KUKA

CATALOG OF IDEAS

INDUSTRIAL ROBOTS / CONTROLLERS / SOFTWARE / APPLICATION MODULES /
LINEAR UNITS / POSITIONERS / ACCESSORIES / CUSTOMER SERVICES

KUKA

Shortcuts PC

F4	Hide/show the navigation bar
F8	Hide/show the tool bar
F9	Hide/show the menu bar
Ctrl+H	Read mode (enlarges display and hides the navigation bar and the tool bar)
Ctrl+L	Full screen mode (full screen size, all bars are hidden)
Ctrl+Y	Zoom factor (selectable)
Ctrl+Mouse wheel	Zoom
Ctrl+ “+” (“-”)	Zoom
Shift+Ctrl+H	Automatic scrolling
Ctrl+F	Search
Ctrl+P	Print

Shortcuts MAC

F4	Hide/show the navigation bar
F8	Hide/show the tool bar
Shift+cmd+M	Hide/show the menu bar
cmd +H	Read mode (enlarges display and hides the navigation bar and the tool bar)
cmd +L	Full screen mode (full screen size, all bars are hidden)
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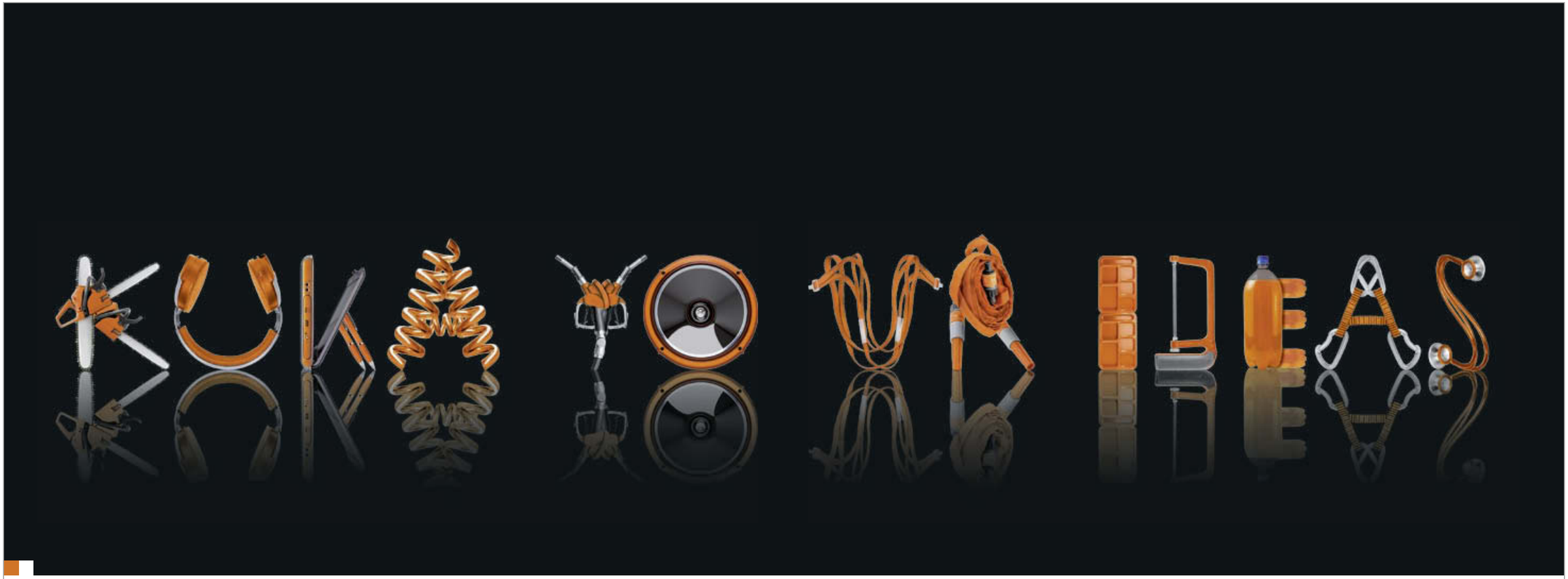
cmd +Mouse wheel	Zoom
cmd + “+” (“-”)	Zoom
Shift+ cmd +H	Automatic scrolling
cmd +F	Search
cmd +P	Print

WELCOME TO THE CATALOG OF IDEAS

CONTENTS

Helping people to develop and implement ideas: that is the goal to which we at the KUKA Robot Group aspire. The results can be seen in countless companies worldwide, in which products and services of the KUKA brand bring about impressive process optimizations. In short: whoever wants to make their production faster, better and more efficient relies on the KUKA Robot Group.
With creativity, quality “made in Germany” and the utmost commitment to our customers and business partners, KUKA has set the milestones in robotics for 35 years.
One proof of the flexibility, dynamism and innovative drive of our company is now in your hands: the KUKA Catalog of Ideas. The name is no coincidence. Because what awaits you on the following pages is more than just a presentation of the products and services that KUKA offers. We want to show you ways of making your ideas become reality.

To put it simply: **KUKA YOUR IDEAS**



Our motto **“KUKA YOUR IDEAS”** is a promise. Whatever you want to do, and however unusual your idea may be: with KUKA you can implement anything – whatever the sector, no matter whether a similar application has ever existed before.

The product diversity
Leading companies of all sizes and from the most varied sectors put their trust in this promise from the KUKA Robot Group. For good reason:
As the innovation and technology leader, KUKA offers the widest range of applications in the automotive industry. This is reflected in the multitude of different robot and controller variants. In one of the most modern robot production plants worldwide, each product is assembled and configured to the exact requirements of the customer. This ensures tailored solutions – and a major competitive advantage for our customers.
A further advantage for greater flexibility and security of investment is that all KUKA products are modular. This allows simple conversion or reconfiguration of your system for new or expanded tasks at any time.

The people
Genuine passion for the fascination of robotics: that’s what marks out our employees – over 2,000 of them worldwide. The KUKA Robot Group attaches particular importance to a work atmosphere that promotes creative ideas. In this way, many ideas can be turned into successful products.
With our customers and partners in systems integration, research and development, we maintain successful, long-term relationships that are based on trust. Always with the goal of finding the perfect solution and standing together at the forefront of robotic automation.

ALWAYS ONE IDEA AHEAD






The history of the KUKA Robot Group is also the history of robotics. Our product innovations have been a driving force behind automation for more than 35 years. Our passion for ideas and innovations has made KUKA the global leader for technology and the European market leader.

The future
The goal to which we at KUKA aspire is knowing today what our customers will need tomorrow. How this unconditional commitment to the solutions of the future is translated into strategy can be seen at our headquarters in Augsburg: From Development and Assembly to Customer Services, all departments work together at one location. With this concentrated robotic expertise, short lines of communication, and quality “made in Germany”, the KUKA Robot Group underpins its leadership position in the long term.
The result for our customers: automation at the highest level, and the good feeling that comes from being able to face the future with confidence.

The history
KUKA is founded in Augsburg in 1898 by Johann Keller and Jakob Knappich. The name KUKA is derived from the initial letters of the company name “Keller und Knappich Augsburg”.
KUKA launches into automation in 1956 with the construction of automatic welding lines and the delivery of the first multi-spot welding line to Volkswagen AG.
In 1973, KUKA positions itself at the forefront of international technical progress with the development of the world’s first industrial robot with six electromechanically driven axes. Since then, the KUKA Robot Group has revolutionized the world of robotics time and time again. And we're already working toward the next milestone …

KUKA AG
Today, the KUKA Robot Group belongs, together with the KUKA Systems Group, to KUKA Aktiengesellschaft. In this way, the combined know-how of two pioneering leaders in innovation and technology is now united under the umbrella of KUKA AG.
The perfect teamwork between the two parts of the company makes KUKA the leading global player for highly automated processes and process-linked robotics.
For manufacturing companies, this means substantial cost reductions, absolute production reliability and perfectly reproducible quality. In a nutshell: automation gets things moving.

First robot “Famulus” with 6 electromechanically driven axes

First robot without parallelogram

First open PC-based robot controller

First long-range robot
First heavy-duty robot

First Internet remote diagnosis for robots

First programmable logic controller (Soft PLC) conforming to IEC standard

First passenger-carrying robot “Robocoaster”

First “RoboTeams” of intelligent cooperating robots

First “Safe robot” enables safe human-machine interaction

First lightweight robot that can lift its own weight and be programmed via manual guidance

First robot with 1,000 kg payload

Argentina, Australia, Austria, Belgium, Brazil, Chile, China, Czech Republic, France, Germany, Hungary, India, Italy, Japan, Malaysia, Mexico, New Zealand, Norway, Poland, Portugal, Russia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, UK, USA

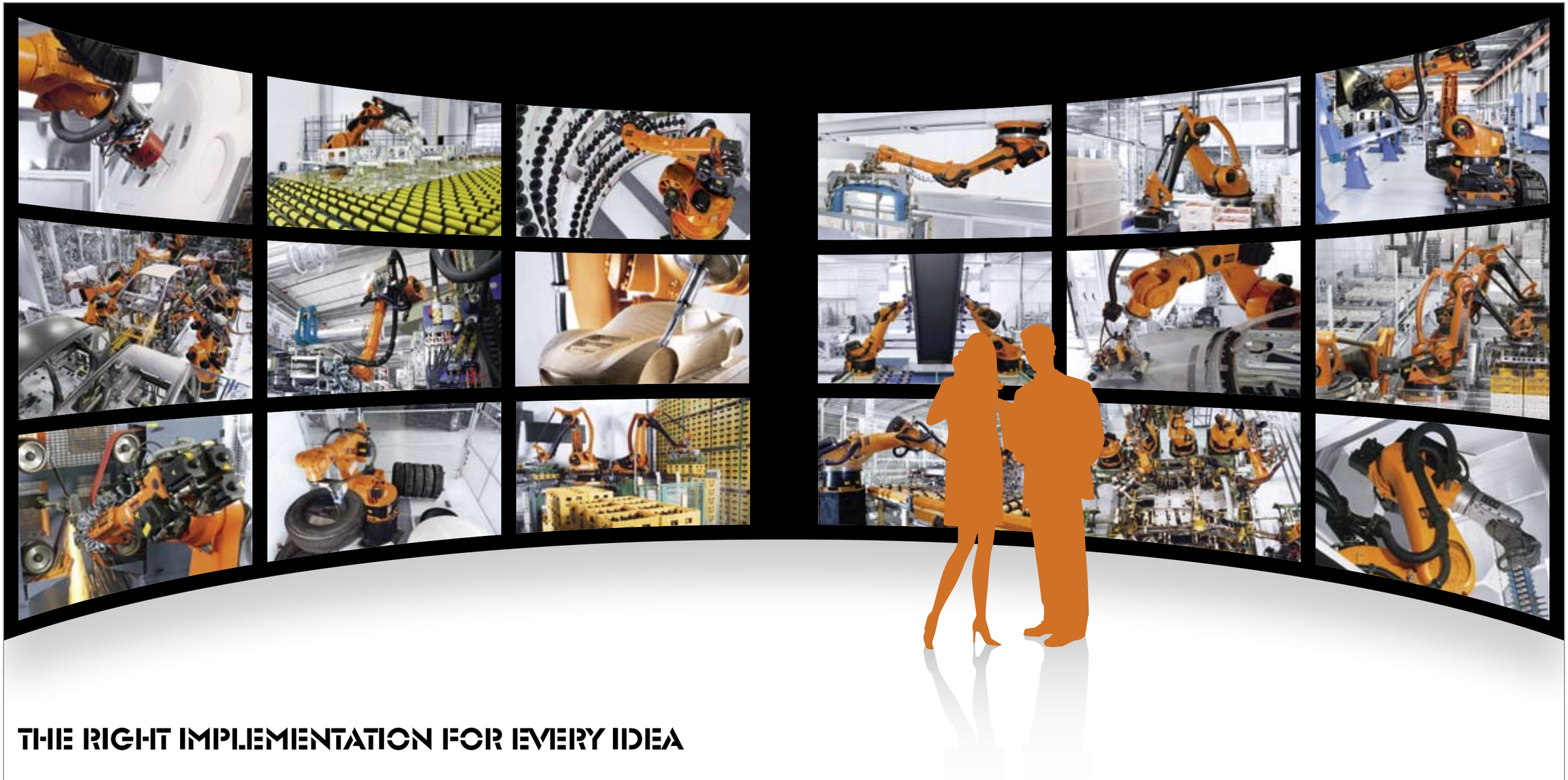
DISCOVER A WORLD OF IDEAS

Any time and anywhere in the world: the KUKA Robot Group is there for you and for the implementation of your ideas. More than 2,000 employees in over 25 subsidiaries worldwide are the living proof of this. With their specific knowledge, the individual conditions and typical local circumstances can be taken into account for each project.

The system partner network
Every production line is different. Every product has its own special features. For optimal adaptation to your individual requirements, KUKA works closely together with competent system partners in all fields. These include experienced system builders, system providers with industry know-how, application specialists and expert robot integrators.

KUKA Colleges
To enable your employees to realize the full potential of our products, there are certified KUKA Colleges worldwide – with globally uniform standards and a wide-ranging training program: from the basic course in robot operation to expert seminars in several parts leading to certification. And if required, training can also be held on site at your plant – anywhere in the world.

The service spectrum
Throughout the life cycle of your KUKA product, we offer you customer services that set standards right around the globe: from planning consultancy to system optimization. KUKA remote diagnosis via the Internet, together with our global network of customer service centers with more than 500 employees, ensure that help is available fast, 24 hours a day. And should you require a spare part, this will be delivered to you without delay.



THE RIGHT IMPLEMENTATION FOR EVERY IDEA

The systematic ongoing development of KUKA robot and control technology makes it possible to establish robotics across a broad spectrum of different markets. Cooperating robots are playing their part in optimizing production processes and making them more flexible, not just in the automotive industry. In general industry, the goal of development work is to continually tap into new markets. Today, the KUKA Robot Group offers the suitable automation solutions for virtually every industry and virtually every application.

The advantages
Whatever process steps need automating: with a KUKA robot you have everything under control. Because you benefit from optimal performance and flexibility – 24 hours a day, 365 days a year.
What's more, you can also rely round the clock on consistently high precision and repeatability rates of up to 0.015 millimeters. Further major advantages provided by KUKA products are their ease of operation, simple space-saving integration into production processes and availability rates of nearly 100 percent.

The services
When you opt for KUKA products, you get not only ground-breaking technology, but also the complete support to go with it. From planning and installation to maintenance management, KUKA offers you expert assistance throughout the entire life cycle.
You benefit here from the intensive cooperation with a global network of experienced system partners. This ensures you get the know-how that your industry and your application requires.

THOUSANDS OF POTENTIAL APPLICATIONS – INFINITE CHANCES FOR IDEAS

The fields of application for a KUKA robot are as diverse as their production. Whether in the warehouse, in manufacturing or in dispatch, for loading and unloading, for handling or for direct processing of the workpiece: the optimization potential of our robots can be put to work in every single phase.

The opportunities
Arc welding? Laser applications? Polishing pots? Stacking sacks of animal feed? With our globally unrivaled range of industrial robots spanning payloads from 5 to over 1,000 kilograms, and with perfectly integrated automation solutions and systems, every conceivable application is possible. And thanks to the modular design of KUKA products, it is a simple matter to adapt your production again and again to new work processes – quickly and cost-effectively.

1 INDUSTRIAL ROBOTS

Discover the world of ideas – the world of KUKA industrial robots. With countless different variants, versions and expansion options, the KUKA Robot Group offers you the widest range of applications for your current and future production tasks.

The KUKA modular robot system

The modular system is based on standard types which, depending on the model, are also available with arm extensions and for various installation positions. Building on this principle, KUKA can also provide you with special models that have been systematically optimized for specific tasks, as well as special variants that are ideally suited to operation in particular ambient conditions. In short, there is a suitable robot available for every application. The range of potential applications is unlimited.

Hint: All KUKA robot models are available in the floor-mounted version. Additional variants – for installation positions such as the ceiling or wall, and other special versions – are identified separately at the end of the "Technical data" tables.

CONTENTS: INDUSTRIAL ROBOTS

INDUSTRIAL ROBOTS

STANDARD MODELS

The KUKA standard models form the basis of the KUKA modular robot system. The spectrum covers an impressive selection of industrial robots which – depending on the model – are available with arm extensions and for different installation positions, such as on the ceiling or wall. The robot types shown here serve merely as examples for the following payload categories.

SMALL ROBOTS

LOW PAYLOAD CATEGORY (5 TO 16 KG)

MEDIUM PAYLOAD CATEGORY (30 TO 60 KG)

HIGH PAYLOAD CATEGORY (80 TO 270 KG)

HEAVY-DUTY CATEGORY (360 TO 1,000 KG)

SPECIAL MODELS

The KUKA special models are ideally suited to special tasks. Based on the standard models, these robot types have been systematically optimized to achieve optimal results in their respective applications. The robot types shown here serve merely as examples for the following construction types.

SHELF-MOUNTED ROBOTS (K/KS)

PALLETIZING ROBOTS (PA)

PRESS-TO-PRESS ROBOTS (P)

GANTRY ROBOTS (JET)

HOLLOW WRIST ROBOTS (HW)

SPECIAL VARIANTS

The KUKA special variants are specifically designed for particular ambient conditions. They are based on KUKA standard and special models that have been specifically adapted to these conditions. The robot types shown here serve merely as examples for the following environments.

CLEANROOM (CR)
Cleanroom robots

FOUNDRY (F)
Robots for environments with a high degree of fouling and high temperatures

STAINLESS STEEL (SL)
Stainless steel robots

EXPLOSION-PROOF (EX)
Robots for potentially explosive environments

WATERPROOF (WP)
Robots with a high IP protection rating against water and dust

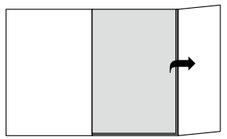
ARCTIC (ARCTIC)
Robots for deep-freeze environments

INDUSTRIAL ROBOTS

1.1 STANDARD MODELS

Fast, precise work in confined spaces with high repeatability or handling of heavy payloads up to 1,000 kg over a distance of more than six meters? No matter how varied the work processes – you are bound to find the right KUKA robot for your automation idea among the range of standard models.

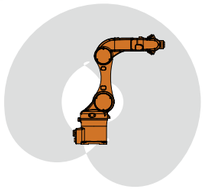
Flexible, expandable and packed full of innovative technology, KUKA robots are constantly opening up new areas of application. Find the right robot for your production task now – where many ideas are gathered together, the solution is never far away!



Simply open up the glossary on the last page of the Ideas Catalog – this provides you with an at-a-glance overview of all the information and explanations you might need regarding product designations.

CONTENTS: STANDARD MODELS

FOR FAST HANDLING



TYPE

KR 5 sixx

FEATURES AND ADVANTAGES

Durable
Reduction of wear through integrated routing of the energy supply system for air and I/O signals

Productive
Special brakes prevent axes 2 to 6 from sagging when the robot is switched off – this means that the robot is always ready for operation

Versatile
Expansion of the spectrum of applications with the optionally higher protection classification IP 65 against ingress of dust and jets of water

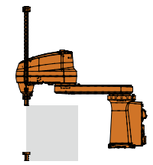
User-friendly
Thanks to the proven KR C2 sr controller, the robot is system-compatible with other KUKA models – thus allowing fast commissioning and simple maintenance

Flexible
Increased flexibility with variable mounting options on the floor and ceiling

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 5 sixx R650	KR C2 sr	6	5	650	< ±0.02	28	CR WP
KR 5 sixx R850	KR C2 sr	6	5	850	< ±0.03	29	CR WP

IDEAL FOR SMALL WORKPIECES



TYPE

KR 5 scara

FEATURES AND ADVANTAGES

Durable
Reduction of wear through integrated routing of the energy supply system for air and I/O signals

Productive
The brakes in axis 3 and the z axis prevent the axes from sagging due to gravity when the robot is switched off – this means that the robot is always ready for operation

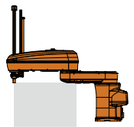
Versatile
Expansion of the spectrum of applications with the optionally higher protection classification IP 65 against ingress of dust and jets of water

User-friendly
Thanks to the proven KR C2 sr controller, the robot is system-compatible with other KUKA models – thus allowing fast commissioning and simple maintenance

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	Z-STROKE [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 5 scara R350 Z200	KR C2 sr	4	5	350	200	< ±0.015	20	WP
KR 5 scara R350 Z320	KR C2 sr	4	5	350	320	< ±0.015	20	WP
KR 5 scara R550 Z200	KR C2 sr	4	5	550	200	< ±0.02	20	WP
KR 5 scara R550 Z320	KR C2 sr	4	5	550	320	< ±0.02	20	WP

FOR FAST PICK & PLACE TASKS



TYPE

KR 10 scara

FEATURES AND ADVANTAGES

Durable
Reduction of wear through integrated routing of the energy supply system for air and I/O signals

Productive
The brakes in axis 3 and the z axis prevent the axes from sagging due to gravity when the robot is switched off – this means that the robot is always ready for operation

Versatile
Expansion of the spectrum of applications with the optionally higher protection classification IP 65 against ingress of dust and jets of water

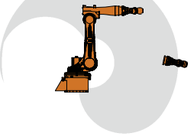
User-friendly
Thanks to the proven KR C2 sr controller, the robot is system-compatible with other KUKA models – thus allowing fast commissioning and simple maintenance

Fast
Counterbalancing system enables high working velocities

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	Z-STROKE [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 10 scara R600 Z300	KR C2 sr	4	10	600	300	< ±0.02	50	WP
KR 10 scara R600 Z400	KR C2 sr	4	10	600	400	< ±0.02	50	WP
KR 10 scara R850 Z300	KR C2 sr	4	10	850	300	< ±0.025	50	WP
KR 10 scara R850 Z400	KR C2 sr	4	10	850	400	< ±0.025	50	WP

COMPACT AND FLEXIBLE



TYPE

KR 5 arc

FEATURES AND ADVANTAGES

Space-saving
Compact dimensions reduce the footprint

Durable and requiring minimal maintenance
Longest service life of any robot in its class with 40,000 h assured production, longest maintenance intervals of over 20,000 h for uninterrupted production

Flexible
Use of a standard robot wrist means that it is not restricted to arc welding applications and is highly versatile

Light
Low weight simplifies transportation and installation

Productive
Automated mastering with electronic measuring tool ensures fast availability, even after malfunctions

Expandable
Operation on linear unit possible, thus also usable for larger workpieces

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 5 arc	KR C2 ed05	6	5	1,411	< ±0.1	127	C

13 DIFFERENT VARIANTS FOR EVERY FIELD OF APPLICATION

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DESCRIPTION

THE MASTERFUL MOVERS

Due to their enormous versatility and flexibility, these robots are used in most of the manufacturing industries – with automotive subsuppliers and also in non-automotive sectors. They are masterful movers in all installation positions, ideal for new space-saving, cost-effective system concepts.

