



THE ROBOT WORLD



From time to time, new systems speed up our working environment.
Now the time has come again.



The first industrial revolution was set in motion by the steam engine.
The latest - by KUKA robot systems.



In 1765, the Scottish inventor James Watt built the first fully-functional steam engine - the driving force of the first industrial revolution. What before had been moved laboriously by muscle power was now driven by machines.



Spot welding



Handling



Fitting



Assembly



Racking



Press linking

APPLICATIONS IN THE AUTOMOTIVE INDUSTRY

KUKA robots are at work at the following automobile manufacturers: BMW, DaimlerChrysler, Fiat, Ford/Volvo, GM/Opel/Saab, PSA (Peugeot, Citroën), Porsche, Renault, the Volkswagen Group (Audi, Seat, Škoda, VW)

KUKA robot systems are the driving force behind a new industrial trend, opening up new opportunities for rationalization in many fields of industry. In the mid-70s, the use of robots was only really viable in the automotive industry. Today it's different. Through recent advances in PC technology and optimized manufacturing methods, prices have fallen significantly. New automation concepts are also helping make KUKA robots an attractive option for all branches of industry. The number of applications and industries in which they are in use is rising. We now stand at the beginning of an era of revolutionary change that will transform our working environment.



Handling



Loading



Palletizing



Machining



Arc welding



Component transfer

APPLICATIONS IN GENERAL INDUSTRY

KUKA robots are at work in the following industries: entertainment electronics, telecommunications, chemicals, mechanical engineering, plastics, ceramics and foundry applications, cosmetics and pharmaceuticals, fittings, wood-processing and furniture, and foodstuffs

Some systems provide a decisive strategic advantage.
One of them is KUKA's robot system.



About 500 AD in India, the mathematically gifted Indians invented an ingenious game that could only be won through superior strategic maneuvers. And it was then that the words "sah mata!" were heard for the first time - checkmate!



AT THE CENTER: THE KUKA ROBOT

KUKA offers you jointed-arm robots for payloads of up to 500 kg. With superior performance figures for work envelope, dynamics, and repeatability. With their higher modularity, flexibility and quality, KUKA robots are acknowledged to be at the leading edge of technology.

KUKA TECHNICAL SUPPORT



In the engineering, project planning, and validation phases KUKA Technical Support will advise you regarding the choice of the right electrical, control, and mechanical systems - also with respect to availability and durability.

Together with its robots, KUKA delivers a carefully thought-out strategic system with multiple components. This consists of the robot arm, control intelligence, software programming, integration into existing networks, appropriate training, and last but not least, KUKA service. Another clever combination: KUKA provides the application in cooperation with a systems partner who has experience in your industry. This way you get a customized, high-performance systems package for every application – which is precisely the kind of added value that can give you the decisive advantage in your day-to-day production.



KUKA ROBOT CONTROLLER KR C 2



Invest in the future and benefit from the worldwide standard: with the open, PC-based controller KR C2. Expansion, and integration of higher-level control structures and lower-level controllers, sensors and actuators, is possible at any time.

THE APPLICATION



The KUKA systems partner strategy provides innovative custom applications. KUKA provides the robot and controller, and selected systems partners provide the industry-specific expertise: two specialists together offer an optimal solution.

KUKA CONTROL PANEL (KCP)



Programming can be that easy. The KUKA Control Panel (KCP) combines easy operation with rapid programming. The individual robot axes can be moved intuitively with the 6D mouse. Operations are carried out as is usual in Windows.

KUKA COLLEGE



What use would all these system advantages be without good training? That's why KUKA College offers robot knowledge from A to Z – with certified results. Training is geared towards specific target groups: from robot operators to managers.

KUKA SOFTWARE PACKAGES



We offer ready-made software packages for common applications. The real-time capable simulation program KUKA Sim and the offline program KR C Office allow rapid systems integration with extremely short downtimes.

KUKA SERVICE



KUKA Service is geared entirely to the availability of your systems. Besides the Hotline and the usual customer support, KUKA offers you additional service packages: up to immediate assistance 24 hours a day and Internet remote diagnosis.

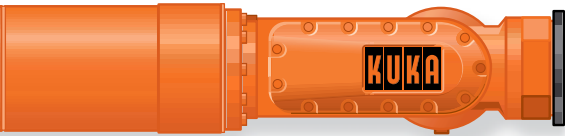
Again and again, people discover a mechanical principle that is ahead of its time. Like the mechanical design of KUKA robots.



In 1309, an unknown Milanese inventor was - quite literally - ahead of his time: he designed the first mechanical clock, ringing in a new technological era with his innovative design principle.

