

**KUKA**



**KUKA Robots**

**for Palletizing Applications**

# KUKA



## **KUKA - YOUR STRONG PARTNER.**

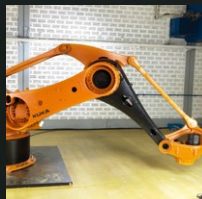
Quality made German robots built with the utmost commitment to our customer's needs. KUKA has been the basis for decades of exceptional technology helping companies to achieve process optimization. We were the pioneers in the world of robotics, and now are global leader in innovation. Our passion is finding future-oriented solutions to make even complex automation tasks simple. Whatever your application no matter the difficulty you can implement it with KUKA. Thanks to experienced KUKA system partners we are able to provide robotic solutions industry-wide. We strive to turn your ideas into reality. Use our experience to drive your success.

They will give your business a lift.

KUKA robots for palletizing applications.

Payloads from 40 kg to 1,300 kg.

High speed – with an extremely large work envelope, minimum interference contours and maximum robustness: KUKA palletizing robots embody all that is needed for perfect automation. KUKA covers the payload range from 40 kg to 1,300 kg with an unparalleled variety of robots. All KUKA palletizing robots are specially designed for demanding palletizing and depalletizing tasks. The result is short cycle times and increased throughput combined with low space requirements and high cost-effectiveness.



To find out more about KUKA robots for palletizing applications, scan this QR code with your smartphone.

# The new pace of palletizing.

## Product overview

Robot	KR 40 PA
	KR QUANTEC PA KR 120 R3200 PA, KR 180 R3200 PA, KR 240 R3200 PA
	KR 300-2 PA, KR 470-2 PA
	KR 700 PA
	KR titan PA KR 1000 L950 titan PA, KR 1000 1300 titan PA
Controller	KR C4
Teach pendant	KUKA smartPAD

STREAMLINED [+]