FEATURES AND ADVANTAGES

Planning security
Low disruptive contours and streamlined design offer outstanding accessibility, even in confined spaces

Flexible
Variable installation variants offer high flexibility for different applications

Versatile
Large number of application-specific variants allows versatile range of applications

Cost-effective
Long service life and service cycles save expensive maintenance costs

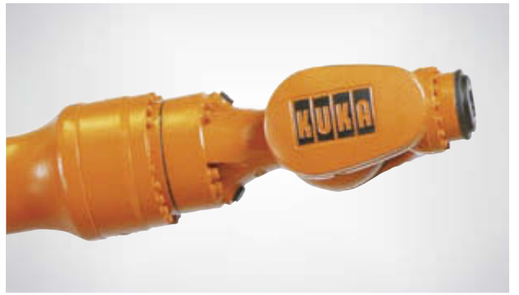
Durable
Robustness and reliability are the fruit of experience from 10,000 sold systems

TYPE

KR 6 | **KR 16**

TECHNICAL DATA

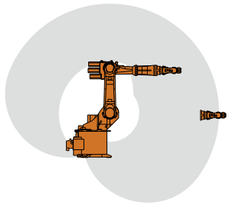
TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 6	KR C2 ed05	6	6	1,611	< ±0.1	235	C W
KR 16	KR C2 ed05	6	16	1,611	< ±0.1	235	C W CR F C-F W-F EX C-EX W-EX



The streamlined design of the wrist ensures that this robot enjoys minimal disruptive contours and maximum freedom of motion.

The Cleanroom (CR) and Foundry (F) variants allow operation even in extreme conditions.

FOR WORKSPACES WITH A DIAMETER OF UP TO 4 METERS



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TYPE

KR 16 L6

FEATURES AND ADVANTAGES

Long-reaching
Extension of the usable workspace, compared with that of the KR 16, with a 300 mm arm extension

Flexible
Variable installation positions enable optimal adaptation to the application and to the space available

Space-optimized
Low disruptive contours of the robot and the streamlined design of the wrist ensure high accessibility, even in confined spaces

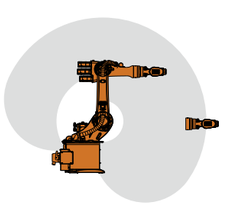
Cost-effective
Long service life and service cycles reduce costs for maintenance and servicing

Security of investment
Model from the tried-and-tested, modular range of standard KR 16 robots – this ensures planning security, high quality and availability

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 16 L6	KR C2 ed05	6	6	1,911	< ±0.1	240	C W

UP TO 18% SHORTER CYCLE TIMES POSSIBLE



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TYPE

KR 16 S

FEATURES AND ADVANTAGES

Fast
With greater drive power in main axes 1, 2 and 3, the high-speed variant of the KR 16 achieves savings of up to 18% in cycle times for unloading tasks

Flexible
Variable installation positions enable optimal adaptation to the application and to the space available

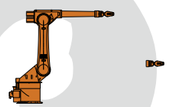
Space-optimized
Low disruptive contours of the robot and the streamlined design of the wrist ensure high accessibility, even in confined spaces

Cost-effective
Long service life and service cycles reduce costs for maintenance and servicing

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 16 S	KR C2 ed05	6	16	1,611	< ±0.1	235	C F

ENORMOUS WORKSPACE
OF 6.2 METERS



TYPE

KR 30 L16-3

FEATURES AND ADVANTAGES

Long-reaching
Enormous workspace diameter of 6.2 m, with long arm and link arm, opens up a whole new range of production possibilities

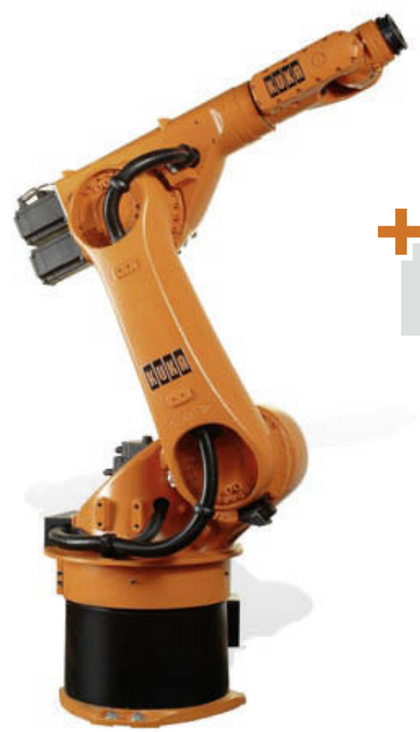
Space-optimized
Optimal accessibility, even in confined cells, thanks to streamlined design of the robot – ideal for bonding or sealing tasks

Customized
Choice of floor-mounted or ceiling-mounted versions allows optimal use in customized system layouts

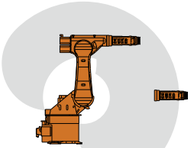
Durable
Proven standard components in reliable KUKA quality stand for reliability and durability

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 30 L16-3	KR C2 ed05	6	16	3,102	< ±0.15	700	C F EX C-EX



20 VARIANTS, OPTIMIZED
FOR EFFICIENT AND
COST-SAVING OPERATION



TYPE

KR 30-3 KR 60-3

FEATURES AND ADVANTAGES

Planning security
Thanks to greater flexibility offered by a wide range of variants, suitable robots are available for every application

Precisely programmable
Minimal disruptive contours allow efficient offline programming

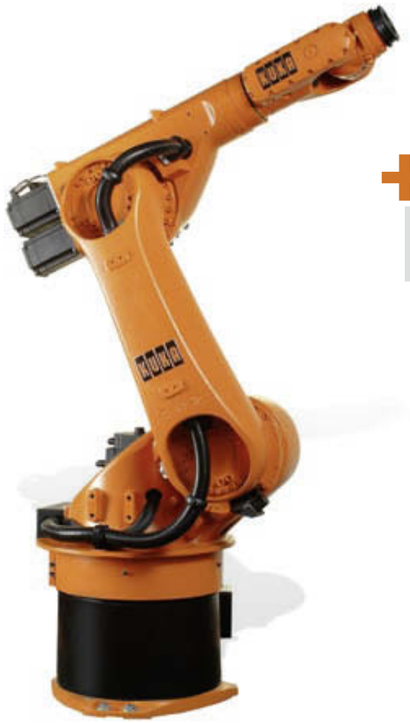
Process-force-optimized
High stiffness resulting from FEM-optimized structure compensates for process forces generated

Space-saving
Small footprint allows use even in confined cell layouts

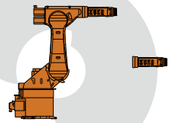
Fast and accurate
Optimally matched motor/gear units ensure high performance in terms of cycle times and accuracy

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 30-3	KR C2 ed05	6	30	2,033	< ±0.15	665	C CR F C-F
KR 60-3	KR C2 ed05	6	60	2,033	< ±0.2	665	C CR F C-F
KR 60 L45-3	KR C2 ed05	6	45	2,230	< ±0.25	671	C CR F C-F
KR 60 L30-3	KR C2 ed05	6	30	2,429	< ±0.25	679	C CR F C-F



IDEAL FOR HIGH-ACCURACY CONTINUOUS-PATH PROCESSES, E.G. LASER APPLICATIONS



TYPE

KR 30 HA | KR 60 HA

FEATURES AND ADVANTAGES

Highly accurate
Special gear units with maximum accuracy and very high correction velocities ensure optimal process results and repeatability of 0.2 mm on the linear path

Efficient
High absolute accuracy and minimal disruptive contours allow optimal offline programming

Space-saving
Compact dimensions reduce the footprint and allow compact cell layouts

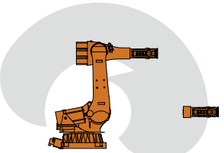
Process-force-optimized
High stiffness resulting from FEM-optimized structure compensates for process forces generated

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 30 HA	KR C2 ed05	6	30	2,033	< ±0.1	665	C
KR 60 HA	KR C2 ed05	6	60	2,033	< ±0.15	665	C
KR 60 L45 HA	KR C2 ed05	6	45	2,230	< ±0.2	671	C
KR 60 L30 HA	KR C2 ed05	6	30	2,429	< ±0.2	679	C

SERIES 2000

IDEAL FOR HIGH-ACCURACY CONTINUOUS-PATH PROCESSES, E.G. LASER APPLICATIONS



TYPE

KR 100 HA

FEATURES AND ADVANTAGES

Highly accurate
Special gear units with maximum accuracy and very high correction velocities ensure optimal process results and point repeatability of ±0.1 mm

Suitable for use with lasers
Highly accurate robot arm with enormous reach allows linear path repeatability of ±0.2 mm – optimal for laser applications

Fast
High orientation velocity of the wrist axes, generated by powerful drives and high-ratio axes, speed up processing

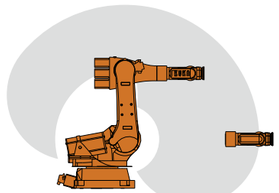
Long-reaching
Arm extensions of up to 400 mm enable reaches of up to 3,000 mm; the resultant large workspace allows the processing of large workpieces

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 100 HA	KR C2 ed05	6	100	2,600	< ±0.1	1,200	C
KR 100 L90 HA	KR C2 ed05	6	90	2,800	< ±0.1	1,207	
KR 100 L80 HA	KR C2 ed05	6	80	3,000	< ±0.1	1,210	

COMP SERIES

HIGH STIFFNESS AS A RESULT OF SHORT ARM AND LINK ARM



DESCRIPTION

COMPACT ROBOTS

The comp series is designed for loads weighing 100 to 220 kg. Due to their versatility and flexibility, comp robots are at home in most of the manufacturing industries – with automotive subsuppliers and also in non-automotive sectors. They are masterful movers and are ideally suited to new space-saving, cost-effective system concepts.

FEATURES AND ADVANTAGES

Stable
The closed link arm and short arm bring high stiffness for applications with process forces

Dynamic
High installed motor power combined with short link lengths increase the dynamic performance and production capacity

Space-optimized
Low disruptive contours and streamlined design ensure high accessibility, even in confined spaces

Precise
Performance-optimized path planning ensures high accuracy

TYPE

KR 100-2 comp | KR 140-2 comp | KR 200-2 comp | KR 220-2 comp

TECHNICAL DATA

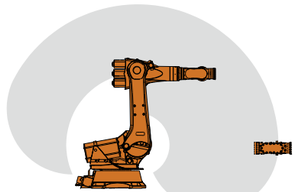
TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 100-2 comp	KR C2 ed05	6	100	2,400	< ±0.15	1,155	
KR 140-2 comp	KR C2 ed05	6	140	2,400	< ±0.15	1,155	
KR 140 L120-2 comp	KR C2 ed05	6	120	2,600	< ±0.15	1,165	
KR 140 L100-2 comp	KR C2 ed05	6	100	2,800	< ±0.15	1,170	
KR 200-2 comp	KR C2 ed05	6	200	2,400	< ±0.15	1,155	
KR 200 L170-2 comp	KR C2 ed05	6	170	2,600	< ±0.15	1,165	
KR 200 L140-2 comp	KR C2 ed05	6	140	2,800	< ±0.15	1,170	
KR 220-2 comp	KR C2 ed05	6	220	2,400	< ±0.15	1,155	

The components of the comp series are optimized in terms of dynamic performance and torsional stiffness.

The successful outcome of 20 years of experience in spot welding, with low disruptive contours and internally routed cables.

SERIES 2000

LARGE PRODUCT RANGE
WITH VERSATILE VARIANTS



product design award 2002

reddot design award
winner 2002

DESCRIPTION

THE ALL-ROUNDERS

Extremely strong motors, gear units and servo drives – these are what give the Series 2000 robots a decisive edge in terms of power and open up even more potential applications. Long reaches and the broad spectrum of models for payloads from 150 to 270 kg allow an optimal design for any application. And thanks to their systematically modular design and wide range of expansion options, Series 2000 robots can be upgraded as required. This means a high degree of planning reliability and security of investment.

FEATURES AND ADVANTAGES

Planning security
Wide range of reaches and payload capacities allow an optimal design for any application

Versatile and expandable
Broad spectrum of variants and modular expansion options for flexible production operation

Fast
Powerful drives and proven gearmotors allow short cycle times

Low maintenance
Wear-resistant components, e.g. robot wrist drives with beltless spur gears, increase maintenance intervals and reduce maintenance costs

TYPE

KR 150-2 | KR 180-2 | KR 210-2 | KR 240-2 | KR 270-2

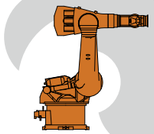
TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 150-2	KR C2 ed05	6	150	2,700	< ±0.12	1,245	C CR F C-F
KR 150 L130-2	KR C2 ed05	6	130	2,900	< ±0.12	1,255	C CR F C-F
KR 150 L110-2	KR C2 ed05	6	110	3,100	< ±0.12	1,263	C CR F C-F
KR 180-2	KR C2 ed05	6	180	2,700	< ±0.12	1,267	C CR F C-F
KR 180 L150-2	KR C2 ed05	6	150	2,900	< ±0.12	1,277	C CR F C-F
KR 180 L130-2	KR C2 ed05	6	130	3,100	< ±0.12	1,285	C CR F C-F
KR 210-2	KR C2 ed05	6	210	2,700	< ±0.12	1,267	C CR F C-F
KR 210 L180-2	KR C2 ed05	6	180	2,900	< ±0.12	1,277	C CR F C-F
KR 210 L150-2	KR C2 ed05	6	150	3,100	< ±0.12	1,285	C CR F C-F
KR 240-2	KR C2 ed05	6	240	2,700	< ±0.12	1,267	C CR F C-F
KR 240 L210-2	KR C2 ed05	6	210	2,900	< ±0.12	1,277	C CR F C-F
KR 240 L180-2	KR C2 ed05	6	180	3,100	< ±0.12	1,285	C CR F C-F
KR 270-2	KR C2 ed05	6	270	2,700	< ±0.12	1,267	F

Streamlined design and internally routed cables ensure a high degree of flexibility and planning security.

The Cleanroom (CR) and Foundry (F) variants allow operation even in extreme conditions.

THE WORLD'S FIRST HEAVY-DUTY ROBOT



TYPE

KR 360-2 | KR 500-2

FEATURES AND ADVANTAGES

Productive
Point repeatability of ±0.15 mm and arm extensions up to 500 mm ensure reliable production quality

Flexible
Choice of floor-mounted or ceiling-mounted versions allows optimal use in customized cell concepts

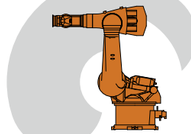
High-performance
High payload capacities up to 360 and 500 kg enable the handling of heavy workpieces

Versatile
Broad product spectrum, with heat- and water-resistant variants, and variants that are suitable for cleanroom applications, for high adaptability to all ambient conditions

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 360-2	KR C2 ed05	6	360	2,826	< ±0.15	2,350	C F
KR 360 L280-2	KR C2 ed05	6	280	3,076	< ±0.15	2,375	C F
KR 360 L240-2	KR C2 ed05	6	240	3,326	< ±0.15	2,385	C F
KR 500-2	KR C2 ed05	6	500	2,826	< ±0.15	2,350	C CR F C-F
KR 500 L420-2	KR C2 ed05	6	420	3,076	< ±0.15	2,375	C F C-F
KR 500 L340-2	KR C2 ed05	6	340	3,326	< ±0.15	2,385	C F C-F

IDEALLY SUITED TO PRECISE MILLING APPLICATIONS



TYPE

KR 500-2 MT

FEATURES AND ADVANTAGES

Versatile
Precise versatility of motion of the jointed-arm industrial robot, even in the case of process forces of up to 8,000 N

Long-reaching
Safe handling of large workpieces weighing up to 500 kg, with reaches of up to 3,326 mm

High-performance
Ideally suited to the milling of heavy and hard materials and other processes with application of strong forces, e.g. friction-stir welding, drilling or riveting

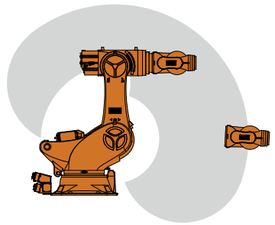
Flexible
Optionally available as a Foundry variant or with milling equipment (see photograph)

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	MAX. PROCESS LOAD [N]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 500-2 MT	KR C2 ed05	6	500	8,000	2,826	< ±0.15	2,350	F
KR 500 L480-2 MT	KR C2 ed05	6	480	8,000	3,326	< ±0.15	2,375	F

WORLD'S FIRST ROBOT WITH 1,000 kg PAYLOAD CAPACITY

reddot design award
winner 2008



DESCRIPTION

THE TITAN

This giant manages to reach distances of up to 6.5 m while precisely handling heavy engine blocks, stone, glass, steel beams, components for ships and aircraft, marble blocks, precast concrete parts, and much more, weighing up to 1,000 kg. Its strength lies in its compact design that optimally utilizes the workspace and allows it to be integrated into your system in a space- and cost-saving manner.

FEATURES AND ADVANTAGES

Space- and cost-saving
Compact design allows space-saving cell designs, thus reducing shop costs

Fast
High speed and dynamic acceleration allow short cycle times

Expandable
Wide range of additional potential applications by means of combination with KUKA peripheral equipment, e.g. linear axes

Productive
Minimal disruptive contours allow positioning close to the application and effectively increase the usable workspace

Efficient
Higher robot accuracy means greater manufacturing quality, less scrap, lower production costs and thus greater efficiency

Easy to integrate
Simple integration into plants and systems, as no adaptation of the foundations required, thereby saving additional investment costs

TYPE

KR 1000 titan

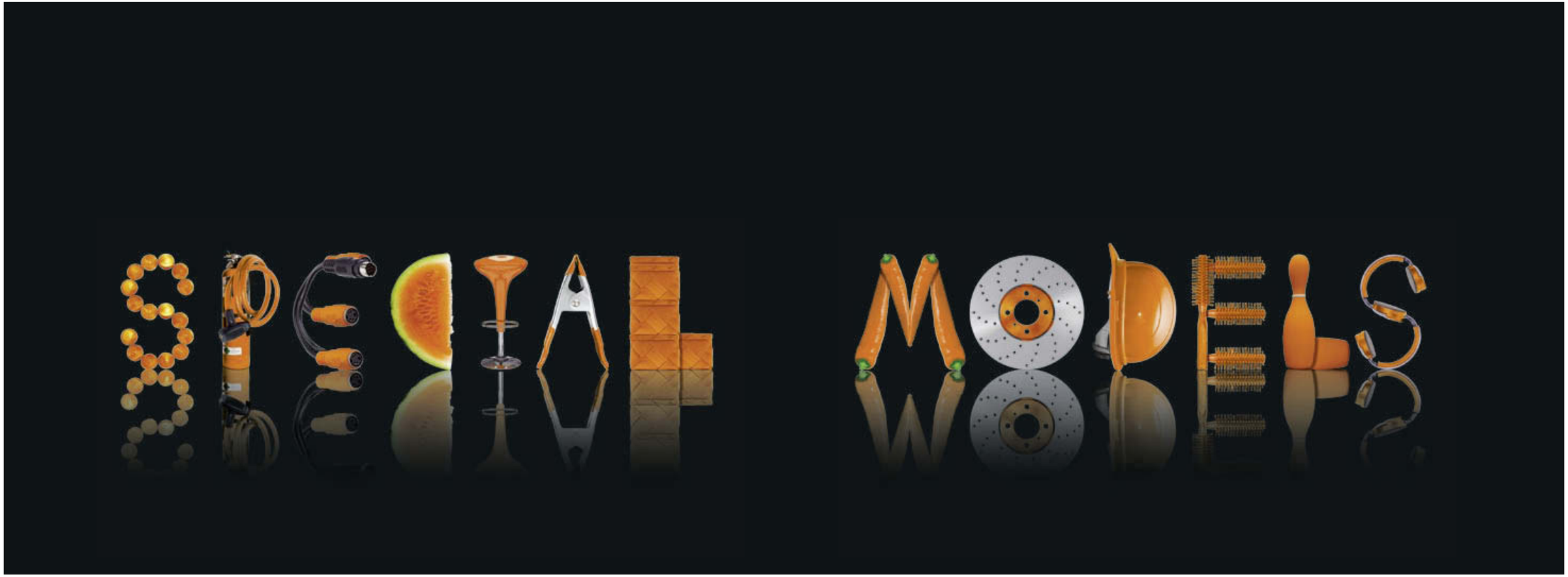
TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 1000 titan	KR C2 ed05	6	1,000	3,200	< ±0.2	4,690	F
KR 1000 L750 titan	KR C2 ed05	6	750	3,600	< ±0.2	4,740	F

Mechanical components of ductile cast iron and cast aluminum ensure maximum stability combined with maximum dynamic performance.

