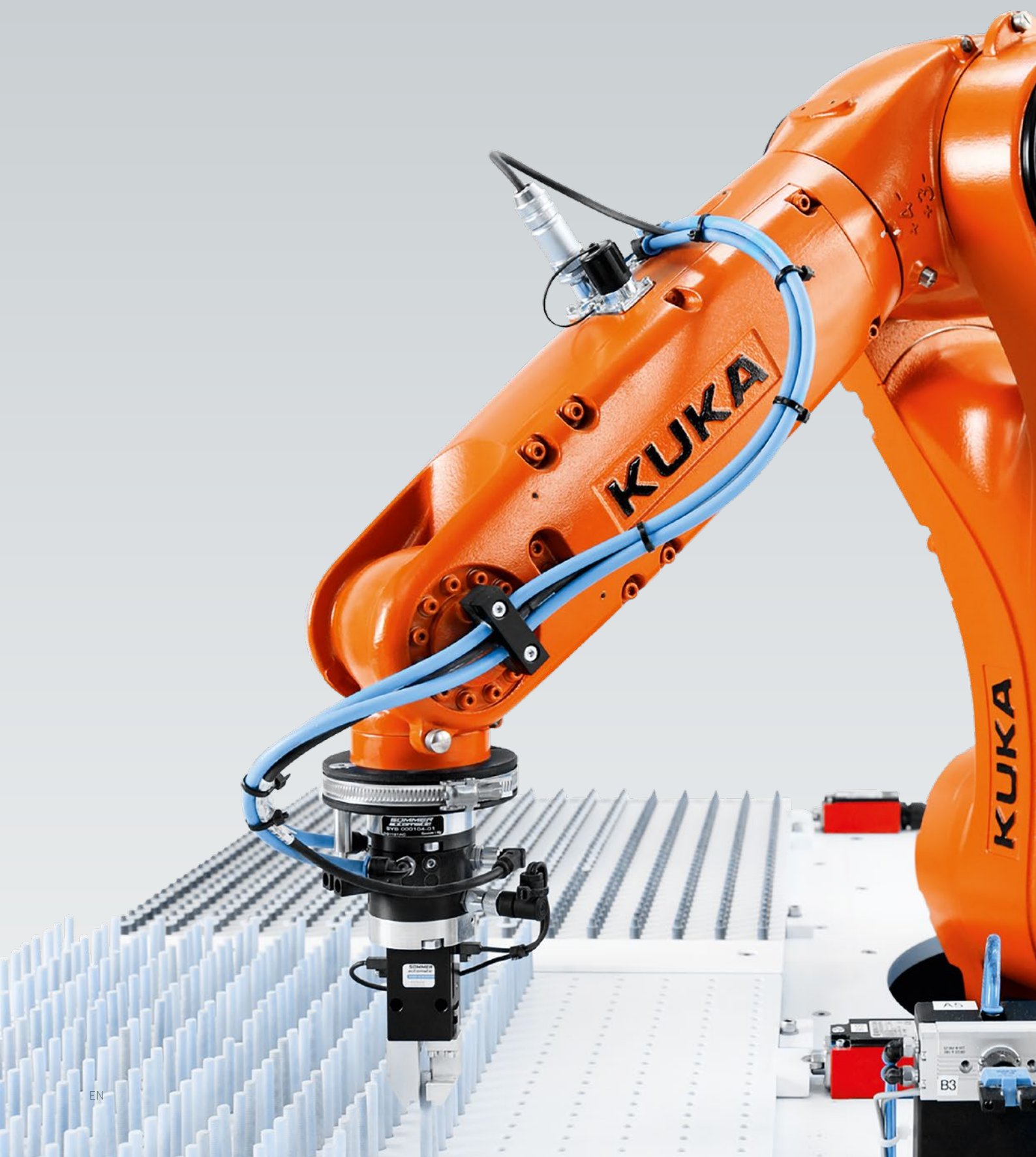


KUKA



Rethinking efficiency
_KUKA robots for the plastics industry





A step ahead of industrial change

Intelligent KUKA robotics for the plastics industry

The production world of the plastics industry is becoming ever more digital and networked. Future-oriented automation solutions and intelligent robotics from KUKA have a key role to play here. They enable a permanently increasing degree of integration in manufacturing. In this way, more and more process steps can be carried out in a single work operation. Value creation thus increases, while the logistical effort for the transfer of materials decreases. Ground-breaking solutions are leading to growing productivity and making production processes more flexible in the age of Industrie 4.0 and the Internet of Things.

