whether you need technical assistance or advice on the optimal maintenance philosophy or production optimization.

Hotline
customerservice@KUKA.com

Hotline
The KUKA Hotline provides expert assistance for technical challenges regarding the robot. A globally standardized ticket system enables seamless collaboration, no matter where the robot is located. Use my.KUKA.com in conjunction with the KUKA Hotline for an even faster response time and greater transparency.

Consulting
customerservice@KUKA.com

Consulting
Our Customer Service consultants will advise you individually on site and deliver customized solutions that meet your exact requirements. With the right answers regarding spare parts, maintenance, programming & optimization as well as retrofits, the consultants ensure your success.

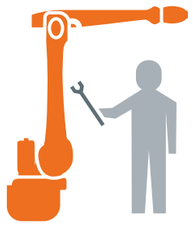
www.my.KUKA.com
my.KUKA

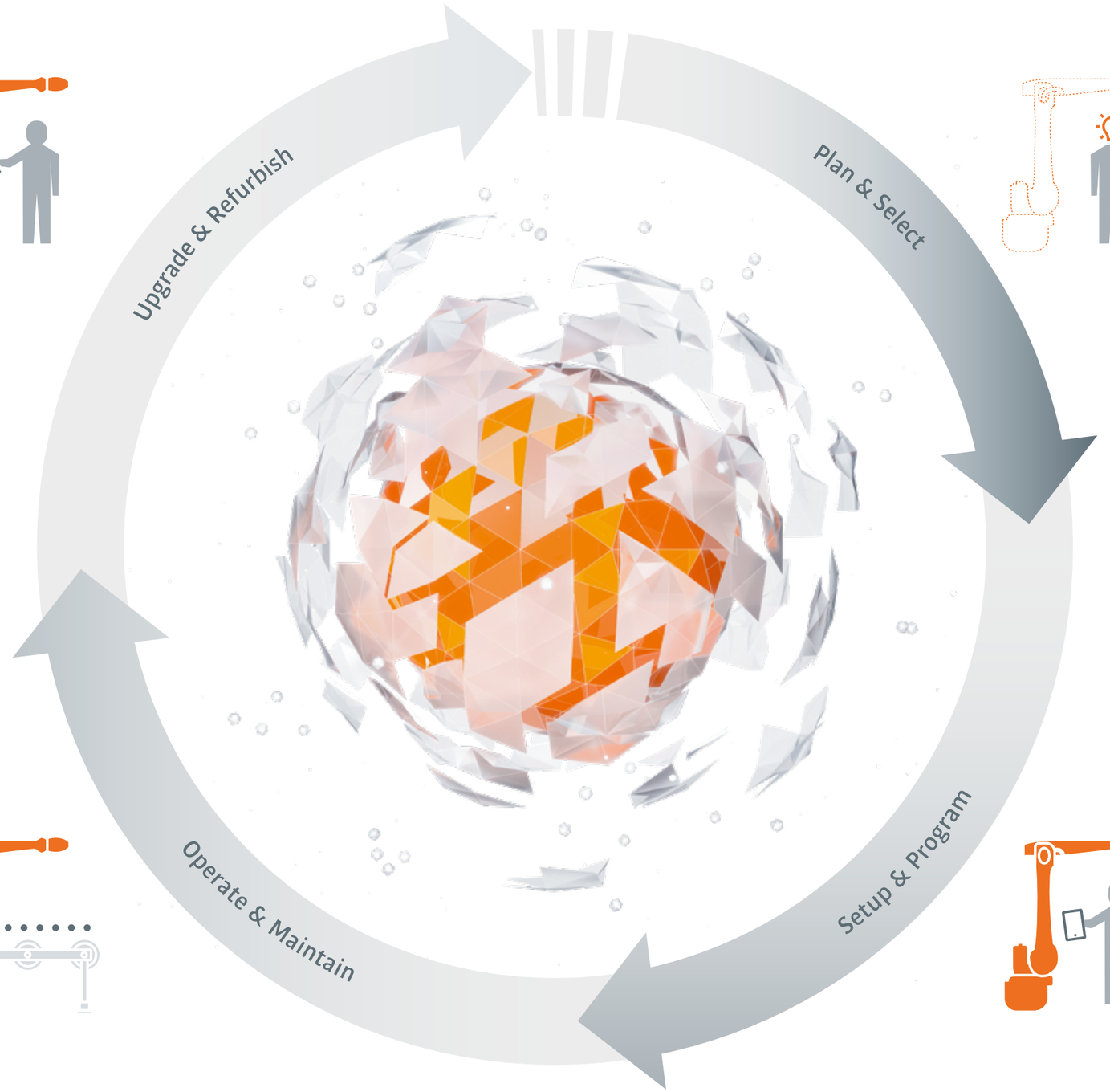
Self-Service with my.KUKA
My.KUKA.com is a powerful self-service platform. Registering your robot fleet gives you access to tailored product documentation and the Xpert database for fault analysis including valuable work instructions. Beyond this, my.KUKA links your robot fleet to the KUKA marketplace – thus making the search for the right spare parts or available services a breeze.