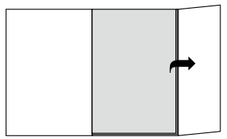
Two motors and gear units in axis 2 and a new operating concept in axis 1 ensure maximum accuracy with heavy payloads.

INDUSTRIAL ROBOTS



1.2 SPECIAL MODELS

The more difficult the tasks, the more KUKA robots simplify the work processes. In this chapter you will find special robot models that have been optimized to specific requirements and geared towards maximum utilization of the workspaces.
Whatever specialist you are looking for: you will certainly find the right type for your application among the KUKA range of special models. The spectrum ranges from an impressive selection of shelf-mounted robots, press-to-press robots and palletizing robots, to arc welding specialists with Hollow Wrist, and even KUKA JET gantry robots with the jointed-arm robot mounted directly on the linear unit.
As you can see: KUKA is always there to help you.



Simply open up the glossary on the last page of the Ideas Catalog – this provides you with an at-a-glance overview of all the information and explanations you might need regarding product designations.

CONTENTS: SPECIAL MODELS

OPTIMIZED FOR UNLOADING FROM ABOVE WITH DOWNWARD REACH OF 1.5 METERS

DESCRIPTION

THE PROCESS OPTIMIZERS

Versatile and flexible: KUKA shelf-mounted robots master complex work sequences in confined spaces. Mounted on a machine, with axis 2 located further forward, they offer an increased depth of work envelope in a downward direction. This is a particular advantage for the loading and unloading of machines such as injection molders. The shorter lifting distances and longer reach due to the low base frame help to reduce cycle times in machine tending tasks.

FEATURES AND ADVANTAGES

Process-optimized
Locating axis 2 further forward increases the depth of the work envelope in a downward direction; this makes the robot ideal for unloading machines

Space- and cost-saving
Due to their low weight, the robots can be installed directly on the machine, thus saving space and costs

Flexible
Low base frame and large freedom of motion in axis 2 ensure high flexibility and increased accessibility

Heat-resistant
Available in the Foundry variant for operation with die-casting machines and in other working environments with high temperatures

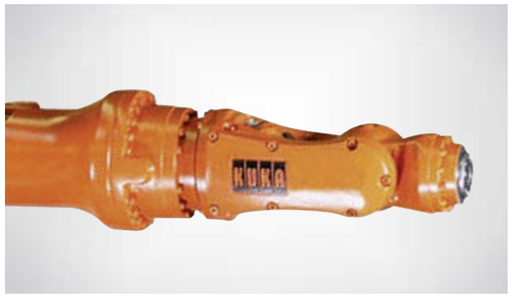
TYPE

SHELF-MOUNTED ROBOT | **KR 6 KS** | | **KR 16 KS** |

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 6 KS	KR C2 ed05	6	6	1,801	< ±0.1	240	
KR 16 KS	KR C2 ed05	6	16	1,801	< ±0.1	245	C F

Having axis 2 located further forward offers high flexibility and outstanding accessibility, particularly when reaching downwards.



The streamlined design with low disruptive contours makes it possible to reach workpieces, even in confined spaces.

HUGE WORKSPACE WITH
A DIAMETER OF 4.2 METERS

TYPE

SHELF-MOUNTED ROBOT | KR 16 L6 KS

FEATURES AND ADVANTAGES

Long-reaching
Extension of the usable workspace, compared with that of the KR 16 KS, with a 300 mm arm extension

Process-optimized
Locating axis 2 further forward increases the depth of the work envelope in a downward direction; this makes the robot ideal for unloading machines

Cost-effective
Long service life and service cycles reduce maintenance costs

Available quickly
This robot comprises standard modules from the service-proven KR 16 product family, thereby ensuring fast availability and high reliability

Space-optimized
Low disruptive contours of the robot and the streamlined design of the wrist ensure high accessibility, even in confined spaces

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 16 L6 KS	KR C2 ed05	6	6	2,101	< ±0.1	245	

HIGH-SPEED VARIANT
REDUCES CYCLE TIMES
BY UP TO 18%

TYPE

SHELF-MOUNTED ROBOT | KR 16 KS-S

FEATURES AND ADVANTAGES

Fast
Up to 18% shorter cycle times and higher system output as a result of greater drive power in the main axes

Space-saving
Optimized workspace and low disruptive contours thanks to low base frame and large freedom of motion in axis 2 – ideal for unloading from above

Flexible
High flexibility thanks to variable installation options for different applications

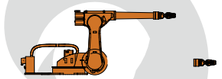
Space-optimized
Low disruptive contours of the robot and the streamlined design of the wrist ensure high accessibility, even in confined spaces

Cost-effective
Long service life and service cycles reduce maintenance costs

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 16 KS-S	KR C2 ed05	6	16	1,801	< ±0.1	245	F

HUGE WORKSPACE WITH
A DIAMETER OF 6 METERS



TYPE

SHELF-MOUNTED ROBOT | KR 60 L16-3 KS |

FEATURES AND ADVANTAGES

Long-reaching
The long arm results in a huge workspace with a diameter of 6 m and an enormous downward reach of 2.5 m

Space-optimized
The low disruptive contours of the robot and the streamlined design of the wrist ensure high accessibility, even in confined spaces, e.g. for the application of adhesive or sealant

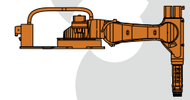
Process-optimized
Axis 2 is very low, thereby increasing the depth of the work envelope in a downward direction – ideal for unloading machines from above

Cost-effective
Due to their low weight, the robots can be installed directly on the machine, thus saving space and costs

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 60 L16-3 KS	KR C2 ed05	6	16	2,952	< ±0.2	650	

UP TO 20% FASTER WITH
MORE POWERFUL DRIVES



TYPE

SHELF-MOUNTED ROBOT | KR 30-4 KS | | KR 60-4 KS |

FEATURES AND ADVANTAGES

Process-optimized
Axis 2 is very low, thereby increasing the depth of the work envelope in a downward direction – ideal for unloading machines from above

Flexible
Numerous variants for a wide range of different payloads and reaches ensure maximum planning security

High-performance
High production capacity due to powerful drives in the main axes

Heat-resistant
Also available in the Foundry variant for work at high temperatures, e.g. with metal-casting machines

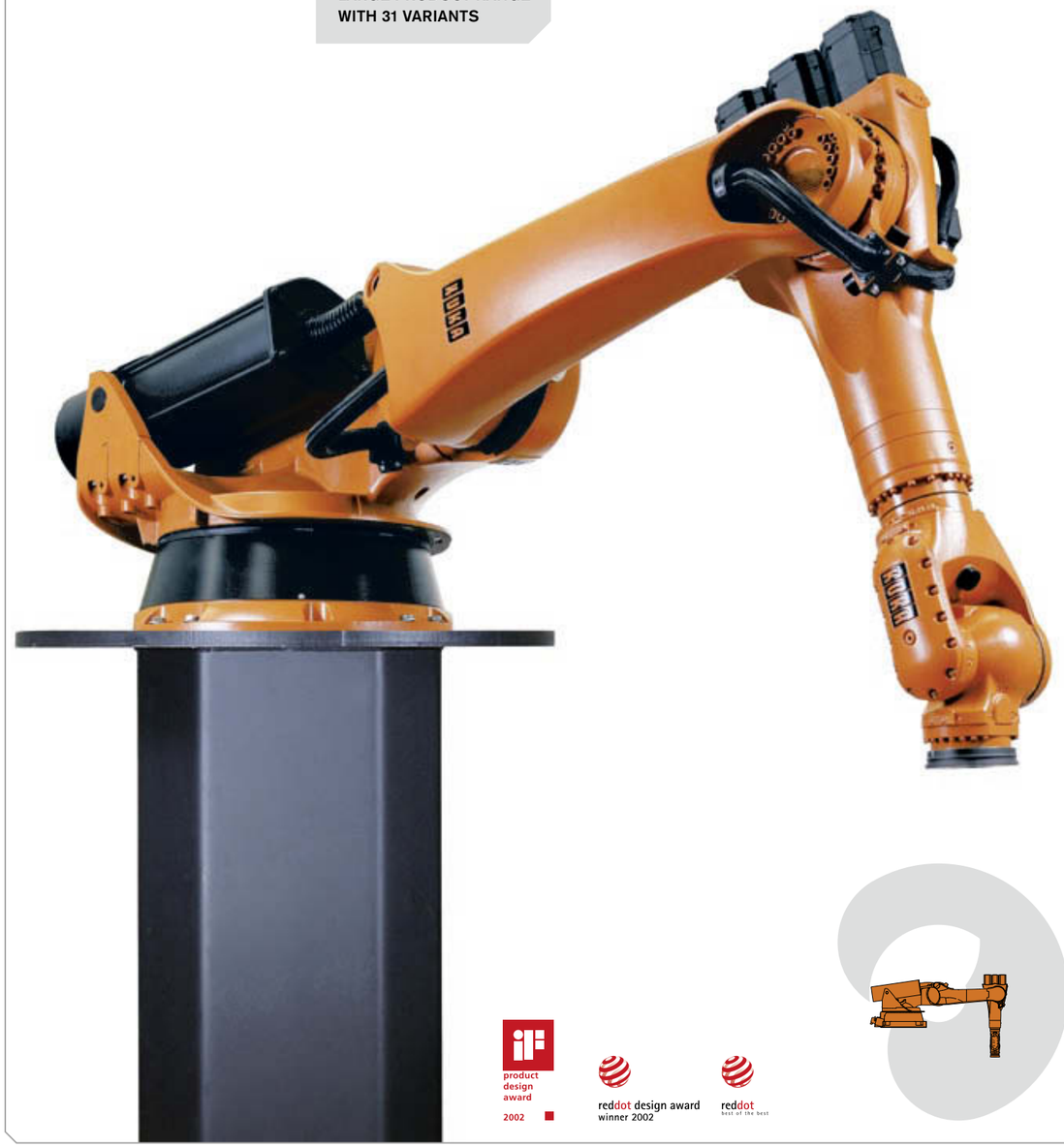
Cost-effective
Due to their low weight, the robots can be installed directly on the machine, thus saving space and costs

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 30-4 KS	KR C2 ed05	6	30	2,233	< ±0.15	600	F
KR 60-4 KS	KR C2 ed05	6	60	2,233	< ±0.20	600	F
KR 60 L45-4 KS	KR C2 ed05	6	45	2,430	< ±0.25	610	F
KR 60 L30-4 KS	KR C2 ed05	6	30	2,628	< ±0.25	615	F

SERIES 2000

LARGE PRODUCT RANGE
WITH 31 VARIANTS



product design award 2002

reddot design award winner 2002

reddot best of the best

DESCRIPTION

THE CYCLE TIME OPTIMIZERS

Series 2000 shelf-mounted robots are designed for high payloads of up to 210 kg. Thanks to their particularly powerful motors, high-performance gear units and servo drives, they offer high performance. In many applications, these robots shorten cycle times and increase productivity. Furthermore, they represent greater reach and flexibility. The robot wrist of these models has protection classification IP 65 or IP 67.

FEATURES AND ADVANTAGES

Versatile
Comprehensive model range, with high payload capacities and workspace diameters of up to 8 m, offers the optimal design for every application

Planning security
Broad product spectrum with the right robot for every task and utmost planning security

Process-optimized
Having axis 2 located further forward makes this series ideal for unloading machines from above

Cost-effective
Due to their low weight, the robots can be installed directly on the machine, thus saving space and costs

High-performance
High performance and production capacity due to powerful drive train

TYPE

SHELF-MOUNTED ROBOT | **KR 150-2 K** | **KR 180-2 K** | **KR 210-2 K**

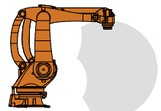
TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 150-2 K	KR C2 ed05	6	150	3,100	< ±0.2	1,445	CR F
KR 150 L130-2 K	KR C2 ed05	6	130	3,300	< ±0.2	1,455	CR F
KR 150 L110-2 K	KR C2 ed05	6	110	3,500	< ±0.2	1,465	CR F
KR 180-2 K	KR C2 ed05	6	180	3,100	< ±0.2	1,445	CR F
KR 180 L150-2 K	KR C2 ed05	6	150	3,300	< ±0.2	1,455	CR F
KR 180 L130-2 K	KR C2 ed05	6	130	3,500	< ±0.2	1,465	CR F
KR 180 L100-2 K	KR C2 ed05	6	100	3,700	< ±0.2	1,475	F
KR 210-2 K	KR C2 ed05	6	210	3,100	< ±0.2	1,445	CR F
KR 210 L180-2 K	KR C2 ed05	6	180	3,100	< ±0.2	1,455	CR F
KR 210 L150-2 K	KR C2 ed05	6	150	3,500	< ±0.2	1,465	CR F
KR 210 L100-2 K	KR C2 ed05	6	100	3,900	< ±0.2	1,515	F

KUKA shelf-mounted robots are ideal for unloading parts from injection molding machines.

The low base is specially optimized for working downwards.

LARGE REACH AND LARGE STACKING HEIGHTS OF UP TO 1.8 METERS



TYPE

PALLETIZING ROBOT **KR 40 PA**

FEATURES AND ADVANTAGES

High-performance
Use of carbon-fiber-reinforced components reduces the weight and enables a working speed of 56 cycles per minute

Space-saving
Narrow base frame and small mounting surface result in a small footprint

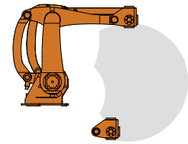
Cost-effective
In most applications, the integrated energy supply system dispenses with the need for an additional dress package

Process-optimized
The wide workspace resulting from the 4-axis kinematic system enables pallets to be stacked up to 1.8 m high

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 40 PA	KR C2 ed05	4	40	2,091	< ±0.25	700	

TRANSFER OF GOODS WEIGHING UP TO 50 kg



TYPE

PALLETIZING ROBOT **KR 50 PA**

FEATURES AND ADVANTAGES

High-performance
Short cycle times and greater throughput thanks to use of carbon-fiber-reinforced components

Process-optimized
Its 2-axis kinematic system, large work envelope and considerable reach make the robot ideal for transferring goods

Space-saving
Narrow base frame and small mounting surface result in a small footprint

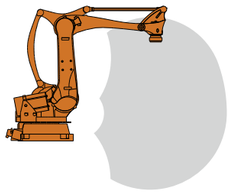
Reliable
Despite being a special model, the robot is operated using the standard, service-proven KUKA controller and software

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 50 PA	KR C2 ed05	2	50	1,991	< ±0.25	492	

SERIES 2000

LARGE REACH AND LARGE STACKING HEIGHT OF UP TO 2.5 METERS



product design award 2002

reddot design award winner 2002

DESCRIPTION

THE STACKING SPECIALISTS

These Series 2000 robots have particularly powerful motors and high-performance gear units and servo drives. They are specially designed for palletizing and depalletizing tasks. The KUKA KR 180-2 PA palletizing robot is light, fast and powerful and has been developed especially for high-speed tasks with heavy payloads. The special Arctic variant can also be operated reliably in temperatures as low as –30 °C.

FEATURES AND ADVANTAGES

High-performance
The low weight achieved by using carbon-fiber-reinforced components allows short cycle times and greater throughput

Process-optimized
These robots are ideally adapted to the requirements of palletizing tasks and can easily stack multiple pallets to a great height

Space- and cost-saving
Significant cost savings, as the narrow base frame and small footprint mean that less shop space is required

Reliable
Despite being a special model, the robot is operated using the standard, service-proven KUKA controller and software

Fast
Particularly powerful motors and gear units ensure fast production with approx. 30 cycles per minute for a payload of 100 or 180 kg and a palletizing distance of 125/500/600 mm

TYPE

PALLETIZING ROBOT | **KR 100-2 PA** | **KR 180-2 PA**

TECHNICAL DATA

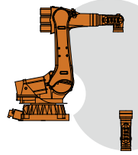
TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 100-2 PA	KR C2 ed05	4	100	3,200	< ±0.25	1,200	
KR 180-2 PA	KR C2 ed05	4	180	3,200	< ±0.25	1,200	Arctic

KUKA palletizing robots can solve any transfer task in next to no time.

Use of carbon-fiber-reinforced components reduces the weight and increases the performance.

SERIES 2000

LARGE REACH AND LARGE STACKING HEIGHT



TYPE

PALLETIZING ROBOT | KR 240 270-2 PA |

FEATURES AND ADVANTAGES

Adaptable
In conjunction with available arm extensions, the reach can be optimally adapted to the application

Process-optimized
This robot is ideally adapted to palletizing requirements and effortlessly stacks multiple pallets to a great height

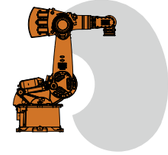
High-performance
Thanks to the special palletizing mode, this robot can lift particularly heavy payloads

Reliable
The service-proven standard KUKA controller and software ensure reliable production results

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 240 270-2 PA	KR C2 ed05	6	270	2,701	< ±0.12	1,267	
KR 240 L235-2 PA	KR C2 ed05	6	235	2,901	< ±0.12	1,277	
KR 240 L200-2 PA	KR C2 ed05	6	200	3,101	< ±0.12	1,285	

LARGE REACH AND LARGE STACKING HEIGHT



TYPE

PALLETIZING ROBOT | KR 360 450-2 PA | | KR 500 570-2 PA |

FEATURES AND ADVANTAGES

Adaptable
In conjunction with available arm extensions, the reach can be optimally adapted to the application

Process-optimized
The robot is ideally adapted to palletizing requirements and effortlessly stacks multiple pallets to a great height

High-performance
Thanks to the special palletizing mode, this robot can lift particularly heavy payloads

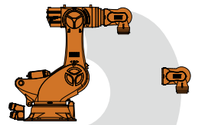
Reliable
The service-proven standard KUKA controller and software ensure reliable production results

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 360 450-2 PA	KR C2 ed05	6	450	2,826	< ±0.15	2,350	
KR 360 L340-2 PA	KR C2 ed05	6	340	3,076	< ±0.15	2,375	
KR 360 L280-2 PA	KR C2 ed05	6	280	3,326	< ±0.15	2,385	
KR 500 570-2 PA	KR C2 ed05	6	570	2,826	< ±0.15	2,350	F
KR 500 L480-2 PA	KR C2 ed05	6	480	3,076	< ±0.15	2,375	
KR 500 L420-2 PA	KR C2 ed05	6	420	3,326	< ±0.15	2,385	

LIFTS AND PALLETIZES HEAVY WORKPIECES

QUICK AND EASY INTEGRATION INTO SYSTEMS



TYPE

PALLETIZING ROBOT | **KR 1000 1300 titan PA**

FEATURES AND ADVANTAGES

High-performance
This robot lifts and palletizes heavy payloads of up to 1,300 kg and ensures a high dynamic performance and short cycle times

Space-optimized
Small disruptive contours result in significant expansion of the effectively usable workspace

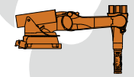
Easy to integrate
With its compact design, relatively low weight, and installation components and fastening elements integrated as standard, this robot is quickly and easily integrated into a system

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 1000 1300 titan PA	KR C2 ed05	6	1,300	3,200	< ±0.2	4,690	F
KR 1300 L950 titan PA	KR C2 ed05	6	950	3,600	< ±0.2	4,740	F

SERIES 2000

UP TO 16 PARTS/MINUTE WITH A DISTANCE OF 5 METERS BETWEEN PRESSES



TYPE

PRESS-TO-PRESS ROBOT | **KR 80-2 P**

FEATURES AND ADVANTAGES

Variable
With its reach of 3,100 mm, this robot is ideal for press linking with short distances between presses and for transfer of medium-sized panels

Productive
Special design of drive train and machine data enables throughput of up to 16 parts per minute with a distance of 5 m between presses

Reliable
This special model is produced using Series 2000 components, thus ensuring rapid availability and reliability

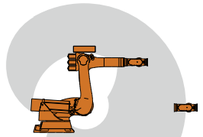
Fast and dynamic
Thanks to its lightweight construction of die-cast aluminum, the robot is particularly dynamic and achieves high working speeds and short cycle times

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 80-2 P	KR C2 ed05	6	80	3,100	< ±0.2	1,445	

SERIES 2000

UP TO 14 PARTS/MINUTE WITH A DISTANCE OF 6 METERS BETWEEN PRESSES



iF product design award 1998

TYPE

PRESS-TO-PRESS ROBOT | KR 100-2 P | KR 120-2 P |

FEATURES AND ADVANTAGES

Process-optimized
Long reach and high payload capacity make this robot ideal for linking press lines and for transferring medium-sized panels

Reliable
This special model is produced using Series 2000 components, thus ensuring rapid availability and reliability

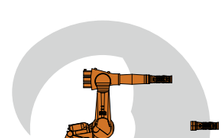
High-performance
Special design of drive train and machine data enables throughput of up to 14 parts per minute with a distance of 6 m between presses

Fast and dynamic
Thanks to its lightweight construction of die-cast aluminum, the robot is particularly dynamic and achieves high working speeds and short cycle times

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 100-2 P	KR C2 ed05	6	100	3,500	< ±0.2	1,465	C
KR 120-2 P	KR C2 ed05	6	120	3,500	< ±0.2	1,465	C

UP TO 12 PARTS/MINUTE WITH A DISTANCE OF 6 METERS BETWEEN PRESSES



TYPE

PRESS-TO-PRESS ROBOT | KR 360 L150-2 P |

FEATURES AND ADVANTAGES

Process-optimized
With a reach of 3,500 mm and payload capacity of up to 150 kg, ideally suited to the linking of press lines and the transfer of large panels

Reliable
This special model is produced using Series 2000 components, thus ensuring rapid availability and reliability

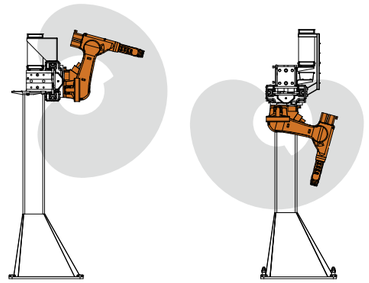
High-performance
Special design of drive train and machine data enables throughput of up to 12 parts per minute with a distance of 6 m between presses

Fast and dynamic
Thanks to its lightweight construction of die-cast aluminum, the robot is particularly dynamic and achieves high working speeds and short cycle times

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 360 L150-2 P	KR C2 ed05	6	150	3,500	< ±0.15	2,050	

VERY FAST ROBOT SYSTEM WITH TRAVERSING VELOCITY OF 3.2 METERS/SECOND AND LONG TRAVEL



DESCRIPTION

THE WORKSPACE EXTENDERS

The KUKA JET gantry robots combine the advantages of workspace-extending linear units with the enormous potential of state-of-the-art, 6-axis robot technology. The optimized position of the robot knee and ideal axis symmetry ensure maximum reach and a larger work envelope. A wide range of gantry variants and a linear unit that is specially adapted to the individual requirements ensure that the best automation system is employed for every production process. The KUKA JET thus offers more room for productivity.