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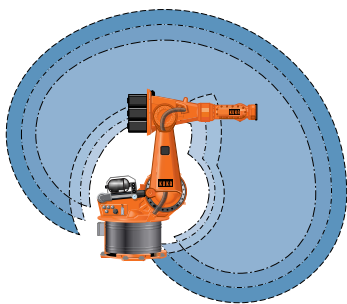
KUKA ARM EXTENSIONS



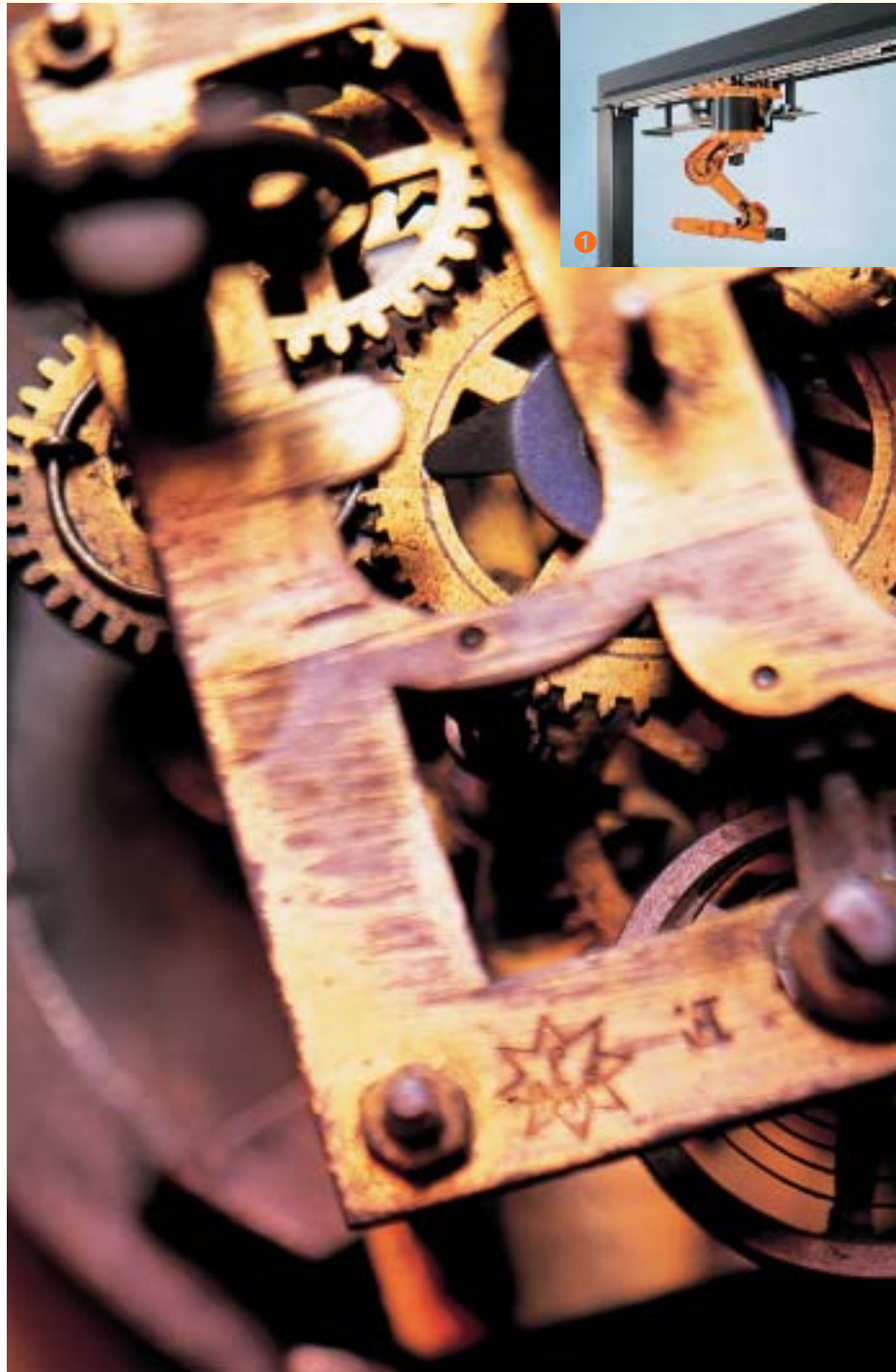
400 mm extension



200 mm extension



The right reach for every distance. A major factor when choosing a robot is its reach. Here KUKA offers you an invaluable advantage - a way to extend the robot arm. With a choice of 200 mm or even 400 mm extension. This is possible for practically all KUKA robots, with the exception of the low payload series.