click for more

KUKA Customer Services – Portfolio.
Because we live and breathe 360º support.

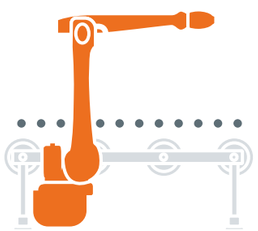
A timely upgrade or refurbishment ensures the sustainable use of robotic automation. Depending on your operating parameters and requirements, experts from KUKA renew your system – from selective upgrades to renewal of the entire robot system. This assures a second life cycle of your investment.





The optimal choice of the robot type and the implemented technologies lay the foundation for successful robot automation. Simulation, feasibility studies and test setups by our KUKA technology experts reduce risks and guarantee minimum planning times.

Availability, performance and quality are the key factors in successful production. Our preventive maintenance and flexible service levels – along with a guaranteed supply of spare parts – assure high availability of your robot. Qualified performance checks by KUKA experts additionally identify optimization potential in terms of performance and quality.



In the Setup & Program phase, KUKA technicians undertake the programming work, develop intelligent application solutions and ensure smooth installation of the robots. We do everything to make sure that every start of production is successful and that the quality is right.

Good planning. Fast, safe and successful implementation.

KUKA supports you with four important modules to ensure that your project idea and requirements can be turned into a complete implementation concept with minimum effort and cost.

Added value for you
- Use KUKA robots and technologies correctly and get the most out of them
- Reduce project costs and risks through professional support and analysis
- Effective safety concepts and minimized cell sizes

KUKA Technology Packages.
The right robot and the right technology.

KUKA experts advise you on the selection of the most suitable robot as well as the appropriate technologies and components for your application.

KUKA Application Center.
Tests and feasibility studies.

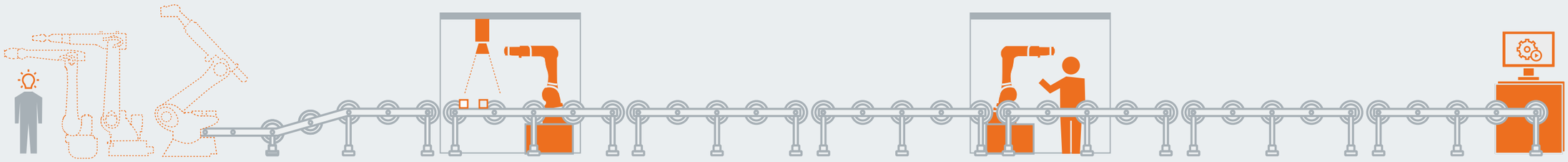
With comprehensive test setups and feasibility studies – whether for welding, image processing or other applications – we ensure the correct design of the components and are able to test critical areas of your application. This provides reliable results even before the actual project is launched, thus minimizing planning risks.

KUKA Safety Services. Considering safety right from the planning phase.

From conventional safety concepts to human-robot collaboration – we are happy to advise and support you, for safe implementation in accordance with current safety standards.

KUKA.Sim.
Efficient planning through simulation.