FEATURES AND ADVANTAGES

Fast
Very high velocity and acceleration of all axes, e.g. for fast unloading of machines from above

Space-saving
The gantry design saves valuable shop space and multiple machines can be tended from above over a distance of up to 30 m

Cost-effective
The elimination of a seventh axis saves costs compared with systems consisting of a robot and a linear axis

Flexible
Operation of up to two robots on a JET axis opens up new potential applications

Variable
Two variable installation positions, either side-mounted or overhead, optimize the available workspace

Versatile
Optional Foundry variant allows applications even in harsh ambient conditions

TYPE

GANTRY ROBOT | **KR 30 JET** | **KR 60 JET**

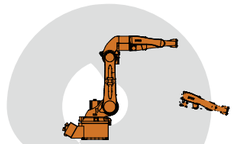
TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	ROBOT WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 30 JET	KR C2 ed05	6	30	2,002	< ±0.1	435	F
KR 60 JET	KR C2 ed05	6	60	2,002	< ±0.15	435	F
KR 60 L45 JET	KR C2 ed05	6	45	2,202	< ±0.15	471	F
KR 60 L30 JET	KR C2 ed05	6	30	2,402	< ±0.15	479	F

The safely routed cable carrier on the upper side of the KUKA JET, here side-mounted, allows unimpeded motion.

Two robots can be operated on a single JET axis, thus ensuring maximum flexibility.

OPTIMAL FOR ARC WELDING



DESCRIPTION

THE WELDING SPECIALIST

The absolute specialist for arc welding: its 50 mm opening allows the arc welding dress package to be routed internally, protected inside the arm. This shields the dress package from mechanical influences and also prevents undesirable whiplash motion during reorientation. For the user, this means not only improved component accessibility and optimal protection of the dress package, but also simplified offline programming.

FEATURES AND ADVANTAGES

Durable
Protected routing of the arc welding dress package in the robot arm results in a longer service life and prevents the dress package from buckling.

Process-optimized
Reduced disruptive contours and large distance between axis 5 and the robot flange allow welding deep within the workpiece, enlarge the workspace and offer better accessibility, even in the case of large workpieces

Resilient
Robust arm design with double-sided mounting of the robot wrist ensures reduced vibrations during welding and is resilient in the case of minor collisions

Fast
Axis 6 is an infinitely rotating axis that does not need to turn back or “unwind”

Future-proof
Large opening with a diameter of 50 mm, suitable for all commonly-used dress packages, leaves enough space for additional fluids in the dress package – it is thus even suitable for water-cooled torches

Simple handling
The very low weight enables high dynamic performance, simple installation and effortless mounting on the ceiling

TYPE

HOLLOW WRIST ROBOT | **KR 5 arc HW** |

TECHNICAL DATA

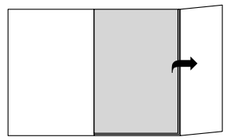
TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 5 arc HW	KR C2 ed05	6	5	1,423	< ±0.1	126	C

The opening with a diameter of 50 mm in the arm and wrist leaves space for additional fluids in the dress package.

The optimally protected dress package is an integral part of the welding equipment.

1.3 SPECIAL VARIANTS

Particular ambient conditions require particular implementation ideas – and, in the case of robotics, particular special variants.
The KUKA Robot Group offers you standard and special models, each with a range of special variants. These allow operation in all manner of working environments, from high-temperature foundry environments to low-temperature cold storage depots. In cleanrooms, on the other hand, the requirement is for freedom from particles, while the overriding priority in potentially explosive areas is maximum safety. In other applications, the main emphasis is on hygiene or protection against water spray.
Whatever your requirements: you are sure to find the right robot model for your working environment among the KUKA special variants. Technical data can be found on the relevant product pages for standard and special models.



Simply open up the glossary on the last page of the Ideas Catalog – this provides you with an at-a-glance overview of all the information and explanations you might need regarding product designations.

CONTENTS: SPECIAL VARIANTS

LARGEST SELECTION OF PAYLOAD CAPACITIES UP TO CLEANROOM CATEGORY ISO 3

Fraunhofer IPA TESTED DEVICE

CR CLEANROOM

Cleanroom robots
KUKA is the only manufacturer in the world to offer a complete line of cleanroom robots. The wide range of payload categories (from 5 to 500 kg) ensures that all necessary process steps can be covered by a single robot development environment. The reliable, tried-and-tested, standard KUKA components have been systematically optimized for the requirements of cleanroom applications. The result is the ultimate in reliability, speed and availability. The Fraunhofer Institute also testifies to the fact that you can rely on this quality at all times. All KUKA cleanroom robots are DIN EN ISO certified, thus documenting that even the highest requirements for cleanroom operation are met.

FEATURES AND ADVANTAGES

Clean
The use of special materials, optimized seals and smooth surfaces virtually eliminates emission of particles

Optimized
KUKA robots meet the highest requirements for cleanrooms up to ISO Class 3

Resistant
Special paintwork with multilevel 2-component paint resists even the most aggressive cleaning agents

High-quality
All structural elements are made of cast aluminum parts, while stainless steel is used for all screws and fittings

Precise
Meets the highest of requirements, even at high speeds – e.g. during the non-contact handling of wafers in the semiconductor industry

Durable
Optimized joints allow maximum freedom of motion with minimum abrasion

Flexible
Modular robot structure and optional arm extensions allow effortless conversion to additional applications or new tasks

The following is an overview of all KUKA cleanroom robots. Additional model information can be found on the pages indicated.

STANDARD MODELS

SHELF-MOUNTED ROBOTS

KUKA KR 5 sixx cleanroom robots meet the requirements of ISO Class 3, the KR 500-2 CR meets the requirements of ISO Class 6, all other KUKA cleanroom robots meet the requirements of ISO Class 4/5.

As with the screws and fittings, the flange is also manufactured completely from stainless steel.

The optimized specifications of a KUKA cleanroom robot also include special paint for the motors.

The handling of wafer cassettes requires the utmost precision and cleanliness.

UNIQUELY WIDE RANGE FOR PAYLOADS FROM 16 TO 1,300 kg

F FOUNDRY

Robots for environments with a high degree of fouling and high temperatures

From automotive plants to steel mills, foundries and forge shops: with an unparalleled range of powerful robot types covering all payload categories, KUKA is a force to be reckoned with in the foundry industry. The spectrum covers standard, shelf-mounted, palletizing and gantry robots that can be flexibly employed in any application. Fields of application range from loading and unloading die-casting machines to the precise handling of hot, heavy forged parts. The result, in every case, is increased productivity.

FEATURES AND ADVANTAGES

Reliable
Constant performance, even at high temperatures and in dirty, humid environments

Robust
Specially designed for extreme conditions in harsh foundry environments – with features such as a submersible, heat-resistant in-line wrist and high resistance of the robot against waterjets and permanent air humidity

Optimized
Special, triple-coat, heat-reflecting paint makes the surface impact-resistant and hard-wearing, resistant against both acids and alkalis

Safe
Protection classification IP 67 – throughout the entire life cycle of the robot – ensures constant productivity, even in harsh environments

Flexible
Wide range of potential applications thanks to the broad product spectrum, variable mounting positions and flexible adaptation of the robot to new production tasks

Customizable
Covered KUKA linear units and additional Protection Plus equipment allow customer-specific solutions and additional protection

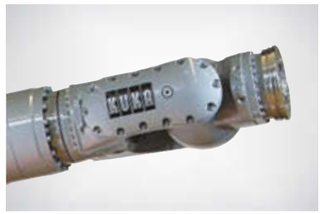
The following is an overview of all KUKA foundry robots. Additional model information can be found on the pages indicated.

STANDARD MODELS

SHELF-MOUNTED ROBOTS

PALLETIZING ROBOTS

GANTRY ROBOTS



The specially sealed robot wrist with heat-resistant paintwork can withstand even the toughest conditions.

Maximum precision and optimal performance are required when handling hot and heavy blanks.

Its red-hot passion for red-hot forgings makes this KUKA foundry robot the ideal process optimizer.

SL STAINLESS STEEL

Stainless steel robots
Due to the exclusive use of stainless steel for all surfaces and the high IP protection classification, KUKA stainless steel robots meet the strictest safety and hygiene requirements. They can thus be used not only in the foodstuffs industry, but also in other fields such as medicine. The surface of the robot is not sensitive and can be cleaned with all the usual chemical agents or under high pressure.

FEATURES AND ADVANTAGES

Robust
Use of stainless steel also allows cleaning with acids and alkalis and is also suitable for high-pressure cleaners

Safe
KUKA stainless steel robots meet all the requirements and specifications of protection classification IP 67

Germ-free
Optimized and hermetically sealed surface design leaves no niches for bacteria

Optimized
Compact design with integrated dress package, without additional protective suit, and with covered motors, meets the highest hygiene standards

Versatile
The option of attaching supplementary loads on axis 3 increases the range of applications in hygienically demanding environments

TECHNICAL DATA

TYPE	CONTROLLER	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 15 SL*	KR C2 ed05	6	15	1,503	< ±0.1	315	C

* This model will be produced for you on a project-specific basis.


The covering of the motors means that there is no exposed electrical equipment and thus effortless cleaning.


The optimized surface design leaves no room for germs.


The dress package is fully integrated and food-compatible.

EX EXPLOSION-PROOF

Robots for potentially explosive environments
With specially equipped, ATEX-compliant robots, KUKA offers you the custom-tailored automation solution you need for potentially explosive environments. The full functionality of a six-axis robot can be used, e.g. for painting with water-based paints, for handling hazardous goods (Zone 2), or for applying sealant to vehicle underbodies.

FEATURES AND ADVANTAGES

Safe
ATEX-compliant equipment in accordance with Directive 94/9/EC (ATEX)

Optimized
Specially developed for operation in areas at risk from gas explosions (Group IIB, Category 3G and Temperature Class T3)

Versatile
Potential applications range from painting with water-based paints and adhesive bonding applications to handling hazardous goods (Zone 2)

Durable
Maximum material quality, highly-finished painted surfaces on the in-line wrist, and special light alloy castings ensure constant productivity

NOTE

The system builder or user bears sole responsibility for definition of the classification of potentially explosive areas. An evaluation of the hazard and assessment of conformity must be carried out for each individual component in the system.

The following is an overview of all KUKA EX robots. Additional model information can be found on the pages indicated.

STANDARD MODELS	
KR 16 EX	P. 024
KR 16 C-EX	P. 024
KR 16 W-EX	P. 024
KR 30 L16-3 EX	P. 028
KR 30 L16-3 C-EX	P. 028

The ATEX-compliant equipment ensures maximum safety in areas at risk from gas explosions.


Special cables and motors meet all requirements for handling hazardous goods.

INDUSTRIAL ROBOTS

OPTIMAL PROTECTION AGAINST DUST AND WATER SPRAY

WP WATERPROOF

Robots with a high IP protection rating against water and dust
KUKA robots in the special "waterproof" variant offer optimal protection against dust and water spray. All motor units and current-carrying cables are protected beneath screwed-on cover plates. Top-quality materials and first-class finishing, especially with regard to the sealing technology, ensure that protection ratings of up to IP 65 can be achieved.

FEATURES AND ADVANTAGES

Reliable
Waterproof equipment offers protection of all drive units and power cables

High-quality
Models in the scara series comply entirely with the requirements for protection classification IP 65, while in the sixx series the main axes are certified to IP 54 and the robot wrist to IP 65

Durable
Reduction of wear through integrated routing of the energy supply system for air and I/O signals

Versatile
Expansion of the spectrum of applications with the optionally higher protection classification IP 65 against ingress of dust and jets of water

Space-saving
Compact design and low weight allow installation even in cramped spaces

Flexible
Various mounting options for the KR 5 sixx on the floor and ceiling open up numerous new applications

Fast
Dynamic acceleration values and maximum working velocities due to the low weight allow minimized cycle times

The following is an overview of the KUKA waterproof robots. Additional model information can be found on the pages indicated.

STANDARD MODELS

Bellows prevent penetration of dust and water spray.

Screwed-on covers ensure optimal protection of the drive units.

RELIABLE PALLETIZING
DOWN TO –30 °C

Arctic ARCTIC

Robots for deep-freeze environments
A unique product – specially developed for palletizing in deep-freeze environments: the KUKA KR 180-2 PA Arctic robot reliably palletizes your frozen products at temperatures as low as –30 °C without any loss of quality due to temperature fluctuations in the freezer room. The formation of ice on the frozen goods is thus avoided. It goes without saying that the energy supply system is also adapted to the icy environment.

FEATURES AND ADVANTAGES

Freezer-proof
Arctic equipment ensures reliable functioning and protection of all drive units and power cables at temperatures as low as –30 °C with a specially adapted energy supply system from axis 1 to axis 4

Cost-effective
KR 180-2 PA Arctic requires no protective suit or additional heating of the robot arm – this saves procurement and energy costs, opens up unbeatably large workspaces, and avoids downtime due to material exchange work that would otherwise be necessary

Productive
Considerable reduction of the risk of failure and optimal availability through the use of service-proven standard components, specially optimized for deep-freeze applications

Reliable
Maximum material quality and high stiffness resulting from the use of carbon fiber composites (CRP) ensure constant productivity

Optimized
Special seals and special oils and greases ensure constantly high performance in deep-freeze applications

Dynamic
The low weight and particularly powerful motors and gear units ensure fast production with approx. 30 cycles per minute for a payload of 100 or 180 kg and a palletizing distance of 125/500/600 mm

KUKA Arctic robots are available in the following design. Additional model information can be found on the page indicated.

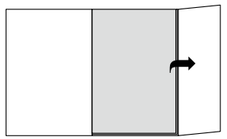
SPECIAL MODELS

KR 180-2 PA Arctic P. 052

The CRP robot arm is characterized by its low weight and high stiffness.

2 CONTROLLERS

The success of your systems is something you can control – with powerful control technology from KUKA. Thanks to a modular hardware structure and open, PC-based software architecture, the controller can be tailored to the specific requirements of your system. Furthermore, you also have access to a wide range of expansion options, which make it easy to adapt your controller to changing production requirements or entirely new production tasks. This helps you to stay flexible – and your production to stay competitive.



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CONTENTS: CONTROLLERS

CONTROLLER FOR SMALL ROBOTS

TYPE

KR C2 sr

FEATURES AND ADVANTAGES

Reliable
High reliability and availability thanks to the use of service-proven drive technology and standard PC components

Future-proof
Three free PCI slots allow use of all current and future KUKA PC plug-in cards for small robots

Compact and high quality
High-quality stainless steel housing with 19" format and connections routed to the front, offering optimal accessibility and ease of use

Compatible
A wide range of connection options, such as 100-Mbit Ethernet controller, DeviceNet master and diverse inputs and outputs, ensure reliable system integration

TECHNICAL DATA

TYPE	DIMENSIONS L x B x H [mm]	MAXIMUM NUMBER OF AXES	SERVO CONTROLLERS [A]	WEIGHT [kg]	AMBIENT TEMPERATURE DURING OPERATION [°C]
KR C2 sr	440 x 495 x 265	6	12	34	+10 to +40

TYPE

KCP (KUKA Control Panel)

The ergonomically designed teach pendant is used for teaching and operating the corresponding KUKA robot controller and thus constitutes the human-machine interface.
The KCP has an 8" full-graphics color display (VGA resolution, 640 x 480). This means that all the necessary control tasks can be performed directly on the robot – from commissioning the robot controller to creating and controlling programs, right up to diagnosis. The Windows interface running on the KCP guides the user through all procedures and allows fast and efficient programming.

FEATURES AND ADVANTAGES

Safe
3-position enabling switches and an additional Emergency Stop button ensure safe operation of the robot

Ergonomic
Lightweight, ergonomic control panel is comfortable to handle and use

Productive
Simple operation of the 6D input device allows fast navigation and efficient programming

Customizable
Freely assignable function keys and customizable displays enable the user interface to be tailored to the customer's needs

SUITABLE FOR THE ENTIRE ROBOT RANGE FROM LOW PAYLOAD CATEGORY TO HEAVY-DUTY CATEGORY

TYPE

KR C2 edition2005

The controller KR C2 edition2005 (ed05) is assembled in accordance with your individual requirements, using standard PC components and drive technology that has proved its worth in the field of automation. This guarantees you high reliability and continuous access to the benefits of cutting-edge technology.
For example, it is possible to integrate up to two external axes in the basic cabinet. In conjunction with a top-mounted cabinet, as many as six external axes can be controlled.

The controller stands out on account of its simple maintenance, good accessibility, modular structure and service-friendly design, which allows components to be exchanged quickly and easily.
A wide range of diagnostic and troubleshooting functions, such as remote servicing via the Internet, together with numerous expansion options and a comprehensive safety concept round out the spectrum of services offered for the KR C2 edition2005, giving you everything you need to optimize your production.

FEATURES AND ADVANTAGES

Reliable planning
Uniform control concept for all KUKA robots – from low payloads right up to the heavy-duty category – means reliable planning and interchangeability

Productivity
“Plug and play” functionality enables rapid start-up

Low maintenance
Service-proven technology and standard PC components ensure maximum availability with minimum maintenance

Flexibility
Modular design allows a wide range of customized hardware and software expansions

Equipped for the future
Efficient interfaces and high compatibility due to PC-based technology

Networkable
Networked controllers that can communicate with each other in real time make it possible for a number of synchronized robots to work together on a single workpiece

TECHNICAL DATA

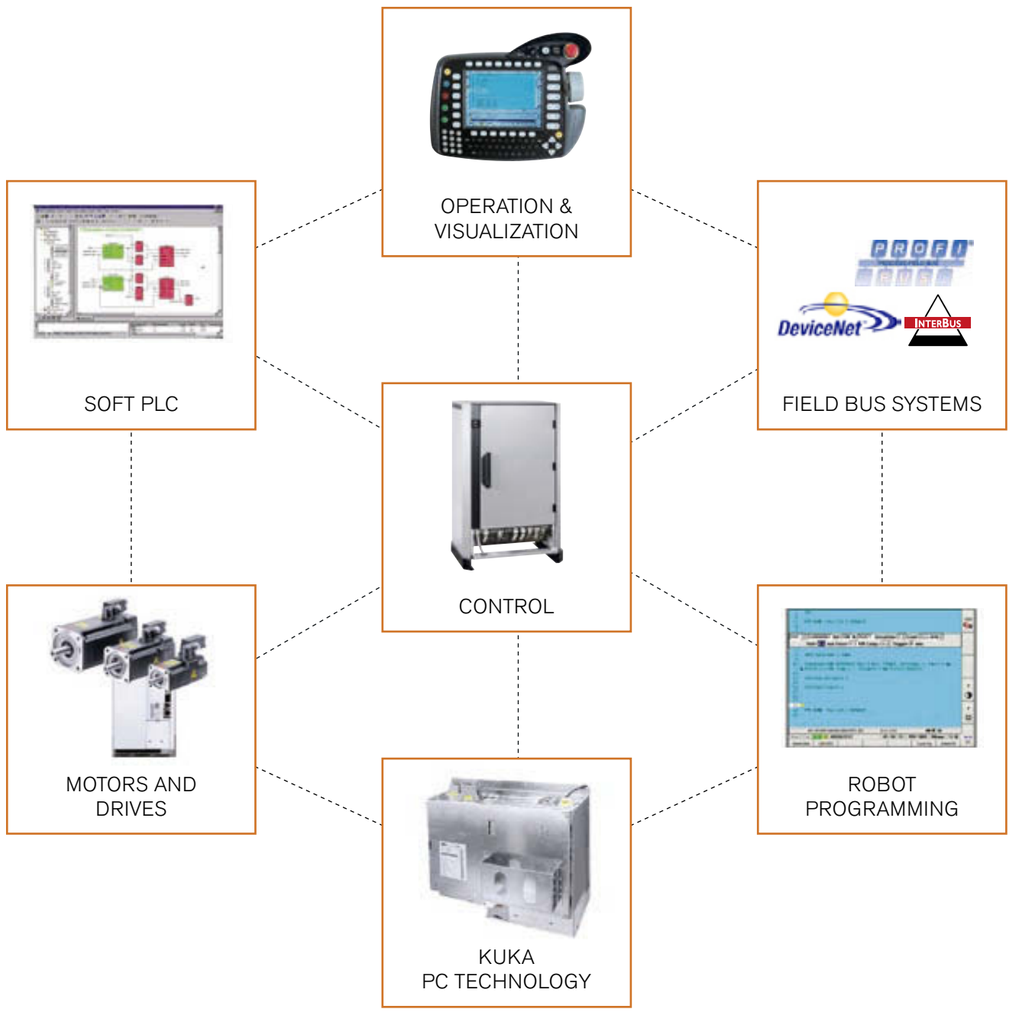
TYPE	DIMENSIONS L x B x H [mm]	MAXIMUM NUMBER OF AXES	SERVO CONTROLLERS [A]	WEIGHT [kg]	AMBIENT TEMPERATURE DURING OPERATION [°C]
KR C2 edition2005	594 x 810 x 1,250	12	8-64	185	+5 to +55

The open architecture allows flexible adaptation to the most varied of customer requirements – also as a retrofit when expanding the system.