As a technological pioneer, KUKA is playing a decisive role in shaping this transformation. The KUKA portfolio is thus extremely wide-ranging and highly differentiated and completely covers the specific requirements of the plastics industry. At the same time, it offers permanent security of investment and a forward-looking ability to be integrated into both the production world of today and the Smart Factory of tomorrow. We call this ›Orange Intelligenz‹.

KR QUANTEC K

Greater productivity, simple integration, high flexibility



With robots from KUKA, you profit from greater efficiency, greater cost-effectiveness and greater flexibility. Start laying the groundwork now for future-oriented automation solutions.

Light. KUKA shelf-mounted robots stand out for their low weight and volume. They can be installed directly on machines with minimum effort, thereby saving space.

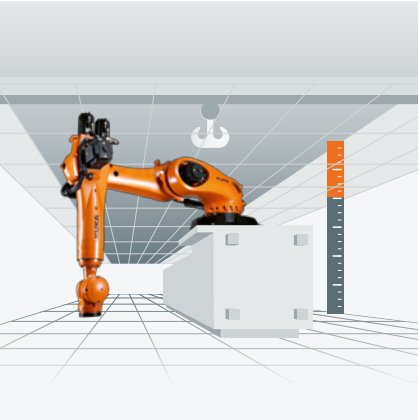
Fast. Thanks to their low moving mass, KUKA shelf-mounted robots achieve a high dynamic performance and very short cycle times. This enables higher productivity and cost-effectiveness with rapid payback.

Reliable planning. KUKA robot families have an identical mounting base hole pattern. This allows different KUKA shelf-mounted robots to be used on machines of different sizes without any additional planning measures.

Deep reach. KUKA shelf-mounted robots are designed for an especially large downward reach. They optimally access the workspace from above. Thanks to their low height, they require little vertical space.



Space-saving, with a deep reach. Space-optimized, with a long reach (vertical extension of 2,480 mm at A4/A5), with low weight and uncompromising accuracy – for optimal integration.



More space for your success: the virtual protected space. KUKA robots monitor their workspace by means of safe software. This means that they can also be operated in confined spaces, for example under craneways or in facilities with low ceilings.

Reach / payload

3,900 mm		F					
3,700 mm	A		G				
3,500 mm		B		H			
3,300 mm			C		I		
3,100 mm				D		J	L
2,900 mm					E		K
	90 kg	120 kg	150 kg	180 kg	210 kg	240 kg	270 kg

- A KR 90 R3700 prime K
- B KR 120 R3500 prime K
- C KR 150 R3300 prime K
- D KR 180 R3100 prime K
- E KR 210 R2900 prime K
- F KR 120 R3900 ultra K
- G KR 150 R3700 ultra K
- H KR 180 R3500 ultra K
- I KR 210 R3300 ultra K
- J KR 240 R3100 ultra K
- K KR 270 R2900 ultra K
- L KR 270 R3100 ultra K