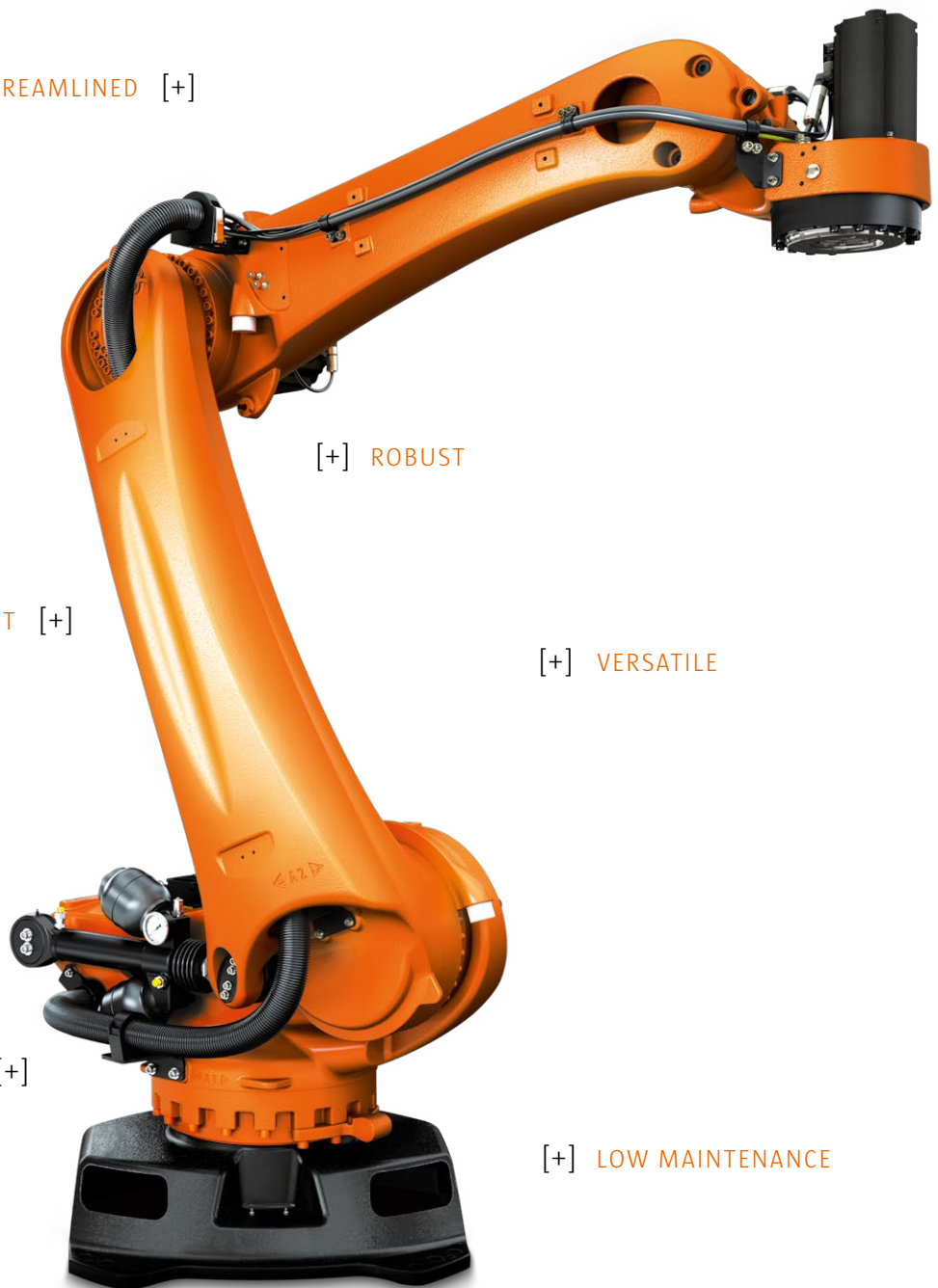
[+] ROBUST

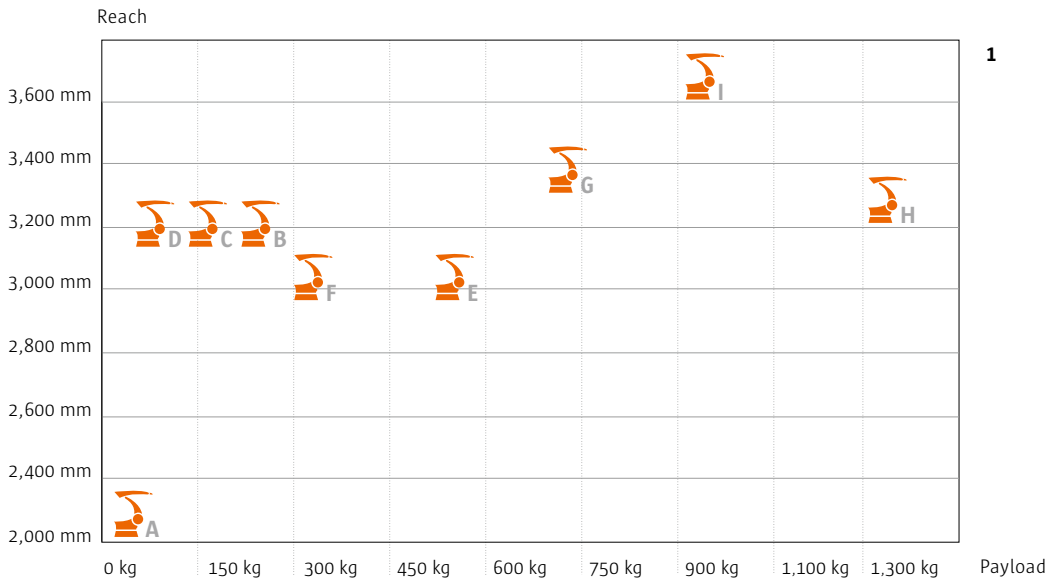
COMPACT [+]

[+] VERSATILE

FAST [+]

[+] LOW MAINTENANCE





1

1 KR 40 PA (A)  
 KR 120 R3200 PA (B)  
 KR 180 R3200 PA (C)  
 KR 240 R3200 PA (D)  
 KR 300-2 PA (E)  
 KR 470-2 PA (F)  
 KR 700 PA (G)  
 KR 1000 L950 titan PA (H)  
 KR 1000 1300 titan PA (I)

2 KR 40 PA

3 KR QUANTEC PA.  
 The most compact  
 specialists for  
 high payloads



2



3

#### KUKA palletizing robots – fast, reliable and versatile

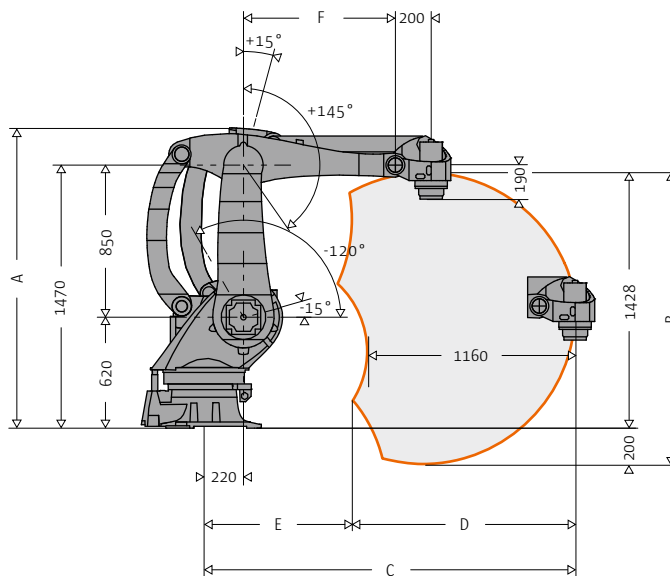
With KUKA you get the fastest palletizing robot on the market and benefit from the largest product range around, with payloads from 40 kg right up to 1,300 kg and reaches of up to 3,601 mm the perfect solution is assured for even the strictest requirements.

The models of the new energy-efficient KR QUANTEC series meet all the needs of future-oriented automation with minimized space requirements, shorter cycles, maximum availability, and reduced operating costs. With their streamlined design, they can reach stack heights of over 2,500 mm and a hollow shaft with a diameter of 60 mm allows protected routing of the energy supply.

The compact palletizing robot KR 40 PA stands out for its low weight. Other KUKA palletizing robots such as the KR QUANTEC palletizing robots, the KR 300-2 PA, and KR 470-2 PA, impress with their high speed. Higher payloads are lifted effortlessly by the KR 700 PA making it perfect for palletizing whole layers. In the heavy duty category the KR titan PA is the undisputed champion, capable of lifting well over a 1,000 kg and placing it exactly at the target position.

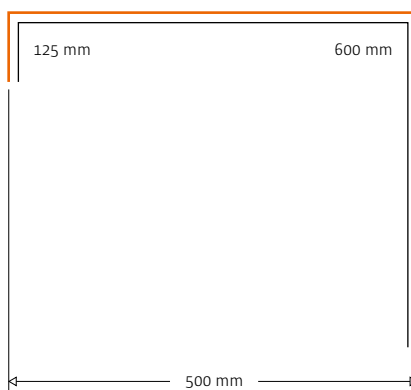
# KR 40 PA

Work envelope <sup>1)</sup>	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Volume
KR 40 PA	1,675 mm	1,628 mm	2,091 mm	1,240 mm	851 mm	850 mm	12.6 m <sup>3</sup>



## Cycle time

KR 40 PA (125/500/600; 30 kg Payload)	56.0 Cycles per minute
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<sup>1)</sup> Relative to intersection of axes 4/5.

## Features and advantages

**FAST.** The reduced weight of the KR 40 PA makes it extremely fast, resulting in drastically shortened cycle times. A working speed of up to 56 cycles per minute is possible while still maintaining maximum precision.

**LONG REACH.** KUKA palletizers boast outstanding reach. The KR 40 PA has a reach of 2,091 mm. Its 4-axis kinematic system enables pallets to be stacked up to 1.8 m high.

**STREAMLINED.** The minimized interference contour of the KR 40 PA is due to its streamlined base frame and small footprint, together with the integrated energy supply system (control cable, bus cable and air).

**LOW MAINTENANCE.** In the development of the robot priority was given to the low wear and maximum ease of servicing of all components.