The KUKA Control Panel (KCP) is the mobile control center for simple, user-friendly operation of the robot.

The external connection can be implemented as a standard Ethernet interface – often with OPC as the standard protocol, for communication with higher-level controllers.

THE MODULAR SYSTEM FOR YOUR AUTOMATION REQUIREMENTS



TYPE

KMC (KUKA Motion Control)

The KUKA controller that allows you to individually automate not only robots, but also all your machines and kinematic systems. You have a complete modular control system at your disposal. Because KUKA is the first controller manufacturer to have combined process control and robot control in a single unit.
Thanks to its open architecture, the KUKA KMC allows optimal system integration. That's because it combines Robot Control (RC) and Logic Control (LC) in the form of an IEC 61131-standard Soft PLC, together with PLCopen-compliant Motion Control (MC). The individual control types can be combined according to your specific requirements, enabling a wide variety of kinematic systems and machines to be controlled more intelligently than with conventional solutions.

Do what you want with our modular system. Put together as many components as you need. At the end of the day you will always have two advantages: lower costs and greater functionality.

FEATURES AND ADVANTAGES

High-performance
Service-proven KR C2 edition2005 in the KMC variant can be used to control customized kinematic systems and machines

Fast track to productivity
Ready for operation straight away due to delivery as a complete system of optimally adapted, customized components

Expandable
Modular design allows customized expansion with additional hardware and software

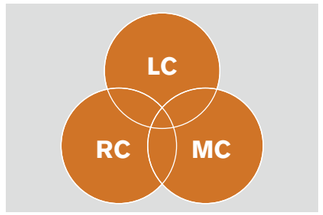
Safe and cost-effective
Sophisticated safety concept gives protection and reduces costs

Ergonomic
Use of the mobile KUKA Control Panel (KCP) ensures comfortable handling and flexibility

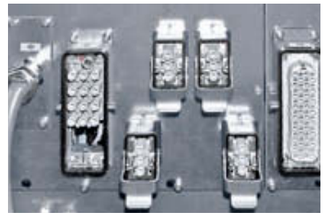
Flexible
The modeling, calculation and control of kinematic systems from different manufacturers offers maximum flexibility

TECHNICAL DATA

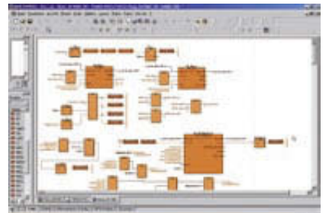
TYPE	DIMENSIONS L x B x H [mm]	MAXIMUM NUMBER OF AXES	SERVO CONTROLLERS [A]	WEIGHT [kg]	AMBIENT TEMPERATURE DURING OPERATION [°C]
KMC	594 x 810 x 1,250	16	KSD 8-64	185	+5 to +55



You can opt for any combination of Robot Control (RC), Logic Control (LC) and Motion Control (MC) for unrivaled automation potential.



True Plug and Play: with KUKA, you get a complete preconfigured control system from a single source – ranging from the control cabinet to servo drive modules and software.



The integrated Soft PLC means that you can control the entire production cell. This saves you expensive hardware, simplifies operator control and increases your flexibility.

3 SOFTWARE

Your ideas are what shapes our programs. And your daily challenges are what drives us. Whether it's routine processes or new, tailored system solutions, KUKA supports you with the right software: from expandable system software and ready-made robotic applications, through integrated Soft PLC and wide-ranging simulation tools, right up to intelligent robot networking and safe human-machine interaction. With a familiar Windows user interface, adapted to your automation solution and 100% compatible. You can rest assured: with software from KUKA, your robots and systems are always programmed for productivity.

CONTENTS: SOFTWARE

HIGH-PERFORMANCE ROBOT OPERATING SYSTEM WITH A USER-FRIENDLY STRUCTURE

SYSTEM SOFTWARE

The KUKA system software is the operating system and the heart of the controller. It contains all the basic functions that are required for operating the robot system, such as path planning, I/O management, etc. In addition, further advanced functions are integrated into the system software, which offer you a wide range of options for robot programming.
The software can be simply controlled using the KUKA Control Panel. This means that all functions and programming steps can be executed with the robot and the workpiece directly in view, allowing the programming to be checked straight away.

The user-friendly, Windows-based structure of the KUKA system software ensures intuitive operation. Furthermore, the range of functions can be expanded any time using the compatible interfaces. This makes it easy to install additional software packages containing application-specific instructions and configurations.

The key features of the KUKA system software include:
- Simple programming
- Path planning
- I/O management
- Data and user management
- Inline forms for programming
- Multilingual user interfaces
- Load data determination with KUKA.Load Detect
- Operation of asynchronous, infinitely rotating or force-controlled external axes
- COM interface software as standard

APPLICATION SOFTWARE

For simple programming and high process reliability, KUKA offers you a broad range of ready-made application software, tailored to the most common robot applications. The software can be optimally adapted to the production environment either by offline programming or directly on the KUKA Control Panel. In this way, the system can be programmed for added value in a minimal number of steps – and processing can get under way.

ARC WELDING | KUKA.ArcTech

With the KUKA.ArcTech products, arc welding applications can be quickly set up and programmed. Depending on the installed function, control is possible via either reference voltage or job numbers.

BENDING | KUKA.BendTech

KUKA.BendTech supports the setup and programming of bending applications. The software provides a wide range of inline forms (input masks for program commands). This minimizes the number of work steps required, considerably simplifying the programming of the robot.

CONVEYOR | KUKA.ConveyorTech

KUKA.ConveyorTech adapts the motion of the robot to that of assembly lines and conveyor belts. In this way, a robot can work on parts on a fast-moving conveyor or move them from one conveyor to another.

GLUING | KUKA.GlueTech

KUKA.GlueTech is used for simple programming of adhesive application tasks with the aid of inline forms. Up to three dispensing controllers can be operated with staggered control.

LASER | KUKA.LaserTech

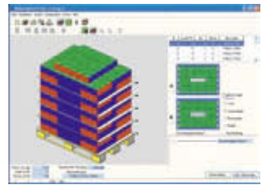
KUKA.LaserTech allows the integration of laser welding and laser cutting systems into the robot controller. Both applications can be executed using the same robot; this means maximum flexibility, while the workpiece only needs to be clamped once.

MILLING | KUKA.CAMRob

KUKA.CAMRob is a technology software package which enables a KUKA robot to be implemented quickly and easily for machining workpieces, on the basis of path and process data from a CAM system. CAMRob automatically transforms the CNC data generated with a CAM system into a robot program, enabling an industrial robot to be used as a machining robot for complex components.

PALLETIZING | KUKA.Pallet Layout | KUKA.Pallet Pro

KUKA.Pallet Layout and KUKA.Pallet Pro provide an intelligent solution for the planning, programming and control of palletizing cells. It allows simple offline programming of palletizing systems with up to 30 palletizing and conveyor stations and 16 slipsheet stations using a graphical editor. The generated robot programs can then be configured and processed for up to 15 different robotic cells using the palletizing software.



PLASTICS | KUKA.PlastTech

KUKA.PlastTech supports the work process of robots in conjunction with injection molding machines. The PlastTech software synchronizes the motion of the robot and the injection molding machine. For example, the robot moves into the injection molding machine for the removal operation while the machine is still opening, thereby reducing the cycle time.

SEAM TECH | KUKA.SeamTech

KUKA.SeamTech is a program for automatic seam tracking sensor systems. It is used for both laser and arc welding in conjunction with a light section sensor.

SPOT WELDING | KUKA.ServoGun

KUKA.ServoGun enables the operation of electric motor-driven spot weld guns with the KUKA robot controller. The gun is moved during programming as a robot axis. Each taught point automatically contains the opening width information for the welding gun.

TOUCH SENSE | KUKA.TouchSense

KUKA.TouchSense is a tactile seam search application for arc welding applications. This application makes it possible to compensate for deviations in the shape or position of workpieces so that the motion path on the workpiece corresponds exactly to the master contour.

ADDITIONAL FUNCTIONS FOR SYSTEM SOFTWARE

A wide range of additional functions for the system software enhance the user interface and offer support for special programming tasks. For this, user-friendly tools are available with which the basic functions for operating the robot system can be systematically expanded. These include, for example, extended functions for interface configuration, additional safety components, supplementary programming options and comprehensive software tools for visualization.

COMMUNICATION | KUKA.OPC Server

The OPC (OLE for Process Control) technology is an open interface standard that enables simple data exchange between the devices in the production area and the PC applications for monitoring and planning.

ENCRYPTION | KUKA.Encryption Tool

The KUKA.Encryption Tool enables KRL files to be encrypted and/or signed. This makes it possible to control the extent to which a user is permitted to read, execute or change specified files.

EXTENDED PROGRAMMING

KUKA.Gripper & SpotTech

KUKA.Gripper & SpotTech enables the robot system to control and monitor tools and grippers in its work environment (GripperTech). This technology package also provides additional commands for spot welding applications (SpotTech).

KUKA.UserTech

KUKA.UserTech allows the user to program robot program sequences and motion tasks quickly and easily. Furthermore, the operator control keys (status keys) on the KCP can be freely defined, enabling functions to be provided for specific applications.

KUKA.ExpertTech

KUKA.ExpertTech provides a user interface which can be used to simplify the entry of “Expert commands”. This makes KUKA.ExpertTech a convenient tool for advanced programming.

REMOTE CONTROL | KUKA.RemoteControl

KUKA.RemoteControl is a software package for remote maintenance and remote control of one or more robots. It can be used to monitor and diagnose application and system data, install and distribute software and data, and carry out remote training courses.

SECURITY | KUKA.CPC

The technology package KUKA.CPC, with the programs KUKA.CPC Studio and KUKA.CPC Agent, is used to prevent the running of unauthorized software on the robot controller. In this way, the robot controller is protected against viruses, worms and Trojans. In order to be able to run an application, an application certificate created in KUKA.CPC Studio must be present on the robot controller.

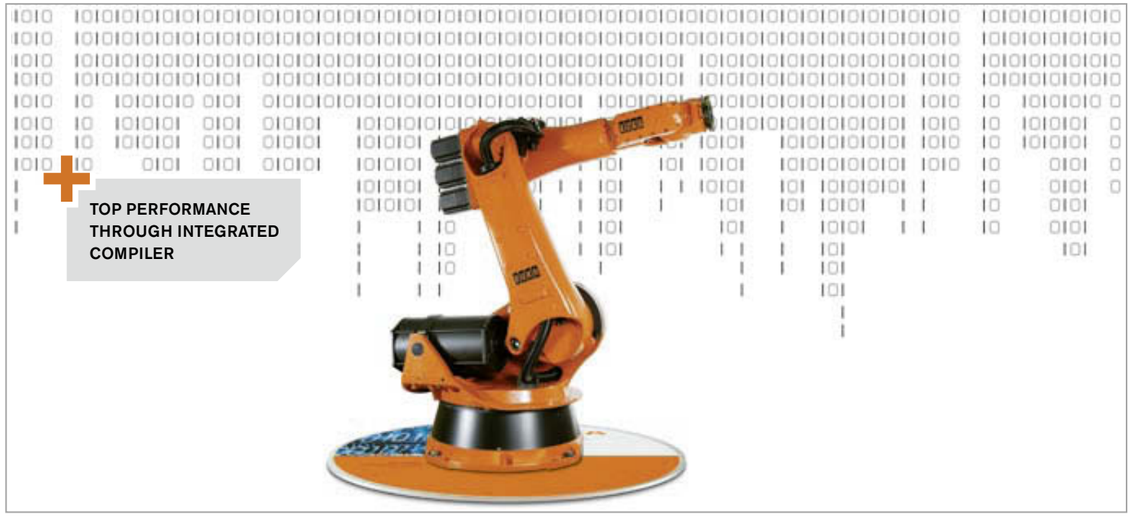
HUMAN MACHINE INTERFACE

KUKA.HMI

With its user-friendly editor, the software option KUKA.HMI (Human Machine Interface) enables even users without programming skills to create complete user interfaces with an extremely wide range of animation functions.

KUKA.SmartGUI

KUKA.SmartGUI is a graphical user interface which can be flexibly adapted to the customer’s individual application requirements. The focus is on simple operation of a complete robotic system, as well as a customized, application-specific, freely configurable user interface.



SOFT PLC

The product family KUKA.PLC (Programmable Logic Controller) comprises software for solving control tasks with an entirely software-based PLC integrated into the robot controller. This enables direct communication between the PLC and the robot, and the robot, cell and line can be accessed and controlled by a single controller.

The KUKA Soft PLC offers you a familiar work environment with its Windows user interface. This facilitates operation and reduces the learning curve, thereby cutting configuration costs. Further advantages of the integrated controller: the procurement of costly external hardware for visualization and PLC is no longer necessary, and the reliability, functionality and performance of the control system increases due to the smaller number of hardware components.

KUKA.PLC ProConOs

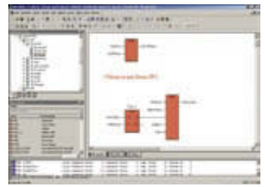
KUKA.PLC ProConOS is a runtime system for PLC programs created with KUKA.PLC Multiprog. The runtime system is responsible for execution of the control tasks and is equipped with the necessary communication interfaces. The integrated compiler technology results in top performance.

KUKA.PLC Multiprog

KUKA.PLC Multiprog offers the user a development environment for creating control programs and configurations with extensive diagnostic and documentation functions. Programming is carried out using defined programming languages: instruction list (IL), ladder diagram (LD), function block diagram (FBD), structured text (ST), and sequential function chart (SFC).

KUKA.PLC Multiprog MCFB

The MCFB functionality (Motion Control Function Blocks) enables the control of external robot axes and KMC axes under the control of the Soft PLC. These are defined in a collection or library of PLCopen-compliant function blocks. With this option, KUKA adds real Motion Control functionality to the KRC and KMC controllers, opening up a multitude of new applications.



SOFTWARE

HUB TECHNOLOGIES

Software packages from the area of hub technologies offer the great advantage that they can be used with any KUKA robot – irrespective of the payload, variant or application. Be it software for equipment with sensors, for the intelligent networking of robots or for enabling safe human-machine interaction: with KUKA hub technologies, you can increase the range of applications of your robots and therefore the flexibility and competitiveness of your production.

FORCE TORQUE CONTROL/ SENSOR COMMUNICATION

The choice from a range of signal processing software from KUKA is just a small expansion for your robot – but a great opportunity for your production. Because your robots no longer blindly follow the programmed commands, but can respond flexibly to changing situations around them thanks to the input from the sensors.

You can select the type of sensor freely according to requirements. Whether from a camera, laser scanner or force/torque sensor, the KUKA software processes the incoming signals and reliably derives the necessary commands in accordance with the defined objectives. This allows a precise and flexible process sequence with substantial time and cost savings.

FORCE TORQUE CONTROL

KUKA.ForceTorqueControl

With the technology package KUKA.ForceTorqueControl, it is possible to influence process forces and torques in order to increase the quality and process reliability of robotic applications. Together with a force/torque sensor, the software gives the robot a sense of touch, enabling it to react sensitively to external forces and torques and to exert corresponding programmable forces and torques on a workpiece.

SENSOR COMMUNICATION

KUKA.RobotSensorInterface

The software KUKA.RobotSensorInterface makes it possible to influence the robot motion or program execution via sensor data. The sensor data and signals can be read by a field bus, processed in the RSI context and forwarded to the robot controller. Optionally, the data can also be exchanged via Ethernet as XML strings (see KUKA.Ethernet RSI XML and KUKA.Ethernet KRL XML).

SENSOR COMMUNICATION

KUKA.Ethernet RSI XML

KUKA.Ethernet RSI XML provides a real-time interface under KUKA.RobotSensorInterface, which enables cyclic data transmission between the robot controller and a sensor. This makes it possible to influence the robot in the interpolation cycle of 12 ms. A real-time-capable point-to-point network link is established and the data are transmitted via the Ethernet TCP/IP or UDP/IP protocol as XML strings.

KUKA.Ethernet KRL XML

KUKA.Ethernet KRL XML makes it possible to set up under KUKA.RobotSensorInterface an anticyclic Ethernet link between the robot controller and up to 9 external systems, e.g. sensors. The data are transmitted via the Ethernet TCP/IP protocol as XML strings. The received data are saved in a buffer so that no information can be lost.

INTELLIGENT NETWORKING OF MULTIPLE ROBOTS

ROBOTEAM

The RoboTeam application package enables precisely coordinated teamwork between up to 15 robots through fast synchronization of the path motions. This allows the robots to work faster, and with greater precision and versatility than before.
Cooperating robots allow totally new plant and cell layouts with shorter production lines and simpler installations. In this way, load sharing makes it possible to flexibly multiply the payload capacity of standard robots.
Or workpieces can be processed during transfer to the next assembly station, thereby reducing the non-productive transfer time.
A further advantage of the KUKA.RoboTeam function: each robot keeps its standard controller. This is connected to a high-speed local network (Ethernet) via which the controllers communicate with one another and synchronize themselves. RoboTeam groups are programmed conveniently and transparently using inline forms that contain all the command parameters and exclude the possibility of incorrect entries.

KUKA.CR.ProgramCooperation

The software option KUKA.CR ProgramCooperation supports the program synchronization and monitoring of shared workspaces.
KUKA.CR ProgramCooperation transfers responsibility for conventional, centralized PLC functions, such as interlocking of workspaces, and synchronization of program steps and program sequences, directly to the robot group. All tasks that directly affect the robot group are also carried out autonomously by the group. By setting shared synchronization markers, it is possible to synchronize the program sequences of several robots.
The distributed sequence control of complete manufacturing programs is carried out decentrally within the networked robot group. Each robot in the group can start a manufacturing program on another robot or wait for the end of a manufacturing program.
This means that it is possible to dispense with an external PLC in many cases, leading to significant cost reductions for the production cell.

KUKA.CR.MotionCooperation

The software option KUKA.CR MotionCooperation supports the geometric path and transfer coupling of multiple robots. 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 ensures process-optimized positioning even of pliant workpieces. This function can also be used for the application of parallel processes alongside the transfer of materials.
Cooperation is dynamic and the composition of the group can be modified flexibly while the system is running. Depending on the production task, the synchronized motion can be led by different robots in the RoboTeam group. Modifications to the path or velocity of each robot in the group have an immediate effect on all other robots in the group.
All safety-relevant signals are immediately communicated within the group via the internal safety bus system. Emergency Stop and operator safety signals affect all involved robots in the group immediately and safely. The synchronization of the robots is so fast that even Emergency Stop ramps can be coordinated without affecting production.

SOFTWARE

SAFE ROBOT TECHNOLOGY

KUKA Safe Robot technology prevents the robot from breaking out of its defined workspace – without the use of mechanical axis range monitoring systems or cost-intensive, specially reinforced safety fencing. This is made possible by transferring safety-relevant control tasks directly to the robot controller, thereby eliminating the need for an external safety PLC.
This also increases the safety of the overall system. With conventional, centralized safety systems, the reaction times, and thus also the stopping distances, are determined by the communication and cycle times of the PLC and are therefore often relatively long. With KUKA.SafeRobot, by contrast, the reaction time is reduced, as every safety-relevant reaction is controlled directly by the safety module of the robot.
This means that the robot braking distances can be significantly reduced, making it possible to place safeguards closer to the robot. The module responsible for monitoring the safety functions is designed using failsafe technology with built-in redundancy. Extensive test routines while the module is running up and during operation ensure that it is functioning correctly.

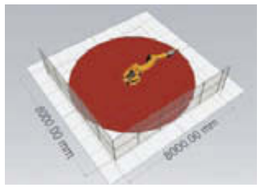
SAFE ROBOT TECHNOLOGY | KUKA.SafeOperation

The KUKA.SafeOperation function is used together with KUKA Safe Robot Technology and offers safety-relevant software and hardware components for the limitation and monitoring of the robot's workspaces and safety zones. This makes mechanical axis range monitoring systems superfluous. The safe functions conform to the requirements of ISO 13849-1 (Performance Level d, Category 3).