KR CYBERTECH

Made for highly efficient automation

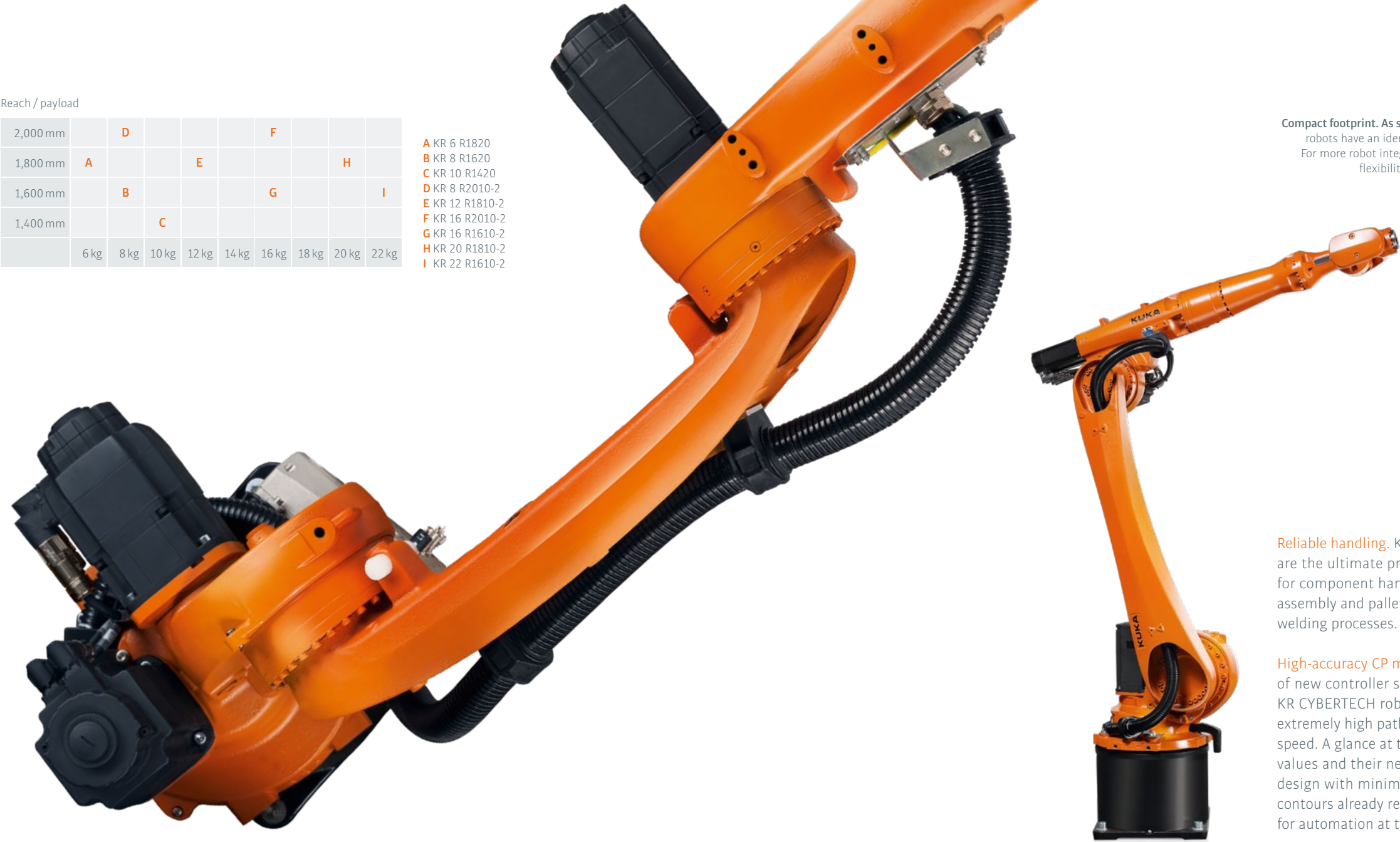
World’s largest series of models in the low payload category. Model variety from KUKA is the key to automation solutions that uncompromisingly meet requirements. The KR CYBERTECH robots offer incomparable performance and power density in the low payload category. With robot types perfectly tailored to individual customer requirements for handling and continuous-path applications covering a wide range of tasks in the plastics industry, KR CYBERTECH robots are

setting a new standard that will make the difference. Combining this with their compactness and minimal disruptive contours, they are able to work in all areas that were previously closed to conventional robots. From confined spaces to large distances – installed on the floor, wall or ceiling, or at any other angle – the KR CYBERTECH robots can master a wide range of different requirement profiles in any desired installation position.

Reach / payload

2,000 mm		D				F			
1,800 mm	A			E				H	
1,600 mm		B				G			I
1,400 mm			C						
	6 kg	8 kg	10 kg	12 kg	14 kg	16 kg	18 kg	20 kg	22 kg

- A KR 6 R1820
- B KR 8 R1620
- C KR 10 R1420
- D KR 8 R2010-2
- E KR 12 R1810-2
- F KR 16 R2010-2
- G KR 16 R1610-2
- H KR 20 R1810-2
- I KR 22 R1610-2

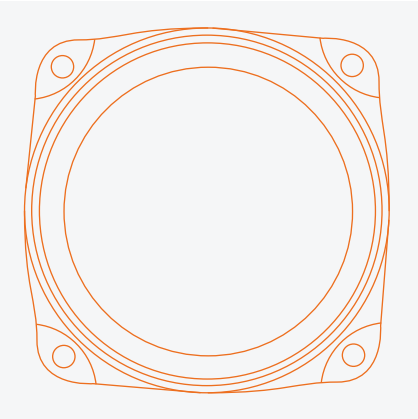


ø 67 mm: the most streamlined in-line wrist in its payload category. Simply unique. With an interference radius of just 67 mm, the KR CYBERTECH nano handling robots have the smallest in-line wrist in their class. Worldwide. It enables work to be carried out in positions that are inaccessible for other robots.



