

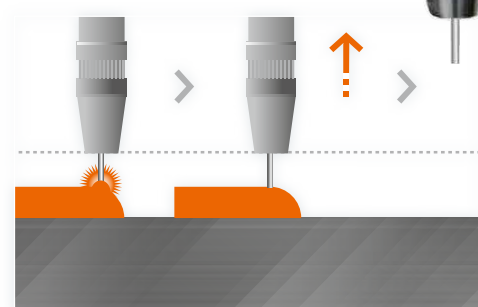


KUKA

Perfected quality.

KUKA robots

for arc welding.



Short cycle times.
Exact path control.

KUKA robots can also master a large number of weld seams perfectly in an extremely short time. The precise path control ensures the consistent high quality of the results, even for long welds.

The absolute specialists for arc welding with an infinitely rotating 6th axis.

KUKA presents the absolute specialists for arc welding: the HW (Hollow Wrist) robots. With a payload capacity of up to 16 kg and a reach of up to 2,016 mm, the robots can access even hard-to-reach weld seams with the welding equipment.

PROCESS-OPTIMIZED. Reduced disruptive contours and a large distance between axis 5 and the robot flange allow welding deep within the workpiece, enlarge the workspace and offer better reachability, 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. The sixth axis is designed for infinite rotation.* This eliminates the need for time-intensive rotation back to the start position, thereby shortening the processing time.

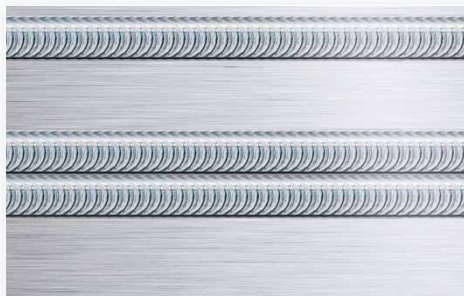
FUTURE-PROOF. Thanks to compatibility with all common welding devices as well as water and gas-cooled torches, KUKA provides the greatest possible flexibility.

SIMPLE HANDLING. The very low weight enables high dynamic performance, simple installation and easy mounting on the ceiling. The stable KUKA manipulator boasts extremely high repeatability and masters even applications with critical cycle times.



Optimal results. Path accuracy with HA.

High Accuracy models (HA) from KUKA meet the highest requirements in precision with their extremely high path accuracy. The absolutely calibrated robots allow optimized offline programming.



Consistent quality. Reduced need for reworking.

Intelligent robot technology combines maximum flexibility and optimal results. The consistent high quality of weld seams eliminates the need for time-consuming rework.



Seam tracking with laser sensor technology.

Seam tracking in a thick plate welding application with a KR 16 and Servo-Robot laser sensor.

* Dependent on the torch manufacturer.



**Complete robot portfolio for
jigless welding and component
handling.**

With KUKA there are no limits to the perfect interaction between the welding robot and the handling robot. A broad portfolio of robot models is the basis for maximum flexibility.

**Complete function packages
for all welding applications.**

KUKA welding robots are perfectly prepared for their welding tasks thanks to the range of KUKA function packages. This allows rapid, cost-effective start-up.

One platform from a single source



Source: KUKA Systems GmbH

Fully assembled and welding-tested.
All you need for automated arc welding.
In a single package. Minimizing sources
of error through perfect interaction.



Perfect interaction, with all
the freedom you need.

Arc welding with KUKA robotics.



**KUKA offers a wide range
of application software.**

For solving all welding tasks. For example: with KUKA.ArcTech Basic products, arc welding applications can be quickly programmed and put into operation.

**All common power source
manufacturers.**

Nearly all power sources from market-relevant manufacturers can be integrated seamlessly into the KUKA system landscape. Analog or digital – it makes no difference.

**Diverse portfolio of
positioning systems.**

Highly dynamic 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 4,000 kg.



1

control system: the KR C4.

Open for the perfect solution.

KUKA KR C4 – one system controls all. Robot, motion, sequence, process and safety control: everything in a single system. The KR C4 unites all the control tasks for 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).

A wealth of options

- arc robots
- Handling robots
- Positioners
- Power sources
- Tech-Packs
- Weld packages
- Inline forms



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.

KUKA.ArcTech Basic.

Quick and

easy to program.



End crater
parameters Check
for wire stuck

ArcOff

KUKA.ArcTech Basic is the optional software package with all the functions for simple standard welding applications. It expands the KUKA KR C4 controller and enables seamless communication with a power source. KUKA.ArcTech Basic gives the programmer all the necessary inline forms for simple, fast programming of the welding application.

ArcSwi

Weld parameters
Weave parameters

ArcOn

Ignition parameters
Weld parameters
Weave parameters

The KUKA smartPAD brilliantly demonstrates, on a large, high-resolution antireflection touch screen, just how simple robot operation can be.

Intelligent, interactive dialogs provide the user with those operator control elements that are currently required. This makes work easier, faster, more efficient and simply smarter all-round.

8,4" Clear touchpad display for KUKA.VisionTech & KUKA HMI Zenon...