### KR 40 PA

Max. reach	2,091 mm
Rated payload	40 kg
Rated suppl. load, arm/link arm/rot. col.	20 kg
Rated total load	110 kg
Pose repeatability	±0.05 mm
Number of axes	4
Mounting position	Floor
Robot footprint	850 mm x 950 mm
Weight (excluding controller), approx.	695 kg

### Axis data/

#### Range of motion

Axis 1 (A1)	+/-183°
Axis 2 (A2)	-15°/-120°
Axis 3 (A3)	+15°/+145°
Axis 6 (A6)	+/-350°

### Operating conditions

Ambient temperature	0 °C to +55 °C
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### Protection rating

Standard variant	IP 65
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Controller

KR C4

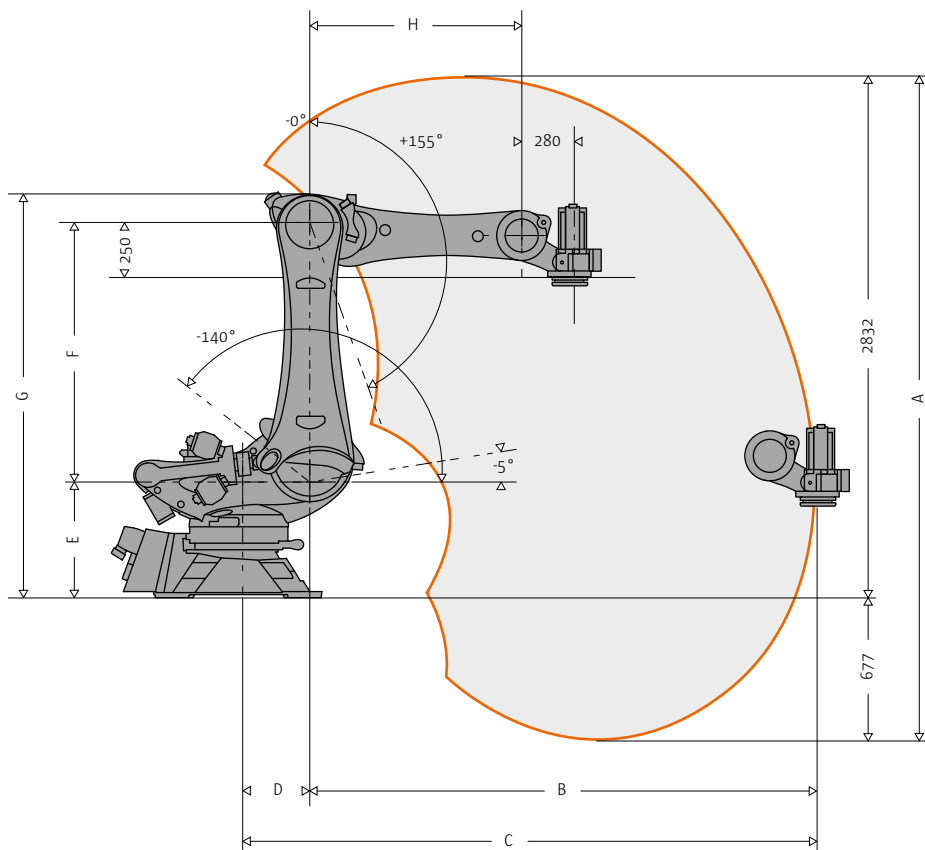


Teach pendant

KUKA smartPAD

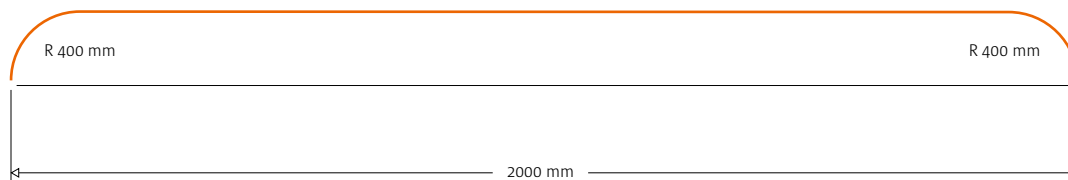
# KR QUANTEC PA

Work envelope <sup>1)</sup>	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 240 R3200 PA	3,509 mm	2,845 mm	3,195 mm	350 mm	675 mm	1,350 mm	2,215 mm	1,220 mm	77.90 m <sup>3</sup>
KR 180 R3200 PA	3,509 mm	2,845 mm	3,195 mm	350 mm	675 mm	1,350 mm	2,215 mm	1,220 mm	77.90 m <sup>3</sup>
KR 120 R3200 PA	3,509 mm	2,845 mm	3,195 mm	350 mm	675 mm	1,350 mm	2,215 mm	1,220 mm	77.90 m <sup>3</sup>



## Cycle time

KR 240 R3200 PA (400/2.000/400; 240 kg Payload; 50 kg suppl. load)	25.6 Cycles per minute
KR 180 R3200 PA (400/2.000/400; 180 kg Payload; 50 kg suppl. load)	27.6 Cycles per minute
KR 120 R3200 PA (400/2.000/400; 120 kg Payload; 50 kg suppl. load)	29.1 Cycles per minute



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<sup>1)</sup> Relative to intersection of axes 4/5.



## Features and advantages

**FAST.** Faster more precise and more powerful than any other palletizing robot in this class with unprecedented results.




**POWERFUL.** The streamlined weight-saving design allows greater dynamic performance, shorter cycle times, and higher throughput.

**COMPACT.** The KR QUANTEC robots are the most compact in their class with unrivaled power density, reach, and payload.

**OPTIMIZED FOR THE APPLICATION.** Specially designed for demanding palletizing tasks. Power and dynamic performance for problem-free stacking of multiple pallets to a great height.