Well-grounded simulation of the robot cell minimizes risks in terms of accessibility and cell layout. Beyond this, the cycle time can be determined and already optimized offline. This guarantees a rapid, efficient planning phase and lays the foundation for a successful project.



KUKA College. The easiest and most modern way to work with robots.

KUKA leaves nothing to chance in this area and offers state-of-the-art methods for the training and development of your employees.

Your company benefits from your employees' capability to
- successfully implement the project through correct planning and assessment of risks
- ensure targeted programming and implementation
- increase productivity and safety in your system
- respond quickly and efficiently to production changes

Added value for you
- Globally certified standards for the training process & trainers
- State-of-the-art infrastructure
- Trainers with practical experience
- 50% practical content

KUKA College supports your employees – from beginners to experts – with an intelligent combination of digital media and practical in-person training – a powerful learning platform that can be expanded with customized training as needed.

In-person training at KUKA College
50:50 theory/practice combinable with online modules

Certified trainers
Highly qualified
and evaluated

On-site training sessions
We come to you, anywhere & anytime

Online
E-learning modules and interactive online webinars in the comfort of your own home

Modern training environment
Certified Colleges – worldwide

Custom-tailored workshops
Training modules tailored exactly to your individual requirements

Digital Learner Platform
Digital support through videos, tutorials and self-study modules throughout your professional life

Xpert
Knowledge base – Expertise on demand

click for more

Target groups and courses. To ensure learning success, the KUKA courses are geared to the respective target groups.

- For complete range of courses, see **https://college.kuka.com**
- All technologies
- All locations

Operator. Can operate the equipment, make program adjustments and resolve problem situations

Course. Operator course, Operator Pro

Programmer. Creates the robot programming and the entire application program

Course. Programming 1 and 2

Start-up technician. Configures safety and interfaces to PLC and peripherals

Course. SafeOperation, Profinet Configuration

Maintenance technician. Analyzes malfunctions and rectifies electrical or mechanical problems

Course. Mechanical Servicing, Electrical Servicing

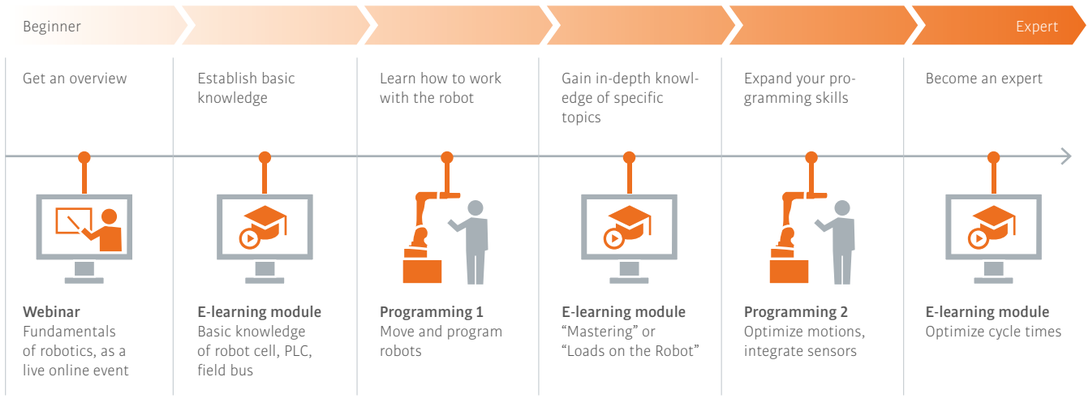
Planner/Designer. Plans, simulates and ensures the correct design of the robot

Course. KUKA Sim, Robot Selection and Integration, Cell Safety

Manager. Decides on the application of robots with regard to safety, ROI and technology

Course. Training for managers, individual focal points

The modular and flexible course structure precisely targets the needs of the respective user. Modern e-learning modules and webinars complement the practical seminars at KUKA College. The following example shows how you can leverage this to become a programming expert.



KUKA programming support. Your choice for fast and efficient robot programming.