KUKA robot systems are also ahead of their time. With their superior work envelope and their characteristic jointed-arm kinematics, they make possible innovative and flexible system concepts that cannot be realized using parallelogram robots. That's why many manufacturers have resorted to imitating KUKA's design principles. Another KUKA advantage is the high modularity. This is one reason why KUKA has been able to significantly reduce its robot prices since 1989. By standardizing the vast majority of components and basic machines, KUKA can manufacture all the parts much more cost-effectively.



The right extension for every application. KUKA robots can be mounted on the floor or on the wall, or gantry-mounted in inverted position. On linear units, they can move smoothly from A to B as if on rails – and service two machines some distance apart, for example. This helps increase the range of uses and provides more flexibility when planning systems.

- ① Gantry robot: inverted KUKA linear unit with KR 15
- ② KR 6 on KUKA linear unit
- ③ KR 125 wall-mounted robot

FROM KR 3 TO KR 500: ROBOT SERIES FOR ALL PAYLOADS

Low payloads



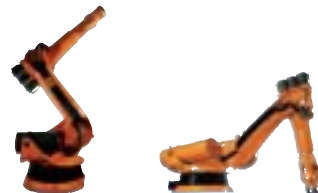
KR 3 KR 16

Medium payloads



KR 30 L15 KR 60 K

High payloads



KR 150 KR 210 K

Very high payloads



KR 350 and KR 500

Press-to-press robots



KR 60 P and KR 100 P


Palletizing robots



KR 180 PA KR 500 570 PA

One of the main criteria in determining the "right" choice of robot is the payload. For this reason, KUKA offers four robot series covering all the common payload categories – each series comprising a wide-ranging program with many intermediate steps. Our product range therefore offers you an exceptional variety of individual options, giving you the ideal robot for every situation. Moreover, for special applications such as press linking or palletizing, KUKA has special robot series on offer.

People have always striven for things which offer greater performance. Like the KUKA PC-based controller and software.

 The microchip, invented in 1971, achieved a technological miracle. With its high storage capacity, computers became smaller, less expensive, and more powerful. Today the goal is to achieve this miracle anew almost daily. And to constantly increase performance.

8 THE KUKA CONTROL PANEL



1 All the switches are here.
All the necessary switches are integrated at the top of the KCP. The usual "trips" to the control cabinet are no longer needed.

2 The 6D mouse.
Rapid teaching using just one operator control element. The 6 axes can be moved intuitively and quickly.

3 Efficient operation.
User-friendly programming on the KCP with the familiar Windows interface and standard PC functions.

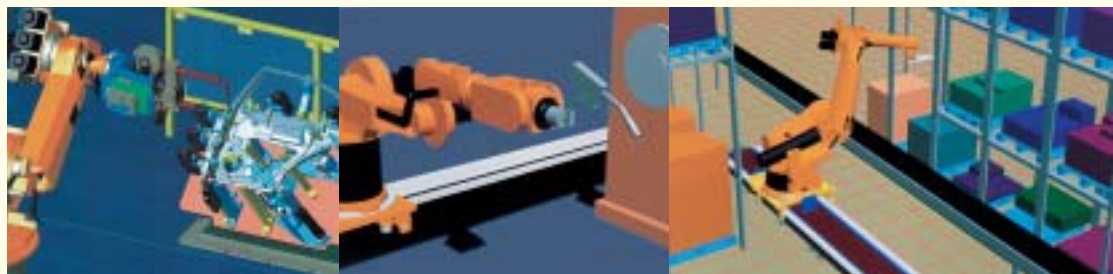
4 Streamlined layout.
Less is more: that's why the KUKA Control Panel is equipped with softkeys and clearly laid-out function blocks.

5 Online selection of other languages.
A special feature is online selection of other languages. No matter whether it's English, French, Spanish, Flemish, Russian or Chinese.

6 Color display.
The large color screen (8" VGA) will impress you with its clear display and the ability to visualize in color not only the robotic cell, but also the entire production process [Production Screen].

READY-MADE SOFTWARE PACKAGES FOR DIVERSE APPLICATIONS

For the applications most in demand, KUKA has special software packages ready-made on CD: for bonding, arc welding, spot welding, handling, gaging, etc. This saves you time and effort when programming.



The robot controller KR C2 from KUKA is also a small technological wonder. Together with its software, it offers the user many more features than conventional control systems:

1. Expandability.
2. Open to future developments.
3. Integration into any network via a bus.
4. Worldwide standards.
5. Input functions for faster programming.
6. Ready-made software packages.
7. Real-time capability.
8. Real-time capable simulation.
9. Offline programs with absolutely accurate data.