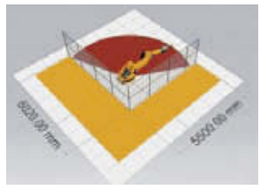
KUKA.SafeOperation monitors the axis velocities and accelerations of robot and external axes. For spatial monitoring of the robot, there are up to seven Cartesian spaces available, each of which can be configured either as a protected space or a workspace. For each workspace, a safely monitored velocity can additionally be specified. A further Cartesian space models the position of the safety fence. The monitoring of the Cartesian spaces is defined relative to the robot's tools; up to three different tools can be configured here. Safe operational stop with the drives activated, global velocity monitoring independent of the individual workspaces, and safe signaling of the current robot position round out the available functions. The monitoring functions are activated and deactivated as required during the production process via dual-channel inputs or safe bus systems.

KUKA.SafeOperation opens up new, cost-effective methods for cell configuration and human-machine cooperation. The space requirement of a system is significantly reduced, and safeguards are only required for this reduced actual area.

The "Safe operational stop" function allows the drives to remain under servo-control when the robot is in the "Stop" state. The restarting of the robot is safely monitored. This enables time-optimized cooperation between humans and machines: during manual loading in manual loading stations, for example, workpieces can be loaded directly into the robot gripper, with the distance from the worker reduced.



Floor space without KUKA.SafeOperation: 64 m²



Floor space with KUKA.SafeOperation: 33 m²

SIMULATION
PLANNING
OPTIMIZATION

Good preparation is everything. That's why KUKA offers you a range of program modules with which you can reliably plan and calculate the processes in your production – whether you want to plan new systems or optimize existing ones. From 3D visualization and simulation to the calculation of loads and the offline programming of your robots and systems, you have a range of powerful tools at your disposal. These allow you to prepare yourself and your systems in advance for new or changed tasks, without having to interrupt production.

SIMULATION | KUKA.Sim

The simulation programs of the KUKA.Sim family allow robotic cells to be planned with true-to-life accuracy. With KUKA, the data are available in real time and can be coupled with other simulation programs (IGRIP, ROBCAD).

KUKA.Sim Layout is the ideal tool for designing systems. Different layouts, concepts and robot tasks can be created quickly and easily using the extensive design library, which contains not only all KUKA robot models, but also grippers, conveyors, safety fences and much more; these layouts can then be compared with each other. Collision detection, reachability checks and visualization of the robot motion can all be performed in a simple and transparent way in the 3D layout.

KUKA.Sim Pro is designed for the offline programming and simulation of KUKA robots. The software offers additional functions on top of those provided by KUKA.Sim Layout. Robot simulations can not only be created and presented to professional standards, it is also possible to run the programmed motion sequences in real time and evaluate the cycle time.

The virtual robot controller (VRC) is connected to the simulation program KUKA.Sim Pro, allowing the KUKA robot to be programmed directly in KRL (KUKA Robot Language), without having to intervene directly in the process sequence.

The KUKA.Sim software family allows realistic simulation of robot cells

OFFLINE PROGRAMMING | KUKA.OfficeLite

The OfficeLite programming system has the same characteristics as the KUKA system software that runs on the robot controller. It can be used to create and optimize programs for KUKA robots offline on any PC. The finished programs can be transferred 1:1 from the OfficeLite programming system to the robot. In this way, the new robot programs can be productive right from the start.

Operator control and programming can be performed using the original KUKA user interface and KRL syntax with the full range of KRL commands. With KUKA.OfficeLite, the execution of robot application programs can be completely controlled. For example, the cycle times can be calculated and optimized with great accuracy, and programs can be adapted at any time.

KUKA.OfficeLite is primarily intended for offline application development. In addition to offline programming and simulation together with KUKA.Sim, it is also ideal for training purposes and for demonstrating robot programs.

PLANNING | KUKA.Load

The program KUKA.Load is a tool for calculating the load on a KUKA robot. It is possible either to check a robot for overloading, or to select a suitable robot for a specific load.

The suitability of the robot depends, among other things, on the various loads that can be mounted on the robot. These include the payload on the flange (it is also possible to enter the loads of a number of tools mounted simultaneously) and the supplementary loads on axes 1 to 3.

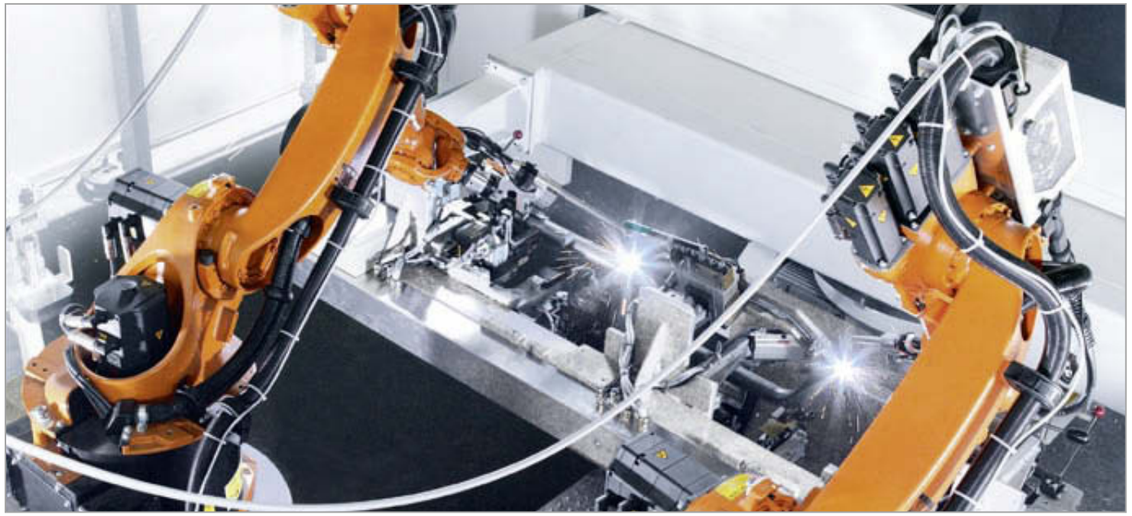
The program calculates the percentage loads on the individual axes for the given loading case and the specified robot, and generates a payload diagram. This determines the overall evaluation of the loading case as to whether a static or dynamic overload is present, or not.

SOFTWARE

4 APPLICATION MODULES

The KUKA application modules allow you to get straight down to work: these complete systems, perfectly tailored to the application, contain everything you need to use robots for special tasks, such as milling or arc welding.
Various optional components and tools enable you to adapt the system perfectly to the requirements at the place of use.
The entire system is assembled and installed at the place of use on delivery. You do not need to worry about a thing, and can rest assured that everything will function the way it should.
Have your production ideas implemented – with a custom-configured KUKA application module!

CONTENTS: APPLICATION MODULES



ARC WELDING PACKAGES

Robots, controller, axis packages, positioners and welding equipment – with KUKA, you get everything you need for automated arc welding in a single package. You can choose from four different welding packages and a wide range of different positioner solutions. All are optimally coordinated with one another for significant improvement of your production output. All welding packages are modular and can be expanded to include a TCP calibration station, torch cleaner and wire-cutting station. Robot selection is equally flexible: packages are available for every robot in the low payload category (KR 5 arc, KR 5 arc HW, KR 6, KR 16, KR 16 L6).

Fronius MIG/MAG welding package

The Fronius MIG/MAG welding package can be used for the process-reliable implementation of virtually all MIG/MAG welding tasks. The package contains a Fronius Synergic welding source, the corresponding wire feeder, the dress package for the torch and the torch itself. A wide range of components can be selected at any time for definition of a task-specific welding package. The package is mounted on the robot and test welding is carried out before delivery.

Fronius CMT welding package

The Fronius CMT welding package is particularly suitable for thin sheet welding and for aluminum welding tasks. The CMT process, patented by Fronius, can also be used for the process-reliable welding of combinations of steel and aluminum. In addition to the welding source, the package also contains the wire feeder and torch, including all necessary dress packages. The package is mounted on the robot and test welding is carried out before delivery.

Fronius TIG welding package

The Fronius TIG welding package includes all the components required for carrying out TIG welding with a KUKA robot. The TIG welding process is used particularly for welding stainless steel. In addition to the welding source, the package also contains the wire feeder and torch, including all necessary dress packages. The package is mounted on the robot and test welding is carried out before delivery.

Merkle-TBi MIG/MAG welding package

The Merkle-TBi MIG/MAG welding package is ideally suited to standard MIG/MAG welding tasks for steel workpieces. In addition to the Merkle welding source and wire feeder, the package also contains a TBi torch dress package set, including the TBi torch. The package is mounted on the robot and test welding is carried out before delivery.

INLINE GAUGING

The KUKA Inline Gauging application module provides sensors and components for robotic measurement of workpieces for the purpose of automated process monitoring.
KUKA Inline Gauging represents a low-cost, flexible alternative to stationary systems and is a substitute for measurement with gauges. Regular recalibration to a reference object renders the measuring robot immune to temperature drift. Unlike a coordinate measuring machine, it enables 100% inspection during the process.
KUKA Inline Gauging is used, for example, to check the dimensional accuracy of vehicle body parts. To this end, a 3D sensor mounted on the robot is used to observe predefined features on the workpiece that have a decisive influence on quality. Features that can be measured include, for example, the position of bolts, boreholes, edges and free-form surfaces. The system checks whether all workpieces have been correctly installed, thus fulfilling the preconditions for downstream processes. The robot makes use of idle times to recalibrate itself to the reference object.
The measuring points, including sensor parameterization and information about robot motions, are managed consistently in the KUKA Inline Gauging software. This enables live image display of the sensor, professional data management and comprehensive options for creating quality reports.

KUKA Inline Gauging – Scope of supply
- Robot sensor: HGV RoboSense, CodedSense or BoltSense
- Control cabinet expansion with sensor controller
- If required: additional InlineSense fixed sensors and fixed sensor controller
- Measurement cell computer (evaluation system, cell controller)
- Calibration sphere for temperature compensation
- KUKA Inline Gauging software

Additional components required
- Any KUKA robot
- KR C2 edition2005 control cabinet

MILLING 8 KW

With the Milling 8 kW application module, KUKA offers application-specific components and tools for deployment of a robot as a machine tool for milling tasks. Milling 8 kW is specially designed for machining tasks using an electrically-driven spindle with a rated power of 8 kW. It is used particularly with lightweight materials such as plastic, wood or rigid foamed material. From the HSC spindle and its controller to the special milling software, the application module has everything you need for the quick and easy setup of a robot as a powerful milling unit.

KUKA Milling 8 kW – Scope of supply
- Technology cabinet with integrated spindle controller (frequency inverter), pneumatic air supply and safety PLC
- Air and water supply for the spindle
- HSC electrically-driven spindle, high-speed cutting spindle with rated power 8 kW
- Mounting kit for the spindle on the robot flange
- HMI Milling Robot software

Additional components required
- KUKA robot: KR 60 HA, KR 100 HA, KR 240-2 positionally accurate variant, or KR 500-2 MT (F) positionally accurate variant
- KUKA KR C2 edition2005 control cabinet
- Cabinet/robot connecting cable for the energy supply to the milling spindle
- Energy supply system, milling

Optionally available components
- Tool changer with 10 m connecting cable (tool rack)
- Tool rack cover
- Tool set
- Operator safety
- External E-STOP
- Positioner (see KUKA Posiflex product range)

OCCUBOT

KUKA Occubot IV is a function package for wear-testing of seats that provides meaningful test data. Use of a programmable test system in conjunction with a 6-axis KUKA industrial robot allows exact reproduction of human motions when seated. This enables realistic simulation of the changes to the comfort properties of a seat over its entire service life.

Functional principle of KUKA Occubot IV

To simulate wear, the seat-testing robot presses its “Occuform” dummy again and again into the same seats, measures the forces and torques, and registers the degree of wear.

The KUKA Occubot IV robot system can replace a whole range of expensive, dedicated test rigs for interior components. Its flexible load- and position-controlled programming allows the simulation of chafing and weight-related loads to a degree that is not possible with conventional test methods using pneumatic cylinders.

The numerous degrees of freedom of the robot allow realistic replication of someone getting into and out of the seat (ingress/egress test), or of pulsation or vibration during driving. Beyond the testing itself, there is also continuous automatic adaptation of the travel to the deformation of the seat cushion in order to keep the applied forces constant.

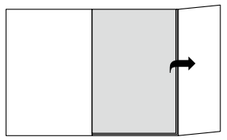
KUKA Occubot IV – Scope of supply
- Series 2000 KUKA robot for payloads of either 150 kg or 210 kg
- KUKA KR C2 edition2005 robot controller with teach pendant and system software
- KUKA.UserTech software option

Additional components required
- “Occuform” dummy
- Occubot software package with configuration software
- Force/torque sensor with adapter flange and sensor cables
- Interface box with DAQ cable and DAQ card (PCI sensor card)
- Data interface for evaluation on an external PC
- Optional: KUKA DIS data logger software package that runs under WinXP on an external PC

APPLICATION MODULES

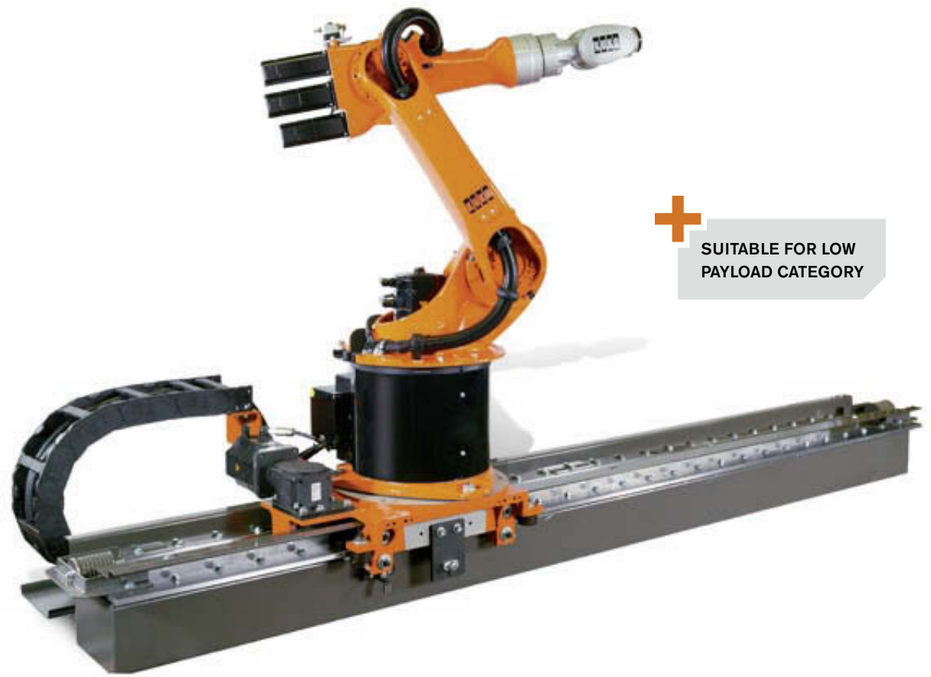
5 LINEAR UNITS

Maximize your productivity all the way down the line. KUKA linear units allow you to increase workspaces significantly. Another major advantage: the linear units function as external axes, thus dispensing with the need for an additional controller.
The KUKA product range covers every payload category, every environment 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.



Simply open up the glossary on the last page of the Ideas Catalog – this provides you with an at-a-glance overview of all the information and explanations you might need regarding product designations.

CONTENTS: LINEAR UNITS



SUITABLE FOR LOW PAYLOAD CATEGORY

TYPE

KL 250-3

FEATURES AND ADVANTAGES

Flexible
Long travel of up to 30 m (in 0.5 m steps) extends the workspace by several times the reach of the robot

Inexpensive
The extension of the workspace means that a robot can perform more tasks, thus dispensing with additional equipment

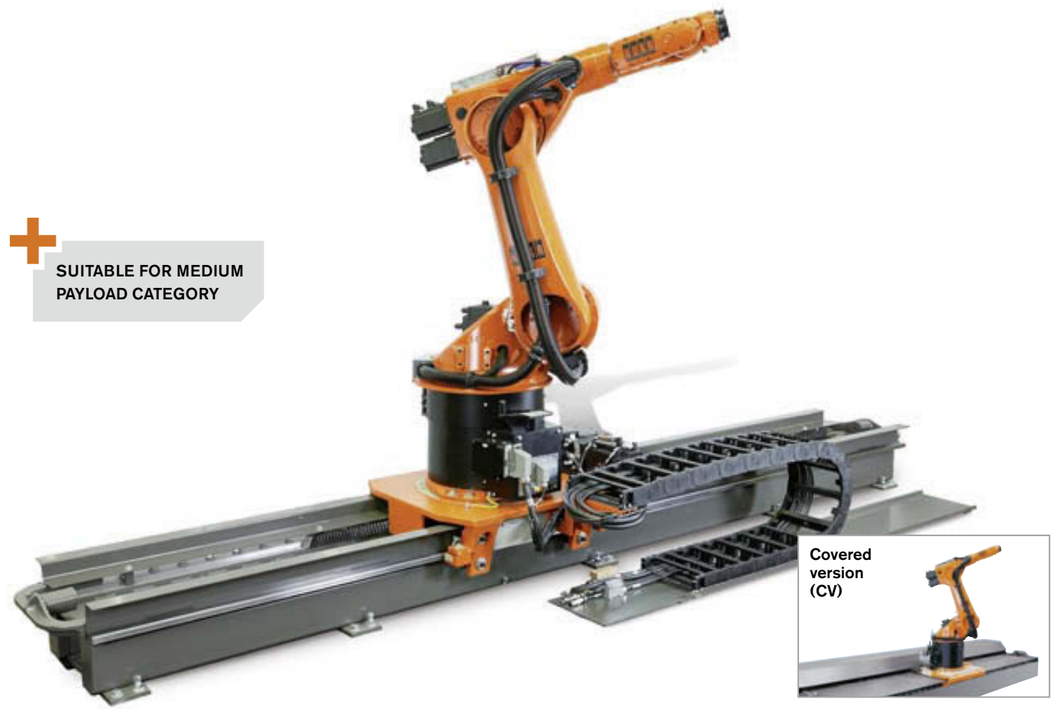
Diverse
Floor-mounted, ceiling-mounted and gantry variants are available, as is a protective cover for keeping out dirt during tasks in harsh environments

Positionally accurate
Up to 4 robots can be operated on a linear axis. Multiple robot positions on the linear axis allow optimal adaptation to existing requirements and workspaces

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

TECHNICAL DATA

TYPE	ROBOT PAYLOAD [kg]	NUMBER OF CARRIAGES	MAX. NOMINAL TRAVEL [mm]	MAX. VELOCITY [m/s]	REPEATABILITY [mm]	OTHER VARIANTS
KL 250-3	5 to 16	4	30,100	1.41	< ±0.02	C CV PO



SUITABLE FOR MEDIUM PAYLOAD CATEGORY

TYPE

KL 1000-2

FEATURES AND ADVANTAGES

Flexible
Long travel of up to 30 m (in 0.5 m steps) extends the workspace by several times the reach of the robot

Inexpensive
The extension of the workspace means that a robot can perform more tasks, thus dispensing with additional equipment

Diverse
Floor-mounted, ceiling-mounted and gantry variants are available, as is a protective cover for keeping out dirt during tasks in harsh environments

High-performance
Additional high-speed variant for tasks requiring extreme speed and short cycle times

Positionally accurate
Up to 4 robots can be operated on a linear axis. Multiple robot positions on the linear axis allow optimal adaptation to existing requirements and workspaces

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

TECHNICAL DATA

TYPE	ROBOT PAYLOAD [kg]	NUMBER OF CARRIAGES	MAX. NOMINAL TRAVEL [mm]	MAX. VELOCITY [m/s]	REPEATABILITY [mm]	OTHER VARIANTS
KL 1000-2	30 to 60	4	30,200	1.89	< ±0.02	C CV
KL 1000-2 S	30 to 60	4	30,200	2.35	< ±0.02	C CV

SUITABLE FOR HIGH PAYLOAD CATEGORY AND KR 360/KR 500 WITHOUT BOOSTER FRAME

TYPE

KL 1500-3

FEATURES AND ADVANTAGES

Flexible
Long travel of up to 30 m (in 0.5 m steps) extends the workspace by several times the reach of the robot

Inexpensive
The extension of the workspace means that a robot can perform more tasks, thus dispensing with additional equipment

Diverse
Floor-mounted and ceiling-mounted variants are available, as is a protective cover for keeping out dirt during tasks in harsh environments

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

Positionally accurate
Up to 4 robots can be operated on a linear axis. Multiple robot positions on the linear axis allow optimal adaptation to existing requirements and workspaces

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

TECHNICAL DATA

TYPE	ROBOT PAYLOAD [kg]	NUMBER OF CARRIAGES	MAX. NOMINAL TRAVEL [mm]	MAX. VELOCITY [m/s]	REPEATABILITY [mm]	OTHER VARIANTS
KL 1500-3	80 to 500	4	30,000	1.45	< ±0.02	C CV
KL 1500-3 S	80 to 500	4	30,000	2.35	< ±0.02	C CV
KL 1500-3 T	80 to 500	4	30,000	1.89	< ±0.02	C CV

SUITABLE FOR KR 1000 TITAN AND HEAVY-DUTY ROBOTS WITH BOOSTER FRAME

TYPE

KL 3000

FEATURES AND ADVANTAGES

Flexible
Long travel of up to 30 m (in 1.0 m steps) extends the workspace by several times the reach of the robot

Inexpensive
The extension of the workspace means that a robot can perform more tasks, thus dispensing with additional equipment

Diverse
A protective cover is available for keeping out dirt during tasks in harsh environments

Positionally accurate
Up to 2 robots can be operated on a linear axis. Multiple robot positions on the linear axis allow optimal adaptation to existing requirements and workspaces

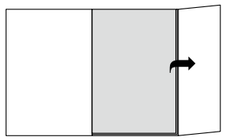
Productive
Moving workpieces/tools with additional carriages, driven or non-driven (tender carriages) helps to shorten cycle times

TECHNICAL DATA

TYPE	ROBOT PAYLOAD [kg]	NUMBER OF CARRIAGES	MAX. NOMINAL TRAVEL [mm]	MAX. VELOCITY [m/s]	REPEATABILITY [mm]	OTHER VARIANTS
KL 3000	1,000	2	29,800	1.45	< ±0.2	CV

6 POSITIONERS

The objective of every automation solution is to boost productivity and quality. You can reach any position with the KUKA Posiflex system – because it allows fast and precise alignment of the workpieces. It is thus ideal, for example, for automated arc welding. 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 three axes. Depending on the specific task, kinematic systems of all sizes can be implemented for payloads ranging from 250 to 1,000 kg. With KUKA you are in a strong position to implement your automation ideas.