Highly qualified and dedicated staff will support you throughout the entire programming and start-up phase. Whether it is just a matter of minor program changes or the application implementation of a complete robot cell: the KUKA engineering team is the right partner for your project – in practically every technical discipline.

Added value for you
- Experienced programmers guarantee fast and competent implementation of the application
- We know how to apply our technology packages. This enables us to reduce unnecessary project risks
- Comprehensive offline preparation of the application ensures the shortest possible start-up times on the real system

Choose the appropriate programming support to match your project-specific circumstances

Comprehensive

Complete cell and robot programming
From the first simulation to the ramp-up phase and acceptance – the complete handover for your automation project.

Flexible

Programming support via support quotas
Support your robot programming through flexible quotas.

Individual

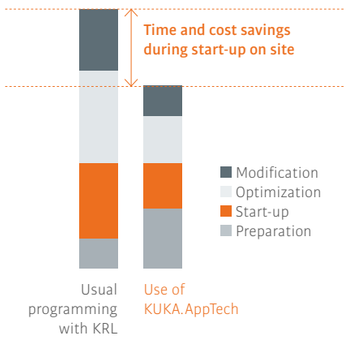
Hand-in-hand programming support
Execution of specific project phases of your automation.

KUKA.AppTech. Reach your goal faster with established standards.

Our option package provides the common thread in application programming with defined interfaces, ready-made program structures and modules.

KUKA.AppTech includes
- Proven station and component program templates
- A comprehensive library of customizable and expandable function blocks
- PLC function and data blocks for seamless, optimized PLC programming for common PLC manufacturers

With KUKA.AppTech as the company standard, you save valuable time since the program logic and operator control concept are always identical.



Installation and configuration. Professional, precise installation and start-up support.

We install and assemble your equipment. Through error-free initial start-up and installation, we ensure correct operating parameters of the robot components. This increases durability, avoids unwanted problems when replacing components and reduces maintenance costs.
Our scope of services
- Initial robot start-up and configuration
  - Correct configuration of the load cases, robot check
  - Load data determination, correct adjustment of the energy supply system
- Robot and KL assembly
  - Precise installation according to specifications
  - Acceptance report

Added value for you
- Less wear and longer service life of your equipment
- No reteaching after maintenance and repair
- Correct configuration and function right from the start

Customized concepts.
For every maintenance philosophy.

We are driven by the will to actively maximize our customers' productivity. Our highly qualified service personnel is available to you with short response times via remote and on-site support.

Our customized service concepts adapt to your maintenance philosophy and requirements. We proactively support you in maximizing all production parameters.

Added value for you
- Short response times, thanks to 24/7 service and KUKA technicians on site
- Preventive maintenance avoids unplanned downtime
- Certified technicians and manufacturer quality ensures a high first-time fix rate
- Leveraging optimization potential through KUKA process and robot specialists

System availability
- Maintenance agreements and service levels
- Extension of warranty
- 24/7 hotline support and availability
- Preventive maintenance management

+

Production output
- Detailed analysis and performance check
- Cycle time optimization
- Adaptation of cell layout and arrangement
- Improvement of ease of operation

+

Production quality
- Detailed analysis and performance check
- Process optimization
- Hardware and software upgrade
- Enhancement of process stability

click for more

KUKA maintenance agreements and service levels.
For maximum availability of your system.

Regular preventive maintenance is the cornerstone of high availability for your system. By choosing the appropriate service level, the response time can be reduced to a minimum: in case of unexpected problems, you can reach our technicians 24/7, 365 days a year. For new systems, we also offer the option of a warranty extension to a total of 5 years. This rules out any surprises for you.

All measures pursue one goal: maximum availability of your system.