USB port integrated

8 jog keys: 4 or 6 keys for KUKA plus 2 extra keys

6D mouse

hot-plug cable

Flexibility in different applications – KUKA robots in practice.

Welding with robot technology gives you a vast range of options. A single system performs a host of tasks for you at the highest level of quality. This enables you to meet your customers' requirements even more quickly, flexibly and cost-effectively.

Bumper production in the automotive industry:

In automotive manufacturing, KUKA robots and positioning technologies master the job with ease.



Bumper production in the automotive industry:

Bumper production for vehicles, with KUKA robot technology and Fronius CMT welding equipment.



Jigless welding in commercial vehicle production:

Our robot technologies are also at home in the commercial vehicle sector. The picture shows a jigless welding application. The handling robot positions the workpiece for the two welding robots, which then perform the welding work.

Cab manufacture in the commercial vehicle sector:

The KR 30 L16 is the optimal robot for cab manufacture. With its long reach of 3102 mm, it can access any weld seam. This has made it indispensable in this area of production.

KUKA welding product portfolio

Materials

Thickness

Manufacturers



Tech-Packs

The perfect package for every application

Steel, stainless steel, aluminum, special steels

0.5 mm to 10 mm and more

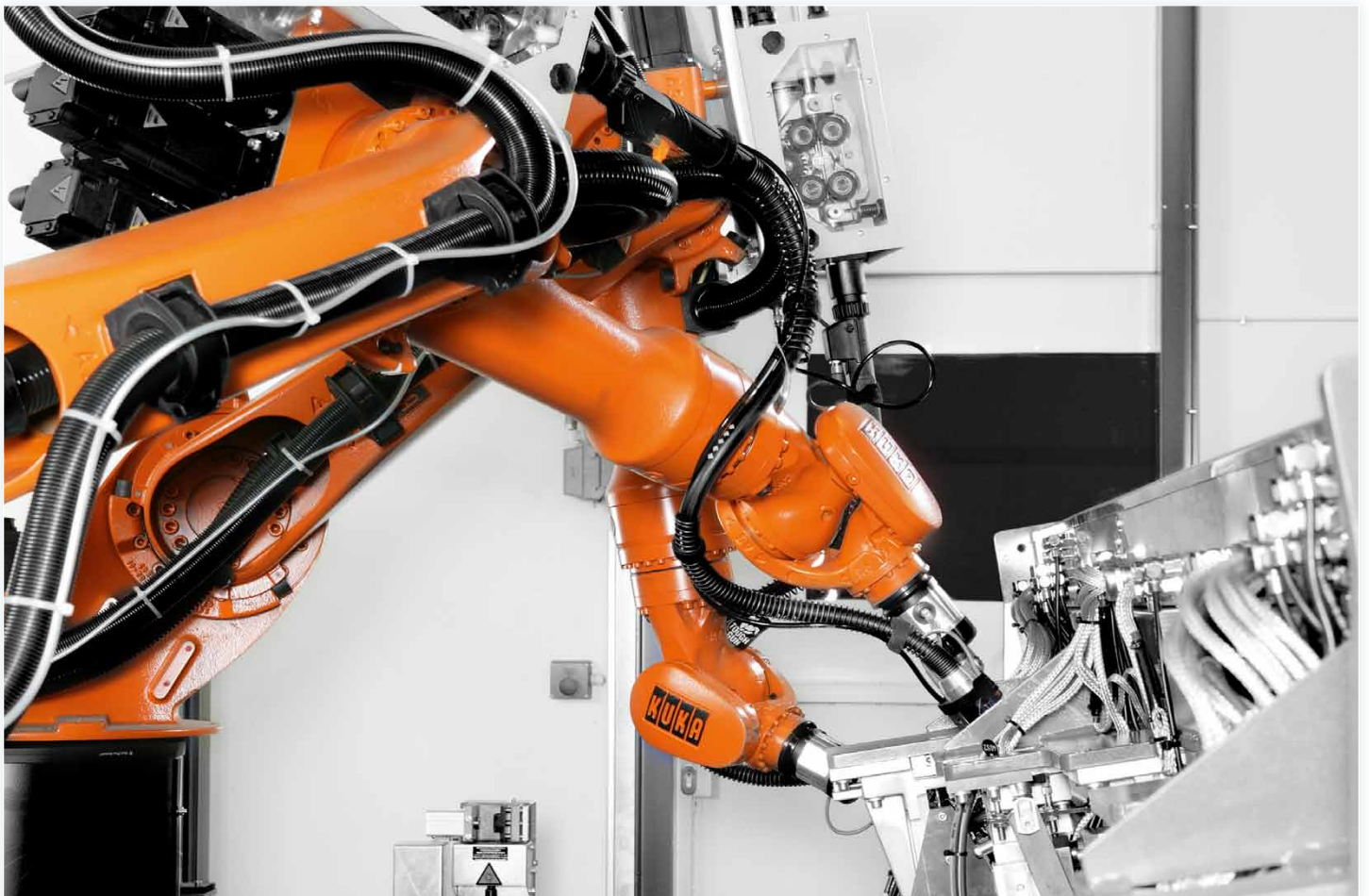
Fronius, SKS, EWM, Lincoln, KEMPPPI, ESAB, Lorch, Cloos and more