**COST-EFFICIENT.** Thanks to the streamlined base frame and small footprint a minimum of shop space is required.



	KR 240 R3200 PA	KR 180 R3200 PA	KR 120 R3200 PA
Max. reach	3,195 mm	3,195 mm	3,195 mm
Rated payload	240 kg	180 kg	120 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-	50 kg/-/-	50 kg/-/-
Rated total load	290 kg	230 kg	170 kg
Pose repeatability	±0.06 mm	±0.06 mm	±0.06 mm
Number of axes	4	4	4
Hollow shaft in the wrist flange	60 mm	60 mm	60 mm
Mounting position	Floor	Floor	Floor
Variant	Arctic, 	Arctic, 	Arctic, 
Robot footprint	830 mm x 830 mm	830 mm x 830 mm	830 mm x 830 mm
Weight (excluding controller), approx.	1,103 kg	1,093 kg	1,075 kg

### Axis data/

Range of motion

Axis 1 (A1)	+/-185°
Axis 2 (A2)	-5°/-140°
Axis 3 (A3)	0°/+155°
Axis 6 (A6)	+/-350°

### Operating conditions

Ambient temperature	0 °C to +55 °C
Ambient temperature Arctic	+30 °C to +5 °C

### Protection rating

Standard variant	IP 65
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Controller

KR C4

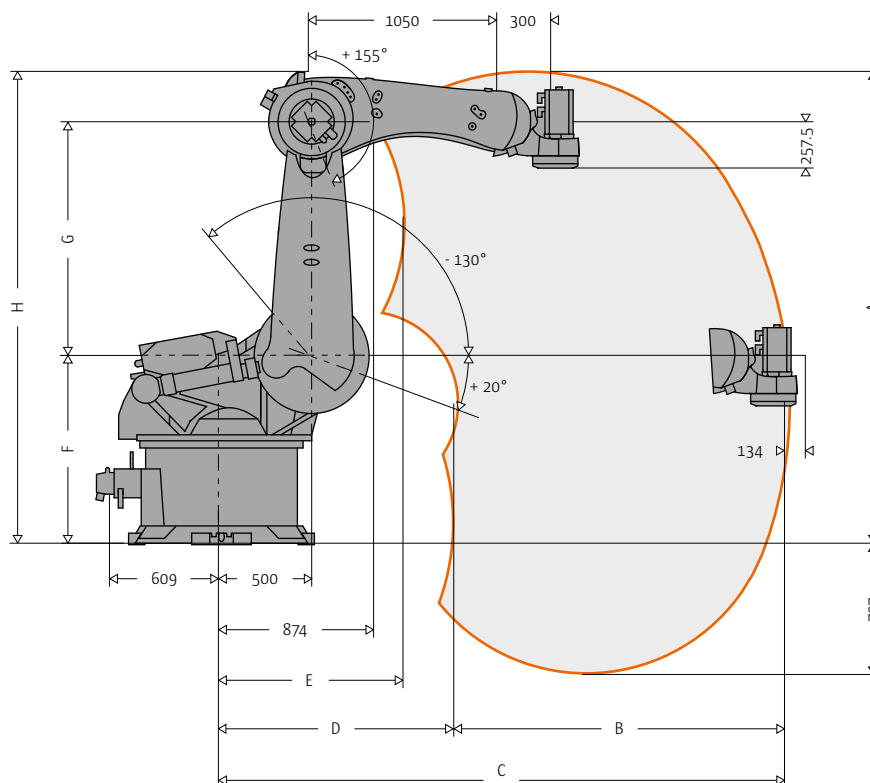


Teach pendant

KUKA smartPAD

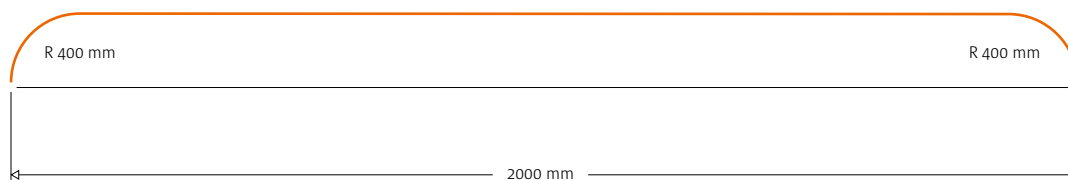
# KR 470-2 PA / KR 300-2 PA

Work envelope <sup>1)</sup>	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 470-2 PA	2,612 mm	1,835 mm	3,150 mm	1,315 mm	1,014 mm	1,045 mm	1,300 mm	2,630 mm	73.50 m <sup>3</sup>
KR 300-2 PA	2,612 mm	1,835 mm	3,150 mm	1,315 mm	1,014 mm	1,045 mm	1,300 mm	2,630 mm	73.50 m <sup>3</sup>



## Cycle time

KR 470-2 PA (400/2,000/400; 470 kg Payload; 50 kg suppl. load)	17.8 Cycles per minute
KR 300-2 PA (400/2,000/400; 300 kg Payload; 50 kg suppl. load)	22.6 Cycles per minute



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<sup>1)</sup> Relative to intersection of axes 4/5.

## Features and advantages

**FAST.** Ideally suited to high-speed tasks in the heavy-duty category with compact design and low weight.

**SPACIOUS.** No other hollow-shaft design offers more space with an opening of 60 mm. This allows all common types of dress packages to be routed in the protected interior of the arm with easy access for quick exchange when necessary.

**MAINTENANCE-FRIENDLY.** The design of the KR 300-2 PA and KR 470-2 PA enables extremely long maintenance intervals. It is protected against dust and water spray to conform to protection rating IP 65.

**LONG REACH.** Reaches of up to 3,150 mm make it possible to implement a wide variety of applications and to make efficient use of the available space with the utmost precision while carrying payloads of up to 300 kg or 470 kg.



	KR 470-2 PA	KR 300-2 PA
Max. reach	3,150 mm	3,150 mm
Rated payload	470 kg	300 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-	50 kg/-/-
Rated total load	520 kg	350 kg
Pose repeatability	±0.08 mm	±0.08 mm
Number of controlled axes	4	4
Hollow shaft in the wrist flange	60 mm	60 mm
Mounting position	Floor	Floor
Robot footprint	1,042 mm x 1,042 mm	1,042 mm x 1,042 mm
Weight (excluding controller), approx.	2,150 kg	2,150 kg

### Axis data/

#### Range of motion

Axis 1 (A1)	+/-185°
Axis 2 (A2)	+20°/-130°
Axis 3 (A3)	+155°/-0°
Axis 6 (A6)	+/-350°

### Operating conditions

Ambient temperature	0 °C to +55 °C
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### Protection rating

Standard variant	IP 65
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Controller