360°: maximum performance in every installation position. The standard versions of all KR CYBERTECH robots are suited to any installation position.

Compact footprint. As standard. All KR CYBERTECH robots have an identical, compact base frame. For more robot integration options and utmost flexibility in machine management.



Reliable handling. KR CYBERTECH robots are the ultimate productive solution for component handling, automated assembly and palletizing, as well as arc welding processes.

Precise machining. The product range of the KR CYBERTECH includes powerful robots for machining workpieces with pinpoint accuracy. The KR CYBERTECH thus paves the way for precision in many other areas of manufacturing.

High-accuracy CP motion. As a result of new controller structures, all KR CYBERTECH robots move with extremely high path accuracy and speed. A glance at their acceleration values and their new, ergonomic design with minimized disruptive contours already reveals their talent for automation at the highest level.

Greater volume of working envelope. The robots of the KR CYBERTECH series have an enormous working envelope to the rear. Ceiling mounting ensures long reach and high accessibility, while opening up additional floor space for further peripheral equipment.

KR AGILUS

Cost-effective performer with extremely compact dimensions

The KR AGILUS small robot series is the cost-effective alternative to conventional automation systems. They are more efficient, flexible and maintenance-friendly, while meeting the highest standards in the plastics industry.

High speed. In handling tasks, especially pick-and-place tasks, KUKA small robots demonstrate one of their greatest strengths: extreme speed. This produces impressive results with minimal cycle times.

Extreme precision. Where high repeatability and accuracy are required, KUKA small robots are in their element. They enable manufacturing quality at the highest level. Thanks to their robust design, they work with continuous precision throughout the work envelope.

Low maintenance. The KUKA small robots require no change of lubricant (lifetime lubrication). This makes them ideally suited to continuous, uninterrupted productivity.

Optimal work envelope. With reaches of up to 1,100 mm and the ability to reach points near the robot base as well as in the overhead area, the KR AGILUS offers an optimal work envelope. Additional equipment can be attached at various mounting points on the arm, wrist, link arm and rotating column (e.g. valves and I/O modules).

Reach / payload

1,100 mm			E
1,000 mm			
900 mm		C	D
800 mm			
700 mm		B	
600 mm			
500 mm	A		
	3 kg	6 kg	10 kg

- A KR 3 R 540
- B KR 6 R700-2
- C KR 6 R900-2
- D KR 10 R900-2
- E KR 10 R1100-2



Virtual protected space: KUKA.SafeOperation.
KUKA small robots set standards in safety. Only they offer the KUKA.SafeOperation functionality, which radically simplifies the effective cooperation of humans and machines.



Convincing in any position. The standard robots of the KR AGILUS series are ideally suited for installation on the floor, ceiling, wall or at an angle and allow optimal utilization in any mounting position.



Integrated energy supply system. Thanks to the integrated energy supply system, the KR AGILUS impresses with reduced disruptive contours and the reliable supply of energy to tools.



The ultimate in cleanliness: also as a cleanroom design to ISO 2. Optimized in individual production for cleanroom applications. Enhanced through the use of top-quality materials, optimized seals and smooth surfaces, KUKA robots meet the strict criteria of DIN EN ISO for cleanrooms.

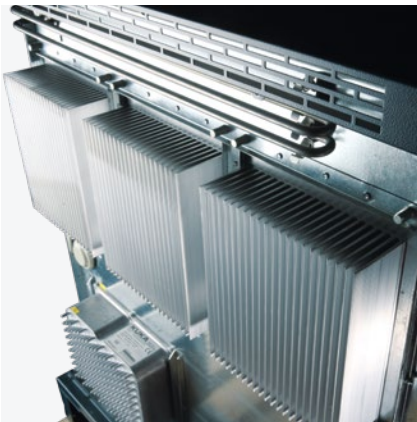


KUKA KR C4

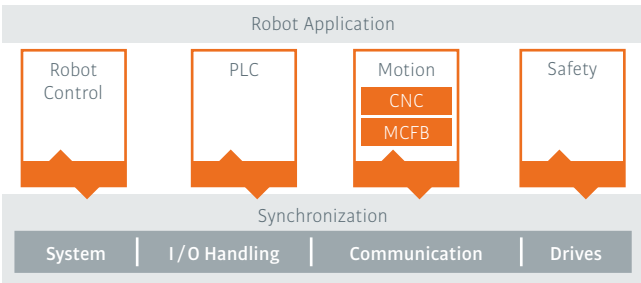
One intelligent system controls all.