Added value for you
- Prevention and avoidance of unplanned downtime
- Guaranteed fast start of technician call-out and rapid provision of spare parts 24/7 and 365 days a year
- Plannable costs for maintenance and repairs
- 100% expertise around the globe

Service level	Preventive maintenance			Warranty
	Parts24	Service24	Combi24Pro	MaintenancePro	WarrantyPro
Qualified technical hotline support from KUKA robot specialists with exclusive priority switching 24 hours a day, 365 days a year	✓	✓	✓	+	+
Guaranteed start-of service specialist call-out within max. 2 hours of the call, 24 hours a day, 365 days a year		✓	✓		+
Guaranteed provision of standard spare parts within max. 2 hours of the call, 24 hours a day, 365 days a year	✓	✓	✓		+
KUKA Xpert license (web-based knowledge base)	+	+	✓	+	+
Analysis and error processing on the basis of submitted program printouts and files	✓	✓	✓		✓
Service call-out on site		✓	✓		✓
Annual preventive maintenance			✓	✓	✓
Warranty extension to a total of 5 years					✓
Documentation and maintenance certification			✓	✓	✓
Travel costs and expenses for the annual maintenance visit (weekdays)			+	+	✓

✓ Service included in the price of the agreement

✓ Service covered by the agreement and invoiced on a time and material basis and at agreed flat rates

\+ Service optionally available as part of the agreement

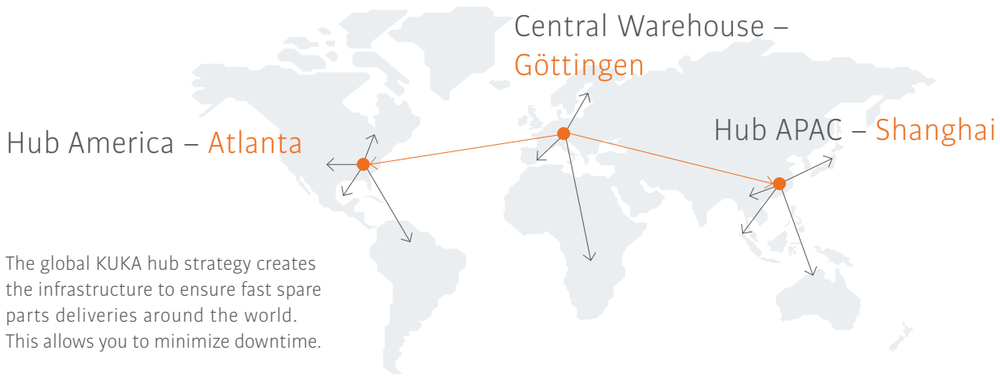
Spare parts and repairs.
Maximum availability. Anywhere. Anytime.

Even the tiniest of parts can have a huge impact if they no longer work correctly. Benefit from our KUKA spare parts service:

- Utmost quality thanks to perfect matching to our robots, cells and systems
- Fast and comprehensive spare parts supply via our modern central warehouse in Göttingen
- Creation of individual spare-parts and wearing-parts packages
- Exchange, reuse and repair of defective components in our KUKA repair center

Added value for you
- Extended cut-off times / acceptance times
- Order management around the globe 24/7, 365 days a year
- Worldwide customs clearance
- Maximum parts availability
- Uniform processes and utmost transparency

Global Hub Strategy



The global KUKA hub strategy creates the infrastructure to ensure fast spare parts deliveries around the world. This allows you to minimize downtime.

KUKA repair and exchange concept. The KUKA repair and exchange concept offers a safe and cost-effective alternative to new parts for many components. Our intelligent exchange concept reduces repair costs to a minimum compared to the price of a new part. The average cost of an exchange repair is significantly less than the price of a new part and is based on the actual repair requirements. You benefit from the cost advantage – regardless of the condition of the defective part.