KR C4

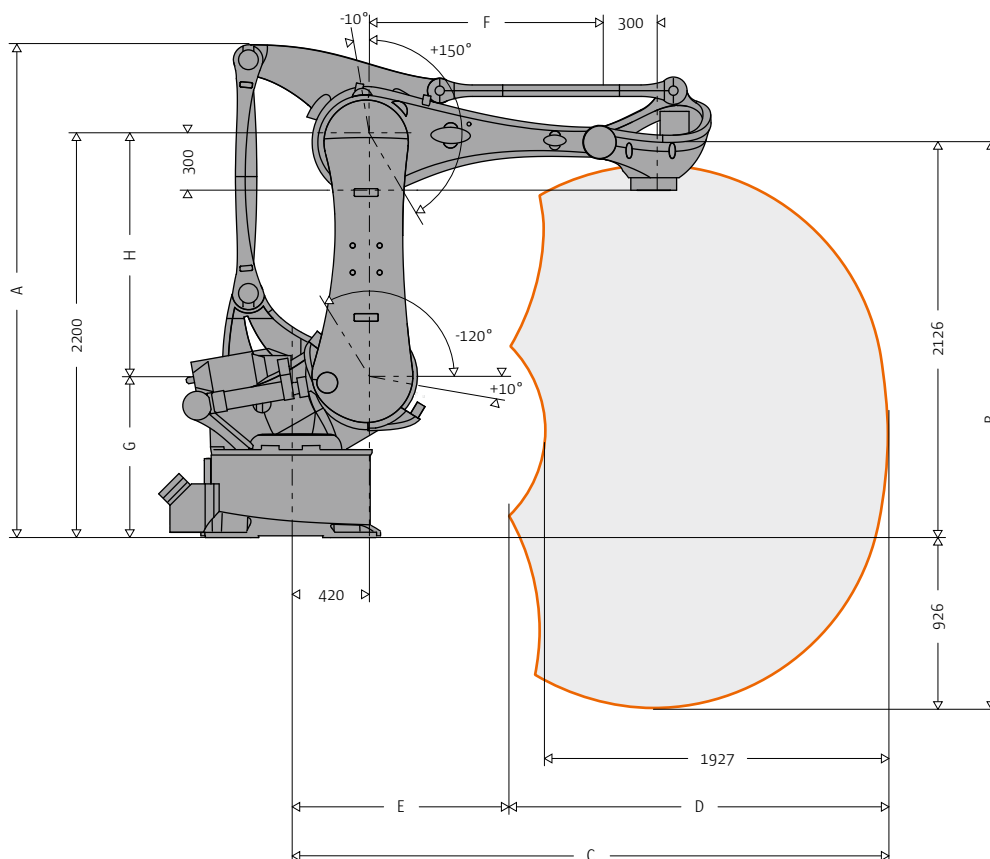


Teach pendant

KUKA smartPAD

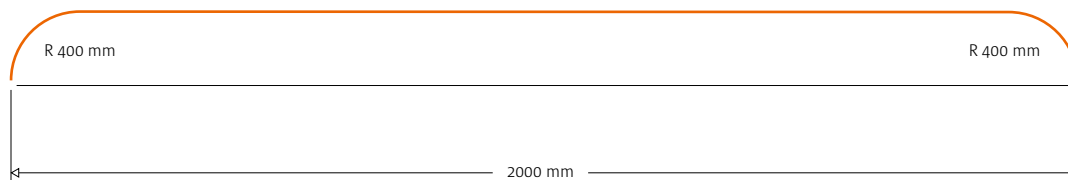
# KR 700 PA

Work envelope <sup>1)</sup>	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 700 PA	2,744 mm	3,052 mm	3,320 mm	2,124 mm	1,196 mm	1,300 mm	900 mm	1,300 mm	73 m <sup>3</sup>



## Cycle time

KR 700 PA (400/2,000/400; 700 kg Payload; 50 kg Supplementary load)	17.3 Cycles per minute
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<sup>1)</sup> Relative to intersection of axes 4/5.

## Features and advantages

**FAST.** Low weight with powerful motors and gear units make the KR 700 PA a real high-speed champion.

**LONG REACH.** With a maximum reach of 3,320 mm the KR 700 PA can be perfectly adapted to every application.

**SPACIOUS.** No other hollow-shaft design offers more space with an opening of 60 mm. This allows all common types of dress packages to be routed in the protected interior of the arm with easy access for quick exchange when necessary.

**MAINTENANCE-FRIENDLY.** The design of the KR 700 PA enables extremely long maintenance intervals. It is protected against dust and water spray to conform to protection rating IP 65.



### KR 700 PA

Max. reach	3,320 mm
Rated payload	700 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg
Rated total load	750 kg
Pose repeatability	±0.08 mm
Number of axes	4
Hollow shaft in the wrist flange	60 mm
Mounting position	Floor
Variant	Arctic
Robot footprint	1,000 mm x 1,000 mm
Weight (excluding controller), approx.	2,850 kg

### Axis data/

Range of motion

Axis 1 (A1)	+/-185°
Axis 2 (A2)	+10°/-120°
Axis 3 (A3)	+150°/-10°
Axis 6 (A6)	+/-350°

### Operating conditions

Ambient temperature	+10 °C to +55 °C
Ambient temperature Artic	-30 °C to +5 °C

### Protection rating

Standard variant	IP 65
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Controller