KUKA KR C4 – one system controls all. Robot, motion, sequence, process and safety control: the KR C4 unites all the control tasks for the efficient use of robots in a single, smart system. With maximum energy efficiency. This sustainably conserves valuable resources and minimizes the cost risks inherent in rising energy prices.

The KR C4’s integrated energy management provides standby modes and an Eco mode. These reduce the energy consumption by up to 95 %, for example by reducing the robot velocity or through programmable brake systems which maintain the robot’s position without any impact on energy consumption. The energy consumption can be simulated and calculated even in the engineering phase. During operation, the energy consumption can then be displayed and verified on the control panel. KR C4 means efficiency with transparent energy consumption. This forms the basis for energy saving certification with tax advantages (ISO 50001).



Especially low-maintenance – without filter mats. The passive heat exchange system of the KR C4, with separate air circulation in the inner and outer zones of the controller, allows low-maintenance operation even in dusty environments. Entirely without filter mats.



Four dedicated control modules in one control system. The KR C4 concept is revolutionary. For the first time, RobotControl, MotionControl and LogicControl are seamlessly and interactively integrated with control modules for Safety and CNC. Automation solutions based on the KR C4 are thus considerably more intelligent, flexible and scalable.

KUKA smartPAD

Makes robotic applications in the plastics industry really simple



Teach pendant

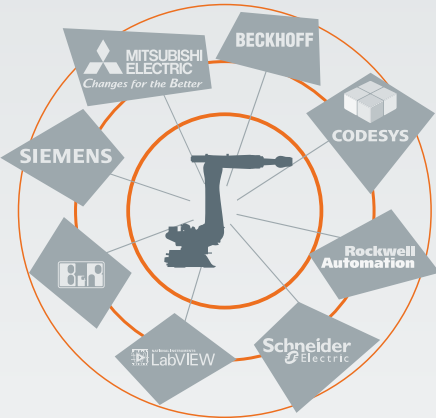
- 8.4" clear touch display for KUKA.VisionTech & KUKA.HMI Zenon ...
- Integrated USB connections
- Eight jog keys: four or six keys for KUKA plus two extra keys
- 6D mouse
- Hot-pluggable

The more diverse the robots’ abilities become, the greater the importance of intuitive user interfaces for their operation.

The KUKA smartPAD was designed to master even complex tasks easily. It can be deployed universally for all payload categories and is easy to handle thanks to its large touch display and ergonomic design. Intelligent, interactive dialogs provide the user with those operator control elements that are currently required. This makes work faster, more efficient and smarter all-round.

KUKA.PLC mxAutomation

Personnel and machines understand KUKA robots immediately

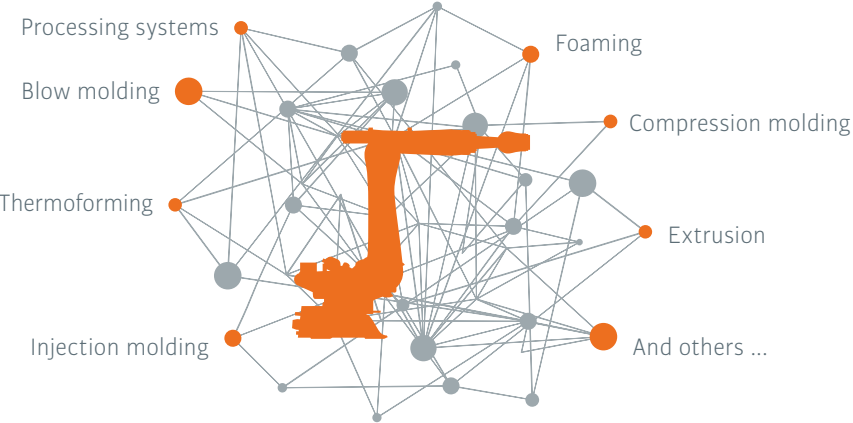


Mastering automation easily and safely. To make it as easy as possible for companies and employees to work with their robots, KUKA has developed its KUKA.PLC mxAutomation software as the interface between robots and the PLC. Cooperation with a wide range of partners has resulted in libraries for the most important PLC controllers. Programming is thus carried out in the familiar environment; operation and diagnosis are carried out easily via the user interface of an injection molding machine, for example – even without any special robotics knowledge.