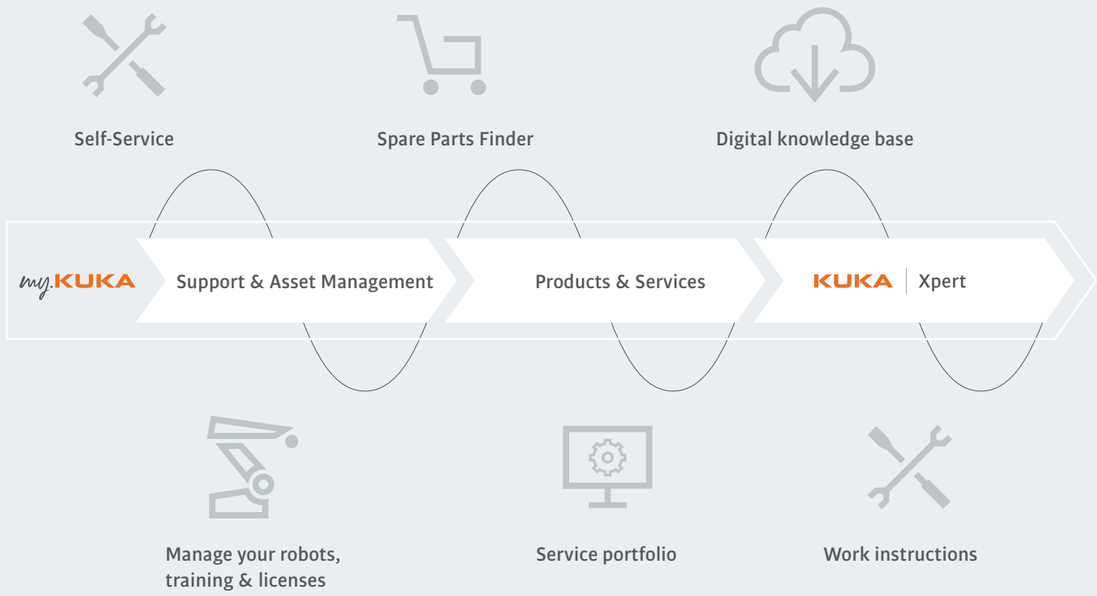
Added value for you
- Cost savings with the repair and exchange concept
- Quick response time due to advance shipment of the spare part and later return of the defective part
- Manufacturer-certified repair and quality standards

KUKA Digital Touchpoints.
Your digital connection to the world of KUKA.

Create your support requests online and track the processing status. Remain up-to-date at all times, and promptly receive the support you need.

Use the Spare Parts Finder to quickly and easily select and order the spare part you need for your robot.

The KUKA Xpert digital knowledge base provides comprehensive technical information, such as instructions and documentation for your KUKA products.



Register your KUKA products quickly and easily online and receive access to complete product documentation. Manage your KUKA licenses and stay up to date on employee training and development.

The digital product catalog provides you with a comprehensive overview of our service portfolio, spare parts and our digital products. Buy products directly online or submit a quotation request.

Get 24/7 direct access to work instructions as well as to fault diagnosis and trouble-shooting options for your KUKA assets.

Increase output.
Competent. Reliable. Trustworthy.

Challenges in your production
The success of automated production is based on improvement of the relevant operating parameters. Important parameters that need to be optimized on an ongoing basis include:

- Productivity
- Cost-effectiveness
- Connectivity
- Process quality
- User-friendliness
- Availability

Added value for you
- Analysis and identification of optimization potential by experienced KUKA application engineers
- Targeted and fast implementation of measures based on initial analysis
- Highest standard of certification and safety
- Enhancement of process accuracy, reliability and product quality

In two steps we can support you in optimizing your operating parameters.

KUKA Performance Check
Experts from KUKA carry out a comprehensive analysis of your system on site.

- Well-founded analysis of optimization potential by experienced KUKA application engineers
- Uncovering of unused potential by identifying downtime or malfunctions
- In-depth process analysis to rectify quality issues
- Identification of potential for optimization in cell layout and step sequence

KUKA Programming & Engineering
The KUKA team implements the optimization measures defined in the action plan.

- Robot programming
- PLC programming
- Upgrade and refurbishment measures
- Process optimization
- Software and plug-in development
- Digital services

Further KUKA services for your Operate and Maintain phase

KUKA Backup Services
- Automation and integration of your backup strategy into existing infrastructures
- Storage locations on external drives for centralized archive management
- Individual configuration of backup mechanisms

KUKA Safety Checks
- Check of the safe configuration
- Comparison of existing safety spaces with the layout
- Check of the clearances and stopping distances at space boundaries
- Safeguarding of HRC applications including force measurement

Added value for you
- Fast resumption of production in a backup situation
- Continuous alignment with the latest safety standards
- Assurance of the work safety of your automation