KR C4

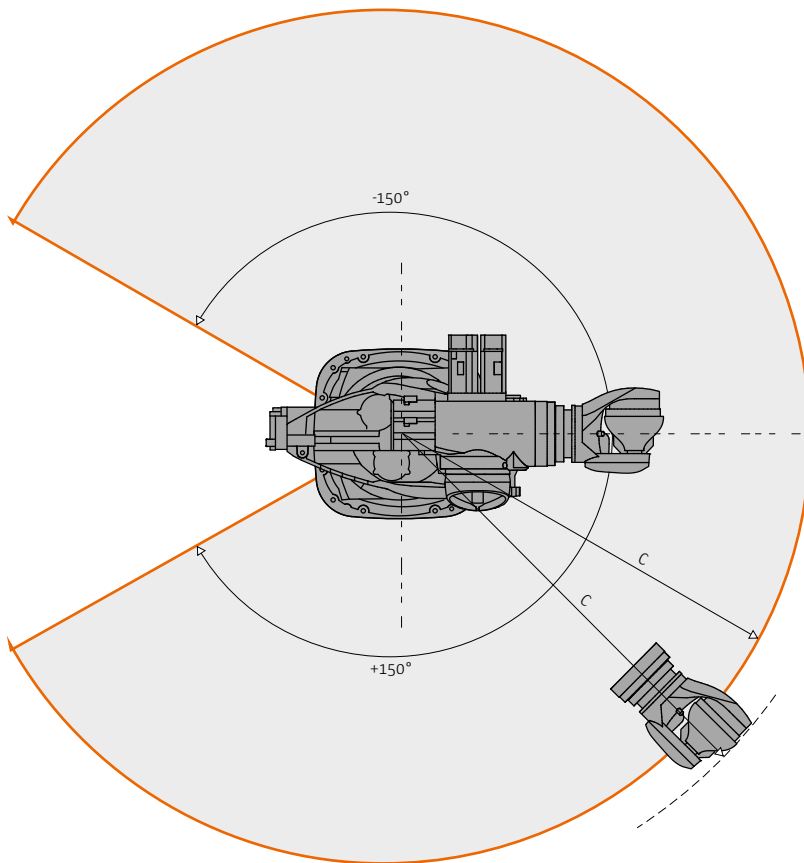
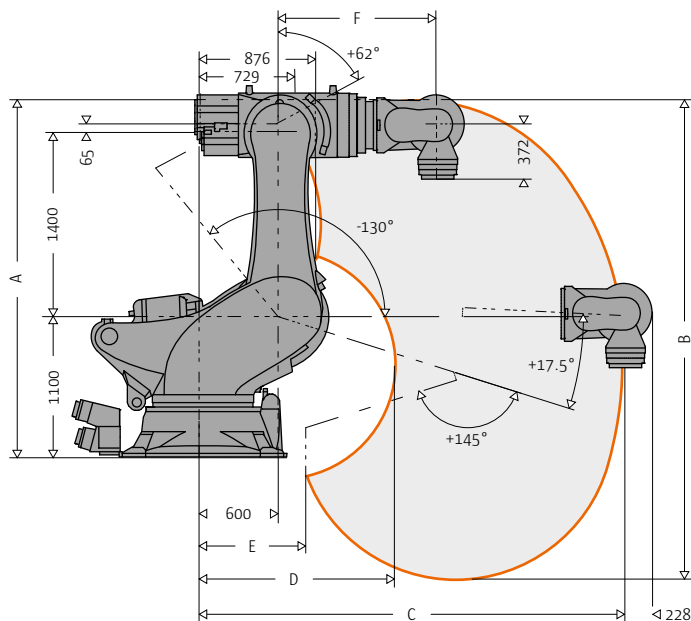


Teach pendant

KUKA smartPAD

# KR titan PA

Work envelope <sup>1)</sup>	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Volume
KR 1000 1300 titan PA	2,749 mm	2,937 mm	3,202 mm	2,937 mm	2,937 mm	2,937 mm	102.5 m <sup>3</sup>
KR 1000 L950 titan PA	2,937 mm	4,231 mm	3,601 mm	1,579 mm	1,301 mm	1,600 mm	69.5 m <sup>3</sup>



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<sup>1)</sup> Relative to intersection of axes 4/5.

**Features and advantages**

**EFFICIENT.** No other robot offers a weight-to-payload ratio that can compare with that of the KR titan PA.

**STRONG.** The KR titan PA is the world's first robot for payloads up to 1,300 kg with excellent dynamic performance and short cycle times.

**COMPACT.** Thanks to its compact design the KR titan PA is easy to integrate.

**SPACE-OPTIMIZED.** The low interference contour extends the usable work envelope.

**LONG REACH.** The long arm of the KR titan PA reaches up to 3,601 mm. This opens up new workspace for efficient applications.



**KR 1000 1300 titan PA**

**KR 1000 L950 titan PA**

Max. reach	3,202 mm	3,601 mm
Rated payload	1,300 kg	950 kg
Rated suppl. load, arm/link arm/rot. col.	100 kg	100 kg
Rated total load	1,350 kg	1,000 kg
Pose repeatability	±0.01 mm	±0.01 mm
Number of axes	4	4
Mounting position	Floor	Floor
Robot footprint	1,300 mm x 1,500 mm	1,300 mm x 1,500 mm
Weight (excluding controller), approx.	4,690 kg	4,740 kg

**Axis data/**

Range of motion	Speed with rated payload 1,300 kg	Speed with rated payload 950 kg
Axis 1 (A1)	+/-150°	58°/s
Axis 2 (A2)	+17.5°/-130°	50°/s
Axis 3 (A3)	+62°/+145°	50°/s
Axis 6 (A6)	+/-350°	72°/s

**Operating conditions**

Ambient temperature +10 °C to +55 °C

**Protection rating**

Standard variant IP 65



Controller

KR C2



Teach pendant

KUKA smartPAD

# An unbeatable team.

## Product overview

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[+] FASTER AS A TEAM

[+] SAFER AS A TEAM



Robots and other kinematic systems



System controller: KR C4

**NO MATTER WHICH ROBOT YOU OPT FOR KUKA OFFERS YOU THE MATCHING SYSTEM COMPONENTS.** KUKA robots embody all the essential characteristics of future-oriented robot technology. KUKA robots are more reliable and more flexible than ever with the ability to master heavy loads and long reaches with extreme precision. Thanks to an outstanding availability of nearly 100 %, KUKA robots make the automation processes easier than ever before.

**KR C4 – THE CONTROL SYSTEM OF THE FUTURE.** More powerful and safer, with more flexibility. Its open architecture can manage all kinematic systems and even complete production lines. The KR C4 provides a firm foundation for the automation of tomorrow. This significantly reduces your costs in automation for integration and maintenance. At the same time the long-term efficiency and flexibility of the systems are increased. The KR C4 gives you the necessary openness to meet the requirements of tomorrow's markets.