Integrated controller for fast, error-free operation. With the integrated controller, robots and machines can be quickly put into operation with a minimum of training. Both programming and configuration are carried out fast and error-free directly on the control panel provided by the manufacturer of the injection molding machine – with a broad exchange of machine data. Further advantages: faster conversion, a low error rate and shared parts data management.

Intelligent automation solutions
In all areas of the plastics industry

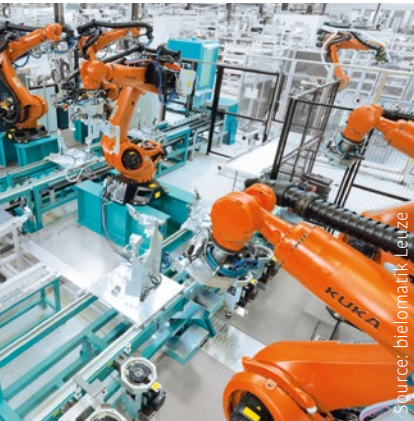


Whether for hybrid materials, injection-molded, blow-molded or thermoformed food packaging or medical products; whether on, above or next to the machine – KUKA robots increase your efficiency with utmost precision. This means that processes are more intelligent, cycle times are faster and downtime is reduced. In industrial production as well as in confined, germ-free spaces and where ever the highest hygiene standards apply.



In the system: innovative and flexible robot swarm for individual machining of blow-molded tanks

On the machine: KUKA QUANTEC shelf-mounted robots for efficient loading, unloading and finishing



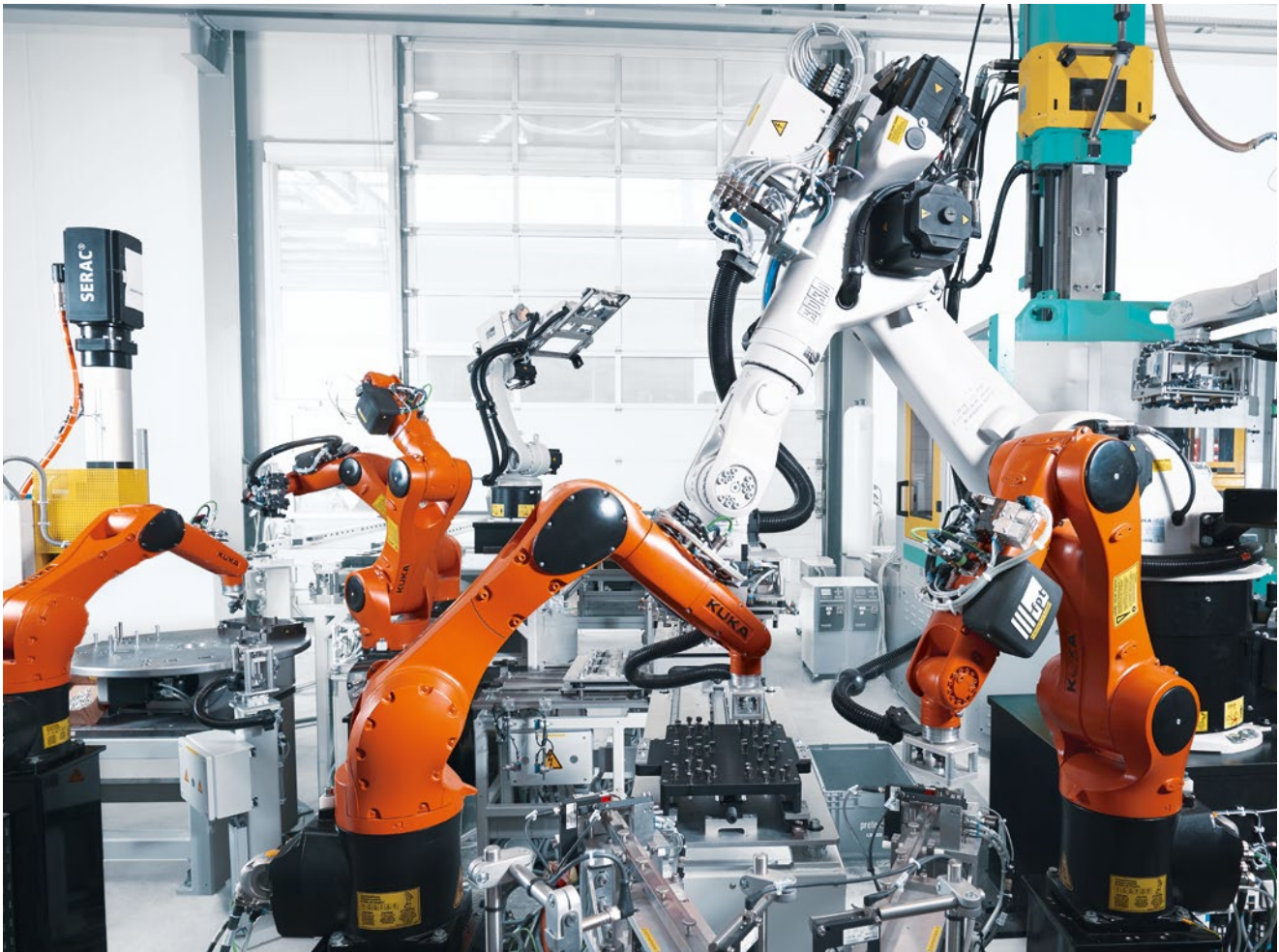
In the system: precise milling of overdimensional plastic pipes