KR 5 arc, KR 6, KR 5 arc HW, KR 16, KR 16 L6, KR 30 L16, KR 16 arc HW, KR 16 L8 arc HW

KR 30, KR 60, KR QUANTEC, KR 120, KR 210, KR 240, KR 300 und mehr

KP1, DKP, KP3

KUKA.ArcTech Basic, KUKA.ArcTech Advanced, KUKA.Touchsense, KUKA.ArcSense, KUKA.SeamTech Finding, KUKA.SeamTech Tracking, KUKA.TRACC TCP, KUKA.MultiLayer



Front panel production in the automotive industry:

Two KR 16s with SKS welding equipment welding automotive components.



Use the QR code and see the robots in motion.

In a class of their own.

The KUKA specialists for arc welding.



KR 5 arc/KR 6

With its low payload, it is ideally suited to standard arc welding tasks – whether mounted on the floor or installed on the ceiling.



KR 16/KR 16 L6-3

With its minimized disruptive contours and streamlined design, it saves valuable space and reaches any point, even in confined spaces.

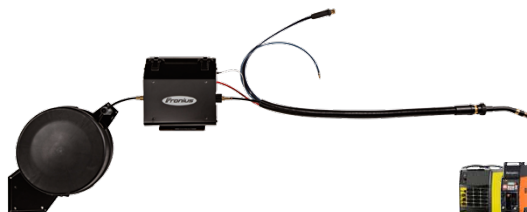


KR 30 L16-2

There are low-payload applications in which the reach is a decisive factor. Here KUKA offers you reaches of up to 1.9 m.



Intelligent accessories



Complete welding equipment

A welding equipment package can be put together from a wide range of manufacturers. The components can be combined to suit your individual requirements and spare parts inventories. Additional special options can be supplied, such as

TCP calibration, torch cleaning systems, TouchSensor technology for component and seam finding, arc sensor for seam tracking, laser sensor technology for seam finding and seam tracking.

Welding varies greatly from one application to the next. KUKA customers from different industries define different requirements for our welding robots. We develop suitable solutions to meet these requirements, making use of robots specially developed for arc welding, with payloads from 5 to 16 kilograms and reaches of up to 3.1 meters.

This allows us to offer our customers perfectly adapted automation of welding tasks. In addition to the welding robots, our positioners and handling robots also play an important role. All the individual components are important. But it's the complete system which guarantees the optimum.



KR 5-2 arc HW

The 50 mm opening in the arm and wrist allows the arc welding dress package to be routed in the protective interior of the arm.



KR 16 arc HW

Both torsion-type dress packages and infinitely rotating arc welding dress packages are possible. This means not only improved component accessibility, but also simplified offline programming.



KR 16-3 L8 arc HW

The Hollow Wrist not only shields the dress package from mechanical influences, but also prevents undesirable whiplash motion during reorientation of the robot.



Jigless-welding

With its large product portfolio, KUKA offers absolute specialists for arc welding which are able to meet all your requirements.



Positioners from KUKA

Our positioning technology closes the gap between automation and your success. Our technology is continually being improved and updated.



Efficient software solutions

These enable the robot to carry out particular industry-specific functions within an automation solution.

KUKA – your strong partner.

Quality made in Germany, creativity and the utmost commitment to customers: at KUKA, this has been the basis for decades of exceptional technology, helping you to decisively optimize your processes. We were the pioneers in the world of robotics, and now we are global leaders in innovation. Our passion is finding future-oriented solutions to make even complex automation tasks simple. Whatever you want to do, and whatever the specific task involved: you can implement it with KUKA. And thanks to close cooperation with our experienced KUKA system partners, that applies to every industry. We strive to turn your ideas into reality. Use our edge to drive your success.



arc variant



arc HW variant

Robot variants	8	3
Max. reach	1,412 mm to 2,101 mm	1,423 mm bis 2,016 mm
Rated payload	5 to 16 kg	5 to 16 kg
Suppl. load on arm/link arm/rot. column	10/-/20 kg; 10/var./20 kg; 12/-/20 kg	12/-/20 kg
Max. total load	36 to 46 kg	37 to 48 kg
Pose repeatability	±0.04 mm; ±0.05 mm	±0.04 mm
Number of axes	6	6
Mounting position	wall, floor, ceiling	floor, ceiling
Varian	foundry F , cleanroom CR	
Robot footprint	324 mm x 324 mm; 500 mm x 500 mm	324 mm x 324 mm; 500 mm x 500 mm
Weight (without controller), approx.	127 to 245 kg	126 to 245 kg
Ambient temperature	+5/+10 °C to +45 °C	+10 °C to +55 °C

KUKA Roboter GmbH

Hery-Park 3000, 86368 Gersthofen, Germany, Phone: +49 821 4533-0, www.kuka-robotics.com

Details provided about the properties and usability of the products are purely for information purposes and do not constitute a guarantee of these characteristics. The extent of goods delivered and services performed is determined by the subject matter of the specific contract. No liability accepted for errors or omissions.