# 99.995 %

**AVAILABILITY.** ROBUST AND LOW ON MAINTENANCE, THIS UNBEATABLE TEAM WORKS NON-STOP ON YOUR SUCCESS.



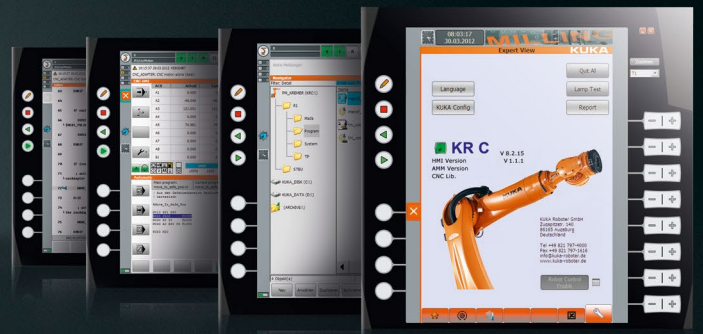
[+] SIMPLER AS A TEAM



Teach pendant: KUKA smartPAD

**THE SIMPLEST WAY OF OPERATING ROBOTS.** Touch screen. Graphics support. Flexible interaction. The large touch screen of the KUKA smartPAD allows operation of both robots and entire systems, all visually represented on the screen. The display adapts to show the user only those operator control elements that are needed at any given moment. Attention is always focused on what is important, allowing users to work more intuitively, quickly, easily and efficiently.

[+] MORE VERSATILE AS A TEAM



Function and technology packages

**AN OPTIMALLY PREPARED, EFFICIENT SOFTWARE SOLUTION FOR EVERY TASK.** KUKA function and technology packages breathe life into the KUKA robots. They enable them to carry out particular industry-specific functions within an automation solution. Gluing, moving, machining, measuring, handling or working together with humans or other synchronized robots: KUKA function and technology packages make automation easy.

# KR C4

## The control system of the future

**MORE POWERFUL, SAFER, MORE FLEXIBLE, AND MORE INTELLIGENT.** The KR C4 has been created for the automation of today and tomorrow. Thanks to its open architecture it is a master of simple integration. It can communicate in a wide range of programming languages and is ideally suited to the control of KUKA manipulators. It can carry out a vast range of tasks, be used for robots of all payload categories, and control entire production lines. With the KR C4 all integrated controllers, SafetyControl, RobotControl, MotionControl, and LogicControl have a joint database and infrastructure for maximum performance, scalability, and flexibility.

[+] FOR ALL PAYLOADS

ALL-ROUNDER [+]

[+] ±0.002 SEC I/O RESPONSE TIME

UNIVERSAL APPLICATION [+]



COMMUNICATION TALENT [+]

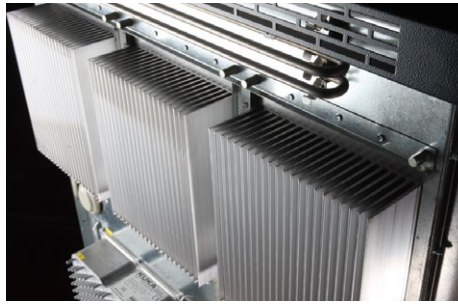
[+] ENERGY-EFFICIENT

ROBUSTNESS [+]

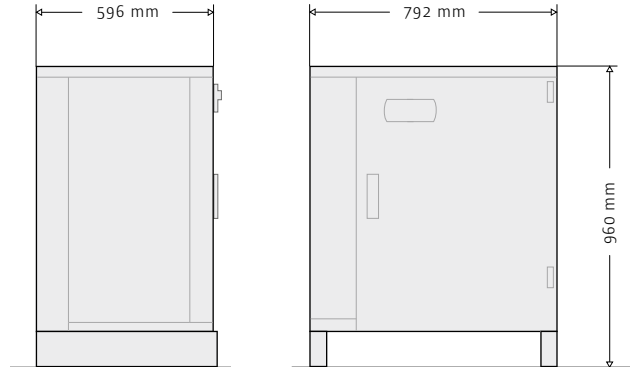




1



2



3

**1** Increased system availability through systematic reduction of hardware, cables and connectors

**2** The passive heat exchange system, 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.

**3** Dimensions of the KR C4

## Features and advantages

**ALL-ROUNDER.** Safety, Robot, Logic and MotionControl – the KR C4 combines everything in a single controller allowing effortless control of the entire system.

**UNIVERSAL APPLICATION.** The open architecture of the KR C4 can control not only KUKA robots but also external axes – for maximum flexibility, scalability, performance and openness, in minimum space.

**FOR ALL PAYLOADS.** The KR C4 is the uniform controller for all KUKA robots, ranging from the low to high payload range categories.

**COMMUNICATION TALENT.** In addition to its own robot language KRL, the KR C4 understands the language of the CNC machining world (G-code) and the language of PLCs, enabling it to communicate directly with your Siemens® or Rockwell® controller.

**ROBUSTNESS.** The consistent choice of durable components and well-designed cabinet ensure long-term, reliable operation, even in extreme conditions.

**±0.002 SEC I/O RESPONSE TIME.** Secure data exchange measured in milliseconds forms the basis for new safety concepts in human-machine cooperation.

**ENERGY-EFFICIENT.** The new energy management system allows the energy consumption of the controller to be reduced by up to 95%\* in standby mode. The improved cooling concept, combined with a temperature-controlled fan, further reduces the power dissipation of the controller, while making operation considerably quieter.

\* in standby mode and Ecomode.



## KR C4 controller

Type	_____	KR C4
Processor	_____	Multi-core technology
Hard drive	_____	SSD
Interface	_____	USB, EtherNet
Field buses	_____	PROFINET, EtherNet/IP, PROFIBUS, DeviceNet, EtherCAT, Interbus
Max. number of axes	_____	8
Protection rating	_____	IP 54
Dimensions (D x W x H)	_____	596 mm x 792 mm x 960 mm
Weight	_____	150 kg

## Power supply connection

Rated supply voltage	_____	3 x 400-480 V AC
Permissible tolerance of rated voltage	_____	-10 to +10 %
Mains frequency	_____	49 to 61 Hz
Mains-side fusing	_____	min. 3 x 25 A slow-blowing, max. 3 x 32 A slow-blowing

## Operating conditions

Ambient temperature	_____	+5 °C to +45 °C
Ambient temperature with cooling unit	_____	optionally up to +50 °C

# KUKA smartPAD

KUKA smartPAD – Making robot operation really easy

**TOUCH SCREEN. GRAPHICS SUPPORT. FLEXIBLE INTERACTION.** The more diverse the robots' abilities become, the greater the importance of intuitive user interfaces for their operation. The new KUKA smartPAD brilliantly demonstrates on a large antireflection touch screen just how simple it 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.