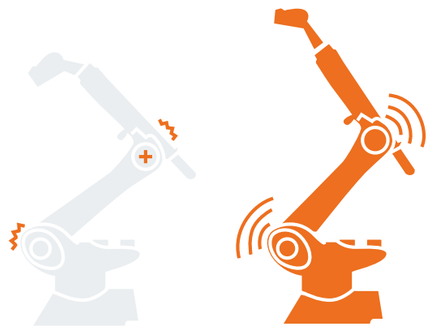
click for more

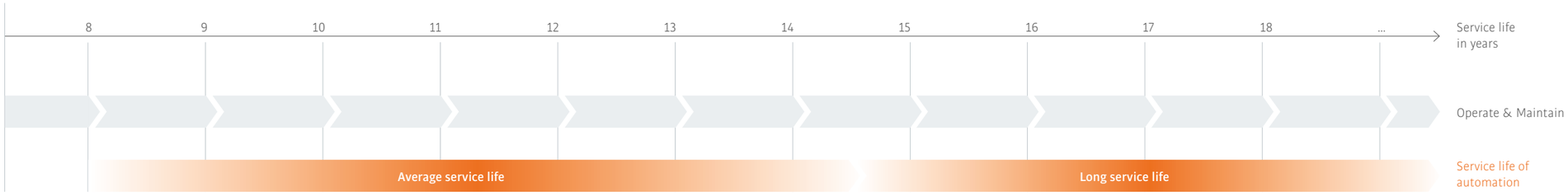
click for more

KUKA Upgrade and Refurbish Services.
Extend the service life of your robot automation.

When systems are in use for a prolonged period, it may be necessary to make adjustments. This is the case, on the one hand, when production conditions have changed. On the other hand, an upgrade will become necessary when spare part availability and support options can no longer be guaranteed. If a robot system is not brought up to date, there is a greater risk of unplanned downtime and maintenance costs. With Upgrade & Refurbishment Services, KUKA ensures the maximum service life of your robot systems.

Added value for you
- Maximization of the technical availability of your system
- Securing of your competitiveness through the latest technologies and high availabilities
- Maximization of your productivity and reduction of rejects and follow-up costs
- All from a single source, along with expertise directly from the manufacturer





KUKA Refurbishment Services

KUKA Refurbishment Services prepare your robot and system for their second life cycle. Besides targeted individual measures, KUKA offers attractive refurbishment bundles at your site. Our KUKA experts work with you to determine the necessary scope of the refurbishment project.

The KUKA refurbishment modules

KUKA Robot Refresh Packages
Complete overhaul of your robot arm including exchange of all common wearing parts.

KUKA KSS Upgrades
Software and PC upgrade for a future-proof robot system

KUKA CBS
Service Bundles
Worry-free exchange concept for counterbalancing systems

KUKA Retrofit Services

Particularly where systems with a long service life are concerned, a close inspection is guaranteed. Our KUKA engineers will be at your side for your retrofit project, and work with you to develop a strategy for future-proof automation.

Our range of services for your retrofit project

KUKA Retrofit Check
- Well-founded analysis of the current state on site
- Coordination of customer requirements
- Determination of retrofit measures
- Project preparation

KUKA Retrofit Project
- Mechanical and electrical design
- Simulation and offline programming (robot and PLC)
- Dismantling of the old equipment
- Installation and start-up on site, programming
- Issue of the CE declaration of conformity
- Production support and optimization

Used robots and machines: your cost-effective entry into robot automation

In addition to new products, KUKA also offers used industrial robots. These are extensively inspected by us, overhauled if necessary and offered with a warranty on all parts. Whether to rent, loan or purchase, used robots from KUKA offer the opportunity of a particularly cost-effective entry into robot-based automation.

Added value for you
- Customer-specific adaptations possible at any time (e.g. energy supply systems)
- Short delivery times through robots available from stock
- Three reliable quality categories: Superior, Premium and Certified
- Tested quality and warranty on all parts

Please feel free to contact us if you would like to sell your used KUKA robot.





























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