In the system: A space-saving KR AGILUS carries out positioning tasks and accesses the assembly fixture from underneath.



Use the QR code and see the robots in motion.

When it comes to the manufacture of complex injection-molded plastic components, KUKA robots demonstrate utmost precision, reproducibility and speed.



As varied as the world of plastics production

The KUKA product portfolio



KR AGILUS series
The small robot series with unparalleled performance at the highest of speeds is available in different variants for different areas of application.



KR CYBERTECH series
The broad range of models sets new standards in handling and CP applications. It offers incomparable performance and power density in the low payload category.



KR QUANTEC series
Added together, the innovative features of the KR QUANTEC impress with maximum performance in any production environment. With its digitized Motion Modes, the future-proof robot can be adapted to specific tasks in a matter of seconds.



KR QUANTEC K series
KUKA shelf-mounted robots are designed for an especially large downward reach. They optimally access the workspace from above.



KUKA mobile platforms
With maximum flexibility, unlimited mobility and autonomous navigation – mobile automation solutions from KUKA find the way to their destination with unerring certainty even within highly complex production environments. With or without heavy loads.

All-round solution competence

Controller, software and add-ons



EUROMAP E67 interface
It regulates the safe signal exchange on the basis of a standardized dialog between the machine and the robot.



KR C4 and KR C4 smallsize-2 robot control system
Both cabinet designs fit perfectly into existing machine environments. The open architecture places virtually no limits on technical integration.



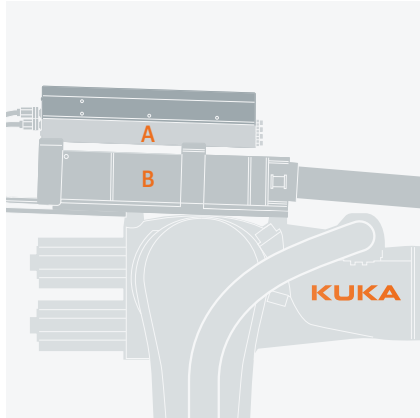
Positioners from KUKA
Our positioning technology closes the gap between automation and your success. Our technology is continually being adapted to current developments.



KUKA Milling package
This application module is a high-precision robot equipped with spindle, software, controller and frequency converter – tested and adapted to plastics processing.



KUKA function and technology packages
They give robots the capability of performing the functions relevant for your industry within an automation solution.



A KUKA media supply unit
Makes it possible to flexibly connect pneumatic and electrical control chains. The standards can be freely selected: Profinet, EtherCAT and Profibus.

B K box
Varies the length of dress package depending on the robot position. The K box also minimizes the disruptive contour, thus ensuring reduced wear.



www.kuka.com/contacts



www.facebook.com/KUKA.Robotics



www.youtube.com/kukarobotgroup



Twitter: @kuka_roboticsEN

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