[+] INTEGRATED USB CONNECTION

[+] UNIVERSAL APPLICATION

ANTIREFLECTION TOUCH DISPLAY [+]

ERGONOMICALLY OPTIMIZED [+]



[+] HOT-PLUGGABLE

[+] HAPTIC JOG KEYS



1

2

1 Simple, intuitive operator control via touch screen

2 Ergonomic 6D mouse

#### Features and advantages

**UNIVERSAL APPLICATION.** Operate all KUKA robots and KR C4 controllers with the KUKA smartPAD.

**ANTIREFLECTION TOUCH DISPLAY.** Simple operation via the well-lit 8.4" screen with an intuitive user interface.

**ERGONOMICALLY OPTIMIZED.** Designed to be user-friendly. Built for mobility and its lightweight, just 1,100 grams.

**HOT-PLUGGABLE.** If the KUKA smartPAD is not being used it can be simply unplugged during ongoing operation and used with any other KR C4 controller.

**INTEGRATED USB CONNECTION.** Direct saving and loading of configurations now possible via USB port on the KUKA smartPAD.

**HAPTIC JOG KEYS.** The combination of haptic jog keys and a haptically controlled mouse enables intuitive maneuvering with constant visual contact with the robot.



#### Teach pendant: KUKA smartPAD

Type	KUKA smartPAD
Display	scratch-resistant industrial touch display
Display size	8.4"
Dimensions (W x H x D)	240 x 290 x 50 mm
Weight	1,100 g

# KUKA function and technology packages

## Function and technology packages for the KR C4

KUKA function and technology packages help you to solve specific automation tasks efficiently with minimum programming. KUKA's portfolio of software solutions cover nearly all common areas of application. Using these packages our KUKA system partners implement tailored solutions to meet every customer requirement.



### KUKA function and technology packages

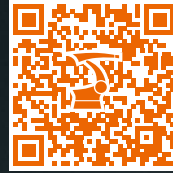
<b>KUKA.WorkVisual</b>	Engineering environment for all KUKA robots for system configuration, programming, data backup, diagnosis, and more.
<b>KUKA.Load</b>	Supports the evaluation of the load on a KUKA robot or the selection of a suitable robot for a given load.
<b>KUKA.UserTech</b>	Fast programming of motion and program sequences using freely definable buttons, input masks and parameter lists.
<b>KUKA.ExpertTech</b>	Faster, simpler programming even for non-experts in KRL code via menu-guided command selection.
<b>KUKA.HMI Zenon</b>	Creation of customized, application-specific user interfaces for visualization and operator control without programming knowledge. Display and operation using the touch panel and keys of the KUKA smartPAD.
<b>KUKA.RemoteView</b>	Allows remote access to the robot via a secure Internet connection, thereby offering the possibility of remote diagnosis or start-up support.
<b>KUKA.VirtualRemotePendant</b>	Allows the use of EtherNet communication to run the user interface of the KUKA smartPAD on an external PC and to operate the robot.
<b>KUKA.RobotSensorInterface</b>	Supports simple and flexible interfacing with sensors in the KRC4. It is also possible to integrate a number of channels with hard real-time requirements.
<b>KUKA.VisionTech</b>	"onBoard" vision system including image processing, camera and sensors. Extensive configuration options enable the flexible use of the robot in an unstructured environment.
<b>KUKA.ConveyorTech</b>	Organizes the cooperation of robots and conveyors. Allows efficient, dynamic handling of parts, even for complex applications.
<b>KUKA.ForceTorqueControl</b>	Takes account of process forces and torques exerted on the workpiece during machining, and controls and adjusts these as specified in the program sequence. In applications such as grinding, polishing, bending or even assembly, this technology package is an indispensable help.
<b>KUKA.SafeOperation</b>	Flexible programming of safe cooperation between humans and machines. Definition of safe workspaces, velocities, envelopes around robot tools, and cooperation with the operator.
<b>KUKA.SafeRangeMonitoring</b>	Beginners' tool for limiting and monitoring the safety and work areas of the robot. The monitoring and limitation of statically defined axis ranges creates an adequate degree of work safety for many applications.



## KUKA function and technology packages

- KUKA.Gripper & SpotTech** — Programming of grippers and weld guns via easy-to-use inline forms for many industrial applications.
- KUKA.ArcTech** — For rapid start-up and simple programming of arc welding applications. The complete portfolio of option packages, in combination with sensors and sequence control, enables arc welding at the highest level.
- KUKA.LaserTech** — A modular, time-saving and easy-to-operate programming support package for laser cutting and laser welding. Both applications can be executed using the same robot – giving maximum flexibility as the workpiece needs to be clamped only once.
- KUKA.ServoGun** — Enables the operation of electric motor-driven spot weld guns with the KUKA robot controller. Various additional software options allow e.g. the elimination of mechanical gun compensation and other functions.
- KUKA.GlueTech** — Enables user-friendly programming of dispensing applications such as bonding, seam sealing or application of support seams using inline forms on the KUKA robot controller.
- KUKA.RoboTeam** — Coordinates and enables the high-precision interaction of a team of robots for handling a shared load or for working together on a moving workpiece.
- KUKA.EtherNet KRL** — Makes it possible to exchange data with external computers via the EtherNet interface. The robot can function here both as a client and as a server.
- KUKA.OPC-Server** — Basic technology for standardized data exchange between robots and external controllers for non-real-time information streams. Ideal for interfacing with external visualization and MES systems.
- KUKA.PLC Multiprog** — Programming environment for an extremely fast Soft PLC conforming to the IEC61131 standard. Expands the functionality of the KR C4 and offers virtually unlimited openness in the programming of automation cells and applications.
- KUKA.PLC ProConOS** — Runtime system of the KUKA.PLC Multiprog Soft PLC. PLC programs created with KUKA.Multiprog are run directly on the KR C4, with full access to the entire I/O system of the robot. Reading and processing of variables such as axis positions and velocity via function blocks.
- KUKA.PLC mxA** — Allows direct commanding and positioning of the robot by external controllers (Siemens®, Rockwell®, etc.). The user thus requires no knowledge of robot programming in the KUKA-specific robot language KRL.
- KUKA.CNC** — Complete software-based CNC implementation for execution of machine tool code (G-code) directly on the robot controller. This turns the robot, with its accuracy and stiffness, into a machining center for path-supported processes.
- KUKA.Sim** — The simulation programs of KUKA.Sim allow robotic cells to be planned with true-to-life accuracy.

Contact KUKA at:



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