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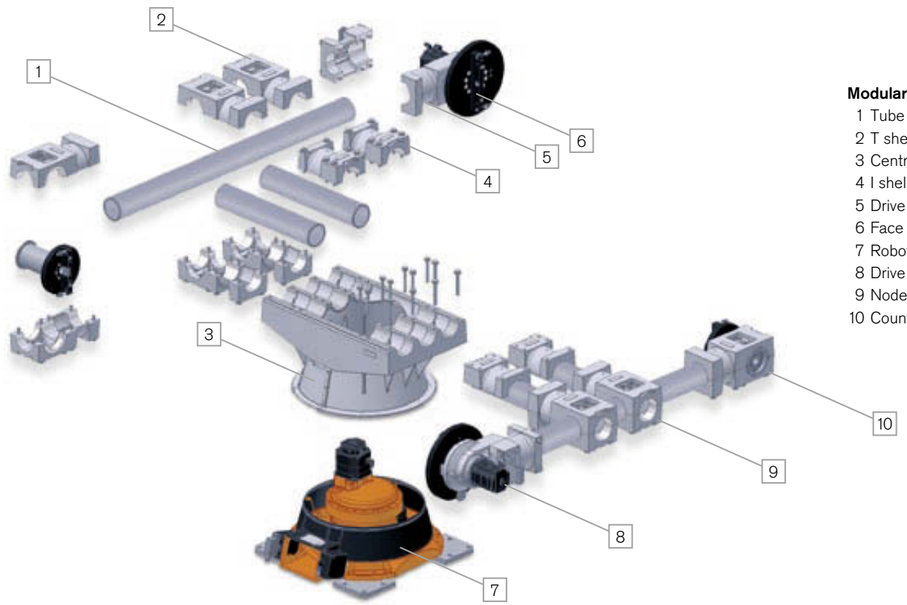
CONTENTS: POSITIONERS

KUKA POSIFLEX

Greater individuality, flexibility and productivity without compromise – with the Posiflex series of positioners, KUKA offers forward-looking users ideal automation modules for cost-effective production. Posiflex is a modular, highly dynamic positioning system that can be configured in accordance with your specific production requirements.
For payloads from 250 kg up to 1,000 kg per planetary axis – highly dynamic KUKA robot motors and gear units guarantee fast, high-precision workpiece positioning across the entire range of models. This ensures maximum process reliability and cost efficiency.
Special positioner requirements can also be implemented with Posiflex: this is because the modular elements of the system allow special kinematics to be implemented without difficulty. This makes it possible to combine short delivery times and custom-tailored solutions in an ideal way, without technical compromises.



Modular Posiflex system
1 Tube
2 T shell
3 Central support
4 I shell
5 Drive shell
6 Face plate
7 Robot base frame
8 Drive unit
9 Node
10 Counterbearing

FEATURES AND ADVANTAGES

Powerful and precise
Payloads from 250 to 1,000 kg per planetary axis and maximum positioning accuracy enable high-performance automation

Safe
Integrated, largely protected energy supply systems ensure safe production

Flexible
Use of standard components which can be combined to form customized solutions offers a wide range of different types for all conceivable kinematic systems of any size

Rotational axis
±190°

KPF1-MD250 | **KPF1-MD500** | **KPF1-MD750** | **KPF1-MD1000**

TYPE

KPF1-MD

FEATURES AND ADVANTAGES

Modular
Modular drive unit without counterbearing, with horizontal rotational axis

Inexpensive
Low investment costs through use of series-produced robot components

Robust
Tried-and-tested KUKA-quality design ensures robust drive unit

Reliable
High availability through use of service-proven robot motor/gear units

Precise
High accuracy through use of precise robot gears

Fast
Short turning times thanks to highly dynamic motor/gear units

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD [kg]	ROTATIONAL VELOCITY [°/s]
KPF1-MD250	KR C2 ed05	250	132
KPF1-MD500	KR C2 ed05	500	132
KPF1-MD750	KR C2 ed05	750	114
KPF1-MD1000	KR C2 ed05	1,000	108

POSITIONERS

Rotational axis
±190°

KPF1-MDC250 | KPF1-MDC500 | KPF1-MDC750 | KPF1-MDC1000

TYPE

KPF1-MDC

FEATURES AND ADVANTAGES

Modular
Modular drive unit with counterbearing, with horizontal rotational axis

Inexpensive
Low investment costs as existing components from the robot series are used

High process reliability
Maximum production quality thanks to bearings on both sides of component (drive bearing and counterbearing)

Robust
Robust drive unit with service-proven robot motor/gear units

Precise
High accuracy through use of precise robot gears

Fast
Short turning times through use of highly dynamic motor/gear units

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD [kg]	ROTATIONAL VELOCITY [°/s]
KPF1-MDC250	KR C2 ed05	250	132
KPF1-MDC500	KR C2 ed05	500	132
KPF1-MDC750	KR C2 ed05	750	114
KPF1-MDC1000	KR C2 ed05	1,000	108

Rotational axis
±190°

KPF1-H250 | KPF1-H500 | KPF1-H750

KPF1-H1000

TYPE

KPF1-H

FEATURES AND ADVANTAGES

Single-axis rotation
Rotary positioner with horizontal rotational axis, without connection between drive bearing and counterbearing

Inexpensive
Low investment costs through use of series-produced robot components

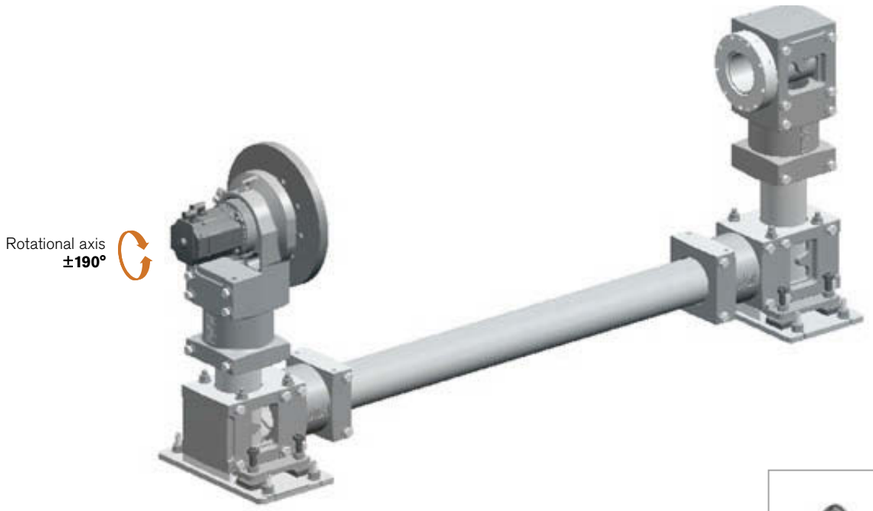
Robust
Robust drive unit with service-proven robot motor/gear units

Highly accurate
High accuracy through use of precise robot gears

Dynamic
Short turning times thanks to highly dynamic motor/gear units

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD [kg]	ROTATIONAL VELOCITY [°/s]	LOADING HEIGHT [mm]	DISTANCE BETWEEN FACE PLATES [mm]	TOOL RADIUS [mm]
KPF1-H250	KR C2 ed05	250	132	900 to 1,200	max. 3,000	up to 1,100
KPF1-H500	KR C2 ed05	500	132	900 to 1,200	max. 3,000	up to 1,100
KPF1-H750	KR C2 ed05	750	114	900 to 1,200	max. 3,000	up to 1,100
KPF1-H1000	KR C2 ed05	1,000	108	1,000 to 1,200	max. 3,000	up to 1,100



KPF1-H250T | KPF1-H500T | KPF1-H750T

KPF1-H1000T

TYPE

KPF1-HT

FEATURES AND ADVANTAGES

Horizontal rotation
Rotary positioner with horizontal rotational axis – the face plates are fixed in position by means of an intermediate tube, thus allowing fast commissioning

Inexpensive
Low investment costs through use of series-produced robot components in a modular system

Robust
Robust drive unit with service-proven robot motor/gear units

Precise
High accuracy through use of precise robot gears

Dynamic
Short turning times thanks to highly dynamic motor/gear units

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD [kg]	ROTATIONAL VELOCITY [°/s]	LOADING HEIGHT [mm]	DISTANCE BETWEEN FACE PLATES [mm]	TOOL RADIUS [mm]
KPF1-H250T	KR C2 ed05	250	132	1,000 to 1,200	max. 3,000	up to 800
KPF1-H500T	KR C2 ed05	500	132	1,000 to 1,200	max. 3,000	up to 800
KPF1-H750T	KR C2 ed05	750	114	1,000 to 1,200	max. 3,000	up to 800
KPF1-H1000T	KR C2 ed05	1,000	108	1,000 to 1,200	max. 3,000	up to 800

KPF1-V500 V1

KPF1-V500 V2

KPF1-V500 V3

TYPE

KPF1-V

FEATURES AND ADVANTAGES

Vertical rotation
Modular positioner with vertical rotational axis, available in three different heights

Inexpensive
Low procurement costs thanks to use of series-produced robot components

Highly accurate
High accuracy through use of precise robot gear units

Fast
Short turning times thanks to highly dynamic motor/gear units

Reliable
Robust drive unit with service-proven robot motor/gear units

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD [kg]	ROTATIONAL VELOCITY [°/s]	LOADING HEIGHT [mm]
KPF1-V500 V1	KR C2 ed05	500	132	970
KPF1-V500 V2	KR C2 ed05	500	132	820
KPF1-V500 V3	KR C2 ed05	500	132	620

POSITIONERS

KPF1-MB1000

KPF1-MB2000

KPF1-MB

FEATURES AND ADVANTAGES

Modular
Modular base with vertical axis

Inexpensive
Low investment costs through use of series-produced robot components

Robust
Robust drive unit with service-proven robot motor/gear unit

Precise
High accuracy through use of precise robot gears

Dynamic
Short turning times through use of highly dynamic motor/gear units

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD [kg]	ROTATIONAL VELOCITY [°/s]	LOADING HEIGHT [mm]
KPF1-MB1000	KR C2 ed05	1,000	81	850
KPF1-MB2000	KR C2 ed05	2,000	75	870

DKP-400

DKP

FEATURES AND ADVANTAGES

Two-axis and compact
Compact positioner with one rotational axis and one tilting axis

Available quickly
Modular system with permanent stock of standard components ensures short delivery times

Robust
Robust drive unit with service-proven robot motor/gear units

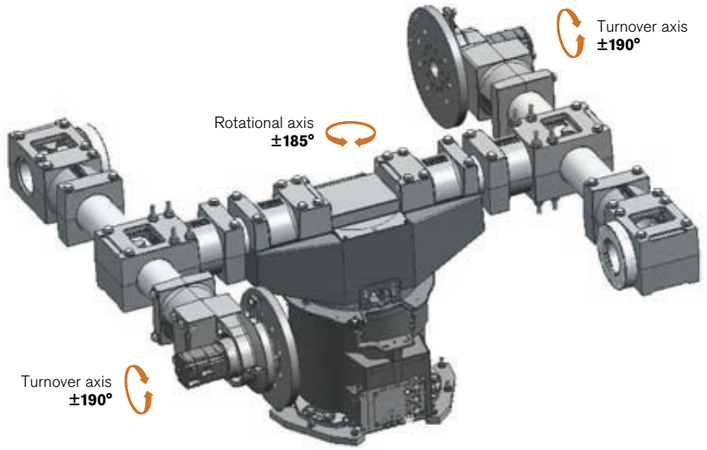
Highly accurate
Precise robot gear units ensure high accuracy

Fast
Highly dynamic motor/gear units ensure short turning times

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD [kg]	TILTING VELOCITY [°/s]	ROTATIONAL VELOCITY [°/s]
DKP-400	KR C2 ed05	400	92.4	126.6

POSITIONERS



KPF3-V2H250

KPF3-V2H500 | KPF3-V2H750

KPF3-V2H1000

TYPE

KPF3-V2H

FEATURES AND ADVANTAGES

Flexible
Three-axis positioner with horizontal main axis

High process reliability
High process reliability, as the workpiece can be moved into any desired position by means of three axes

Optimal cycle times
Faster production, as one side can be welded while the other side is being loaded

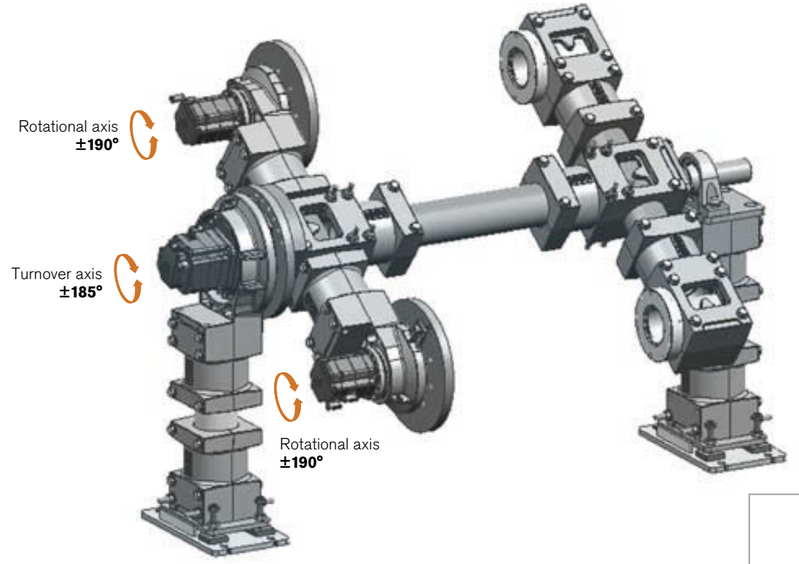
Fast delivery
Short delivery time thanks to high number of identical parts in the Posiflex system

Robust
Use of service-proven robot motor/gear units ensures a robust drive unit

High-performance
Precise robot gear units ensure high accuracy, while highly dynamic motor/gear units ensure short turning times

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD PER SIDE [kg]	ROTATIONAL VELOCITY OF MAIN AXIS [°/s]	DISTANCE BETWEEN FACE PLATES [mm]	TOOL RADIUS [mm]	LOADING HEIGHT [mm]
KPF3-V2H250	KR C2 ed05	250	88.5	1,500 to 2,000	up to 600	850
KPF3-V2H500	KR C2 ed05	500	75	1,600 to 2,600	up to 1,200	870
KPF3-V2H750	KR C2 ed05	750	75	1,600 to 2,600	up to 1,200	870
KPF3-V2H1000	KR C2 ed05	1,000	60	1,600 to 2,600	up to 1,000	870



KPF3-H2H250 | KPF3-H2H500S

KPF3-H2H500 | KPF3-H2H750

TYPE

KPF3-H2H

FEATURES AND ADVANTAGES

Flexible
Three-axis positioner with vertical main axis

High process reliability
High process reliability, as the workpieces can be moved into any desired position by means of three axes, and with optimal cycle times, as one side can be welded while the other side is being loaded

Modular
The high number of identical parts used in the Posiflex system allows short delivery times

Robust
Reliable drive unit with service-proven robot motor/gear units

Dynamic and accurate
The use of precise robot gear units ensures high accuracy, while the use of highly dynamic motor/gear units ensures short turning times

TECHNICAL DATA

TYPE	CONTROLLER	PAYLOAD PER SIDE [kg]	ROTATIONAL VELOCITY OF MAIN AXIS [°/s]	DISTANCE BETWEEN FACE PLATES [mm]	TOOL RADIUS [mm]
KPF3-H2H250	KR C2 ed05	250	126	800 to 3,000	up to 600
KPF3-H2H500S*	KR C2 ed05	500	90	800 to 3,000	up to 600
KPF3-H2H500	KR C2 ed05	500	81	800 to 4,500	up to 800
KPF3-H2H750	KR C2 ed05	750	75	800 to 4,500	up to 800

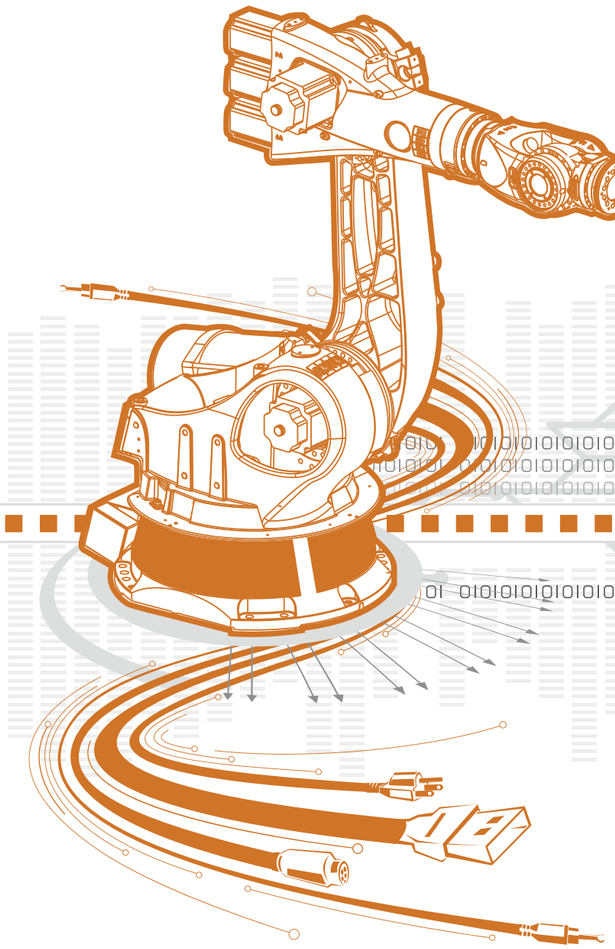
* S = small.

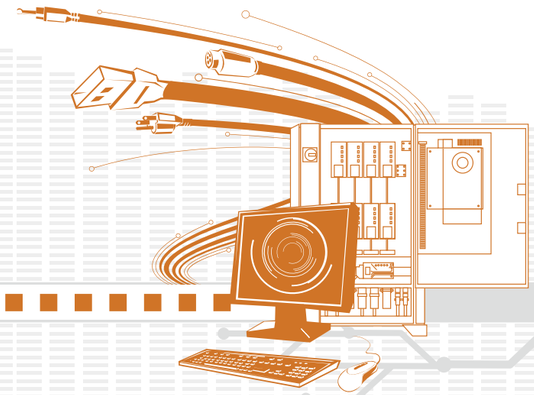
POSITIONERS

7 ACCESSORIES

Ever-changing market requirements necessitate a constant source of new ideas for ways to improve your production. And anyone wanting to impress his customers with innovations must himself show flexibility at all times.
In other words: you should be sure of being able to adapt your robots quickly to new requirements at any time. When it comes to implementing your ideas, KUKA is at your side from start to finish: with a full A to Z of high-performance accessories. This ensures that your production system lacks for nothing.

CONTENTS: ACCESSORIES





ROBOT ACCESSORIES

Flexibility is writ large at KUKA. For this reason, KUKA offers you not only a broad spectrum of industrial robots, but also a comprehensive range of accessories. This means that you can easily adapt your robot to new production requirements and carry out optimization measures.
Whatever you need – be it a special valve terminal or a booster frame enabling your robot to rise to higher tasks – you are bound to find what are looking for in the comprehensive KUKA range of accessories. The list opposite shows a selection of the most important accessories for your robot.

- VALVE TERMINALS
- ENERGY SUPPLY SYSTEMS FOR AXES 1–3 AND AXES 3–6 WITH MATING CONNECTORS
- PROTECTIONPLUS PACKAGE
- FORCE/TORQUE SENSORS
- BOOSTER FRAMES
- MOUNTING BASE KITS AND MACHINE FRAME MOUNTING KITS
- MASTERING KITS
- TRANSPORT FRAMES FOR CEILING-MOUNTED ROBOTS
- WORKING RANGE MONITORING SYSTEMS WITH PROXIMITY SWITCHES
- AXIS RANGE LIMITATION
- FAST MEASUREMENT INPUTS ON ROBOT
- DRILLING TEMPLATES FOR THE ROBOT BASE
- SPECIAL PAINT FINISHES FOR ROBOTS

… AND MORE

CONTROLLER ACCESSORIES

For effective production, it is important to be able to adapt the system optimally, not only to the application, but also to new requirements. The modular structure of the KUKA control cabinets allows precisely that. This makes you flexible – no matter how your production changes or expands. KUKA offers you the robot market's widest range of control cabinet accessories and options.
At KUKA, we offer a complete A to Z of accessories – everything from a single source and with guaranteed compatibility. The list opposite shows a selection of expansion options for your control cabinet.