But the greatest proof of the KR C2 controller's power and versatility: many customers even buy it separately – for control tasks of every kind.



KUKA Sim - realistic and cost-effective. With the KUKA simulation program KUKA Sim, robotic cells can be planned and configured with true-to-life accuracy. With KUKA, the data are available in real time, which means they are more realistic, and can be coupled with other simulation programs (IGRIP, ROBCAD).




KR C Office - programming without a break in production. You can program robots even when the system is running. With KUKA offline programming, production continues uninterrupted. Newly created or expanded programs can be used without modification. New robot programs are thus productive from the start.



Compact control cabinet. With a footprint of about 0.3 m², the control cabinet requires very little space and can be installed side by side with other cabinets. As it contains no operator control elements other than the main power switch, it can be installed independently of the robot. Integrated into the door the PC is easily accessible and facilitates the integration of additional options.



People always want help to be within easy reach.
 KUKA Service is only a phone call away.

 In 1876, Alexander Graham Bell built the first telephone that allowed the spoken word to be clearly understandable over long distances. Out of this first simple apparatus arose a worldwide communications system - and a highly efficient tool for customer support.

KUKA COLLEGE



ROBOT SERVICE TECHNICIAN

Holders of the 1★Certified Robot Professional qualification

- carry out commissioning work on the robot system,
- create simple, new, linear application programs,
- diagnose and rectify faults in the controller and drive systems and the robot arm.

Persons successfully completing the 1★seminars are awarded the 1★Certified Robot Professional qualification.



ROBOT PROGRAMMER

Holders of the 2★Certified Robot Professional qualification

- understand robot programs written in the high-level programming language KRL and create new ones,
- carry out modifications to complex robot programs,
- create new program sections,
- commission and program external kinematic systems,
- translate automation tasks into structured robot programs,
- reduce programming time, speed up production and make subsequent reprogramming easier,
- configure and commission the most important field bus systems for the robot controller (DEVICENET, INTERBUS, PROFIBUS) and rectify faults.

Persons successfully completing the 2★seminars and the 2★final test are awarded the 2★Certified Robot Professional qualification.



ROBOT ADMINISTRATOR

Holders of the 3★Certified Robot Professional qualification

- configure the user interface for the robot controller,
- define customer- and application-specific program commands and integrate them into the robot controller,
- integrate the robot controller into a Windows network,
- make full use of the robot's potential and integrate it optimally into the production process.

Persons successfully completing the 3★seminars and the 3★final test are awarded the 3★Certified Robot Professional qualification.



KUKA Roboter GmbH keeps in close contact with you. With the KUKA Hotline, you can get minor problems cleared up fast by telephone. KUKA Service stand ready at your side, from commissioning to programming and maintenance. Customized service packages and the new Internet remote diagnosis ensure maximum availability. A wide-ranging training program based on real-life situations makes robot applications and programming easy, from the basic introductory course right up to the Chamber of Industry and Commerce certificate.

KUKA Technical Support. In the engineering, project planning, and validation phases, Technical Support will advise you regarding the choice of the right electrical, control, and mechanical systems – with respect to functionality, availability and durability.

KUKA System Support. KUKA system support helps you to help yourself. A KUKA technician gives your employees hands-on support – until they have mastered the work themselves.

KUKA Hotline. The KUKA Hotline helps programmers, system supervisors, and maintenance personnel to solve problems quickly. A call is all it takes.

KUKA Inspection Service. KUKA service technicians prevent problems before they can occur, thus prolonging the service life of your robot. As a one-time service, or as part of an inspection agreement.

KUKA Remote Diagnosis. The fastest and most direct service of them all: via an integrated http server, our technicians in Augsburg can inspect and reprogram your KUKA robots across the Internet – worldwide.

KUKA Expert Programmer Service. Unprofessional programming can shorten the life of your robot and lower its performance. So invest in KUKA's expert programmers. They're worth the money.

KUKA Repair Service. If the worst should happen, KUKA service technicians will get to your location by the speediest route.

KUKA Service Agreement. Ideal for customers who produce Just in Time: KUKA is on stand-by 24 hours a day, and guarantees immediate assistance.

KUKA Parts. KUKA delivers its entire range of spare parts as fast as possible – in Europe usually within 24 hours. Or by overnight express.



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Products and services

- Jointed-arm robots for payloads from 3 kg to 570 kg
- Linear traversing units for robots
- Special robot designs
- Robot controllers
- Control software
- Technological process software
- Customer support

www.kuka.com

An IWKA Group company



WORKING IDEAS