- TOP-MOUNTED/TECHNOLOGY CABINETS
- EXTERNAL AXIS MODULES
- VARIOUS FIELD BUS CARDS
- COOLING UNITS
- TRANSFORMERS
- BATTERY MONITORING SYSTEMS
- SERVICE SOCKETS
- CABINET LIGHTING
- VARIOUS HARDWARE AND SOFTWARE INTERFACES
- EXTENSION CABLES FOR TEACH PENDANT, UP TO 40 M LONG
- SETS OF ROLLERS
- SPECIAL PAINT FINISHES FOR CONTROL CABINETS
- SERVOMOTORS WITH SMOOTH SHAFT AND INVOLUTE TOOTHING
- MOTOR/GEAR UNITS
- MOTOR, CONTROL AND DATA CABLES FOR EXTERNAL AXES, UP TO 50 M LONG

… AND MORE

ACCESSORIES

8 CUSTOMER SERVICES

With KUKA, you can be sure that you have a robot system which gives you maximum efficiency thanks to its high precision, optimal speed and excellent user-friendliness.
And so that things stay that way throughout the product life cycle, we offer a comprehensive range of services to help you always realize the full potential of your KUKA products. We are at your service from the very start: during planning, during start-up, and with perfect maintenance management during ongoing operation of your systems.

CONTENTS: CUSTOMER SERVICES

ROBOTIC CONSULTING

The KUKA Consulting team is at your side from the very first step on the road to an optimal, customized automation solution, with services ranging from conceptual design, analysis and simulation of your application to practical robot selection and integration. Here is an overview of the ways in which KUKA can support you:

Offline simulation

KUKA helps you plan and optimize your system concepts with professional tools for virtual simulation. The spectrum ranges from cycle time analyses to accessibility and collision checks for definition of the robot and verification of the cell layout. KUKA gives you personalized support and offers you:

- 3D layout and virtual simulation of the robot cell
- Offline testing and optimization of the robot programs
- User training for the tools of the KUKA.Sim product family

Robot selection/integration

At your side from the outset: with long years of experience and the expertise of the technological leader, KUKA supports you in the selection of system components, with the following services:

- Calculation of the required load data for time- and load-optimized robot motion
- Help with selection of the suitable payload category and reach
- Planning of suitable working range limitations and energy supply systems
- Guidance on KUKA planning and start-up tools
- Load analysis of the robots under real production conditions

Software

Application-specific programming of robots calls for custom work. KUKA makes this possible, with scalable software solutions and the development of specific program commands, plug-ins or complete program packages. Services you can rely on:

- Comprehensive guidance on selecting the individual software solution
- Software and hardware configuration for the integration of sensor and vision systems
- Customization of KUKA software packages to your requirements – with on-site integration support

Control technology

To ensure optimal integration of the robots and the hardware and software into the system environment, you can depend on the following KUKA services:

- Comprehensive advice on interfaces and safety systems, periphery and PLC
- Design and rating of external axes in the robot system
- Planning and configuration of the KUKA controller for the operation of kinematic systems from other manufacturers
- Custom-tailored software and product training

Applications

With experienced application specialists and an extensive network of system partners, KUKA can draw on in-depth knowledge of nearly every field, for a wealth of different applications. As a result, you benefit from the following advantages:

- Individual application consulting for your specific fields of use
- Needs-driven creation and implementation of application-specific software and hardware technologies
- Adaptation of standard technologies to your requirements
- Individually tailored instruction and training by experienced robot specialists directly on your system

Project support

Rapid, direct lines of communication make for simpler support. With KUKA, that applies from initial contact right through to the implementation of your projects. In addition to ongoing technical project support, we offer:

- Documentation by an assigned project team with a fixed personal contact
- Provision of efficient solutions and smooth project implementation through close contact between the project team and the KUKA development department
- Performance of feasibility studies
- Assistance with the implementation of pilot systems

KUKA COLLEGE

KUKA Colleges provide seminar students throughout the world with hands-on training, in which they can learn the necessary specialist knowledge and skills at first hand. The modular seminars are tailored to the current practical requirements in each case. The result is well-trained and highly qualified employees in your company.

Target groups and seminar topics

Robot operators
- Operation of robots in the system
- Performance of manual motion (jogging)
- Handling of existing programs
- Safety considerations and basic principles of robotics

Robot programmers
- Creating, modifying and adding to robot programs
- Optimization of motion sequences
- Shortening cycle times

Automation programmers
- Integrating robots into a system
- Establishing communication with other cell components
- Integrating external axes into the KUKA controller
- Configuration of field bus systems and integration into the robot controller

Service technicians
- Commissioning of robot systems
- Performance of regular servicing
- Maintenance of all components

Cell planners/designers
- Integration of robots into automation solutions
- Provision of detailed information about the possibilities of KUKA robot and automation systems

Managers
- Basic introduction to robotics
- Preparation for managerial positions in companies using KUKA robot systems

Certified training programs
- KUKA Certified Robot Professional for robot service technicians and programmers
- KUKA Certified Robot Engineer for robot specialists involved in designing automation solutions

Training cooperation
Qualification of the integrator's personnel as certified trainers to enable provision of professional instruction in the use of robots as part of the training for the overall system

Features and advantages

Customized training programs
KUKA offers training courses that are precisely tailored to the training objectives of your employees. The result is optimal skills and productivity for each field of activity.

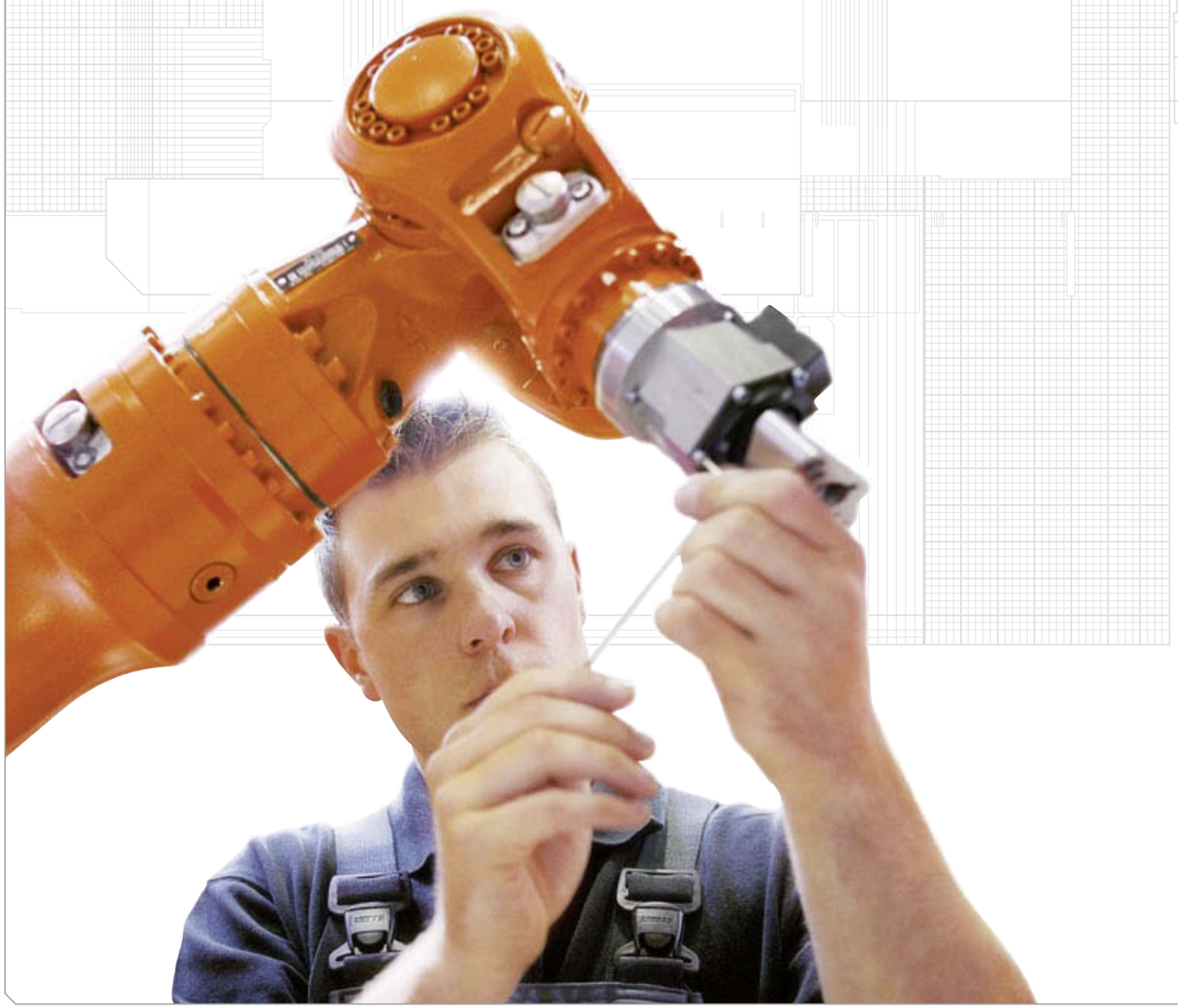
Uniform, worldwide training standards
The specially trained and certified instructors at our KUKA Colleges teach the necessary knowledge and skills with the aid of state-of-the-art technical equipment. The methodology and didactics meet the same high standards worldwide.

Certified qualification
At the end of each training program at KUKA College, your employees receive the relevant achievement certificate. This certifies that they have successfully completed the course and achieved the required level of ability.

On-site training at your plant
Every seminar can also be held directly at your location. For this purpose, KUKA provides mobile training cells. The KUKA trainer can thus provide the same high standard of courses as in our training center. The advantage for you is that your employees receive hands-on training in familiar surroundings – saving additional travel costs. The ROBOTRAIN® mobile training cell is fully equipped with a KUKA robot of type KR 5 sixx, including the associated controller. The KUKA ROBOTRAIN® training cell can also be purchased for your own training use.

TECHNICAL SUPPORT

KUKA Technical Support is there to help whenever you need it – right from the start and round the clock: from commissioning and production support services to our 24-hour hotline. This makes maximum system availability something you can rely on. Here is an overview of the support services offered by KUKA:



Commissioning

Experienced KUKA specialists are on hand in all phases of commissioning. This starts with the first application steps and continues with the efficient integration of the robot into your production system.

Upgrade/retrofits

Take advantage of KUKA's support with upgrades for hardware and software. We can also help you with flexible program adaptation and rebuilds if you wish to adapt a robot to new processes.

Robot programming

In addition to the technical prerequisites, optimal integration of the robot into your application depends on the right programming. Step by step, your employees are guided by KUKA with precise programming instructions.

24-hour hotline

Always at your service: KUKA offers you reliable telephone support by technical experts 365 days a year – also with remote diagnosis on request.

Production support

From the start of production to ongoing optimization, KUKA is at your side. Together with you, we strive to maintain and increase the efficiency and productivity of your system during production.

On-site servicing

KUKA robot specialists are on call at any time of the day or night in 30 countries – and thanks to an extensive service network, they can be with you on site very quickly. This saves you long – and costly – downtime.

Maintenance/servicing

Benefit from our preventive maintenance management for maximum system availability. The modular structure of KUKA's service agreements guarantees that you get exactly the level of service support that you need.

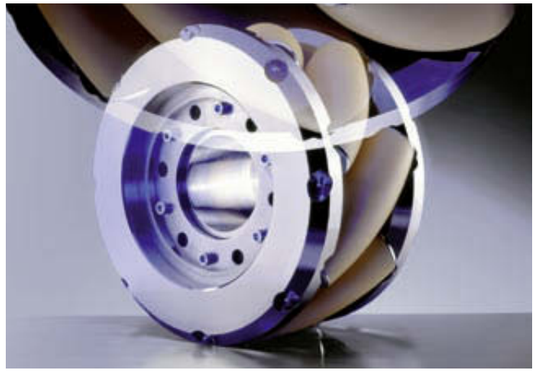
Spare parts service

The highest spare parts availability on the market – guaranteed for up to ten years – together with the modular design of KUKA products, ensures fast replacement of the defective component.

There are ideas that seem at first to be just too daring, too crazy ever to be implemented. If you have ideas like these, then the KUKA Robot Group is the right address for you. We not only believe in unbelievable ideas: we make them come true – in an unparalleled range of applications worldwide.
The times when robots were employed exclusively in industry are long since past. The people who work at and in partnership with KUKA have more ideas – and have taken our products into whole new fields.
As the following examples demonstrate, frontiers are only there so that they can be pushed back.
But see for yourself.

KUKA OMNIMOVE®

If you're looking for a mobile platform system, look no further than KUKA omniMove®. Never before has it been simpler to maneuver lift platforms, mobile test stands or transfer systems into the right position – with pin-point accuracy.



The KUKA omniMove® wheel
The omniMove® wheel consists of eight specially shaped, non-driven rollers, which are mounted between two identical stable rims. The unique advantage of this is that platforms with omniMove® wheels can be moved in any direction from a standing start. The wheels do not have a steering mechanism, as changes in direction are determined by the direction of rotation of the wheels relative to one another. The resulting maneuverability of the platform is comparable to the omnidirectional freedom of motion of a hovercraft.

The design of the omniMove® wheel is based on service-proven engineering of 25 years' standing which has been systematically refined. As a result, the omniMove® wheel offers decisive advantages over other wheels:
- The omniMove® wheel is cost-effective to produce.
- The externally installed stable rims protect against damage.
- Maintenance and repair are greatly simplified.

ROBOCOASTER

A robot can weld, drill and saw – and also give people a breathtaking ride. The globally unrivaled KUKA Robocoaster takes the motion and dynamic advantages of an industrial robot out of the production shop and puts them to work in the leisure industry. The thrill and rush of adrenaline, familiar from roller coasters and other amusement rides, is heightened still further by a wealth of possibilities. Reinforced by breathtaking sound and light effects, the Robocoaster is the new crowd-puller in theme parks, family entertainment centers (FEC) and large amusement parks.

The experience
Every second of the ride, the passengers never know the next surprise the KUKA Robocoaster has in store for them. The mixture of every imaginable motion sequence and different speeds results in over 1.4 million possible combinations. Passengers who prefer a softer ride can choose a program with gentle motions. Hardier types, on the other hand, can opt for the Thrill Ride.

The safety
The Robocoaster is the world's first and only robot to be certified by the German technical inspectorate TÜV as suitable for carrying passengers. Its structural components and gear units are 100% certified. Mechanical stops and continuous electronic monitoring provide added safety.

The variants
Starting with the single and multiple versions, the Robocoaster portfolio has the right ride in store for every taste. In a class of its own is the 4D Simulator: two passengers are seated in a closable capsule which is fastened to a robot arm that can move in six axes or degrees of freedom (6DOF). On a 20-inch LCD flat screen, the passengers experience a range of simulations – for example, a breakneck skiing race – while the Robocoaster precisely mimics the corresponding motions. For added authenticity, the system has a ventilator that can be used to generate wind effects, such as icy airstreams, on the passengers' skin. This feature marks the Robocoaster's debut in the fourth dimension, making it ideal for innovative product presentations or exciting roller coaster rides.

EXCEPTIONAL FEATS

The future of robotics lies in the interaction between humans and machines. With the KUKA Robot Group, this future has long since begun: in the production shops of our customers, as well as in numerous exceptional projects that open up fascinating new worlds for robotics. Let yourself be inspired – and surprise us with new ideas.

1 Bible scribe
In the Bios installation, a KUKA industrial robot holding a quill pen hand-writes the entire text of the bible on paper scrolls.

2 Laser show star
With a breathtaking display of laser pictures and changing impressions, a KUKA robot will be the star of any event.

3 Portrait artist
With its camera vision, a KUKA robot captures the features of a human face and reproduces them with graceful dexterity in a hand-drawn portrait.

4 DJs
Without setting down the records, the robots position them under the needle of the record player and rotate them on their wrist flange.

5 Chess player
Anyone who has been checkmated by a KUKA robot can testify that the future of robotics knows no bounds.

6 Ball wizard
In the run-up to the Soccer World Cup 2006 in Germany, a KUKA robot demonstrates its skill as a goal-getter in a penalty shootout.

INDUSTRIAL ROBOTS |STANDARD MODELS| |SPECIAL MODELS| |SPECIAL VARIANTS

Structure of the product designation **SMALL ROBOTS**  **Examples**	Product classification (KR)	Payload	Series (sixx/scara)	Reach (R)	Z-stroke (Z)	Variant (CR/WP)
KR 5 sixx R650 Standard robot for a payload of 5 kg with a reach of 650 mm, standard variant	**KR**	**5**	**sixx**	**R650**		
KR 5 scara R350 Z320 WP Standard robot for a payload of 5 kg with a reach of 350 mm and a Z-stroke of 320 mm, waterproof variant	**KR**	**5**	**scara**	**R350**	**Z320**	**WP**

Structure of the product designation **LOW PAYLOAD CATEGORY TO HEAVY-DUTY CATEGORY**  **Examples**	Product classification (KR)	Payload	Arm extension (L)	Reduced payload due to arm extension	Product generation	Series (arc/comp/spot/titan)	Model (HW/JET/K/KS/P/PA)	Mounting position (C/W)	Variant (Arctic/CR/EX/F/SL/WP)	Expanded variant (HA/MT/S)
KR 150-2 C-F Standard robot for a payload of 150 kg, ceiling-mounted, foundry variant	**KR**	**150**			**-2**			**C**	**-F**	
KR 5 arc HW Hollow Wrist robot for a payload of 5 kg, floor-mounted, standard variant	**KR**	**5**				**arc**	**HW**			
KR 180 L130-2 K-F Shelf-mounted robot with arm extension and reduced payload of 130 kg, floor-mounted, foundry variant	**KR**	**180**	**L**	**130**	**-2**		**K**		**-F**	

DESIGNATION	MEANING	ICON
Product classification		
KR	KUKA robot	
Model[1]		
HW	Hollow Wrist robot	
JET	Gantry robot	
K	Shelf-mounted robot	
KS	Shelf-mounted robot with low base frame	
P	Press-to-press robot	
PA	Palletizing robot	
Mounting position[2]		
C	Ceiling	C
W	Wall	W
Variant[3]		
Arctic	For deep-freeze environments	Arctic
CR	For cleanrooms	CR
EX	Explosion-proof: for potentially explosive environments	EX
F	Foundry: for environments with a high degree of fouling and high temperatures	F
SL	Stainless steel variant	SL
WP	Variant with a high IP protection rating against water and dust	WP
Expanded variant[3]		
HA	High Accuracy	
MT	Machine Tooling	
S	Speed: high-speed variant	

[1]If not specified = Standard model. [2]If not specified = Floor-mounted. [3]If not specified = Standard variant.

CONTROLLERS

Structure of the product designation  **Examples**	Product classification (KR C/KMC)	Product generation	Variant (edition2005/sr)
KR C2 sr Controller for small robots	**KR C**	**2**	**sr**
KR C2 edition2005 Controller for robots ranging from the low-payload to heavy-duty categories	**KR C**	**2**	**edition2005**
KMC Controller for third-party kinematic systems	**KMC**		

DESIGNATION	MEANING
Product classification	
KR C	KUKA Robot Controller
KMC	KUKA Motion Control: KUKA controller for third-party kinematic systems
Variant	
edition2005 (ed05)	edition 2005
sr	Small Robots
Hand-held control panel	
KCP	KUKA Control Panel

LINEAR UNITS

Structure of the product designation  **Examples**	Product classification (KL)	Series (250/100/1500/3000)	Product generation	Mounting position (C)	Variant (CV/PO)	Expanded variant (S/T)
KL 250-3 Linear unit KL 250-3, standard variant, suitable for installation on the floor	**KL**	**250**	**-3**			
KL 1500-3 C-S Linear unit, high-speed variant, suitable for installation on the ceiling	**KL**	**1500**	**-3**	**C**		**-S**
KL 3000 CV Linear unit, covered version, suitable for installation on the floor	**KL**	**3000**			**CV**	

DESIGNATION	MEANING	ICON
Product classification		
KL	KUKA linear unit	
Mounting position[1]		
C	Ceiling	C
Variant[2]		
CV	Covered version	CV
PO	Gantry version	PO
Expanded variant[2]		
S	Speed: high-speed variant	
T	Torque: high-torque variant	

[1]If not specified = Floor-mounted. [2]If not specified = Standard variant.

POSITIONERS

Structure of the product designation  **Examples**	Product classification (KPF)	Number of axes	Series (DKP/MB/MD/MDC)	Orientation of main axis (H/V)	Number of planetary axes	Orientation of planetary axes (H)	Payload	Model (S/T)	Variant (V1/V2/V3)
KPF1-H250 Single-axis positioner with a horizontal main axis, payload 250 kg	**KPF**	**1**		**-H**			**250**		
KPF1-MDC750 Single-axis modular drive unit with counterbearing, payload 750 kg	**KPF**	**1**	**-MDC**				**750**		
KPF1-V500V1 Single-axis positioner with a vertical main axis, payload 500 kg, variant V1	**KPF**	**1**		**-V**			**500**		**V1**
DKP-400 Two-axis positioner, payload 400 kg			**DKP-**				**400**		
KPF3-H2H500S Three-axis positioner, small model, with a horizontal main axis and two horizontal planetary axes, payload per planetary axis 500 kg	**KPF**	**3**		**-H**	**2**	**H**	**500**	**S**	

DESIGNATION	MEANING
Product classification	
KPF	KUKA Posiflex
Series	
DKP	Two-axis positioner
MB	Modular base
MD	Modular drive unit
MDC	Modular drive unit with counterbearing
Orientation of main/planetary axes	
H	Horizontal rotational axis
V	Vertical rotational axis
Model	
T	Model with connecting tube
S	Small model