

KUKA



KUKA Robots

for High Payloads

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.

Handling the next big thing for your business.

KUKA robots for high payloads from 90 kg to 300 kg.

The KR QUANTEC series offers you a comprehensive range of models with 29 robot types and various mounting options. For the first time, a single robot family covers the entire high payload range from 90 to 300 kg, with reaches from 1,570 to 3,900 mm. It is more versatile and powerful than any previous robot family in this class.

KR QUANTEC robots are all-rounders for a wide variety of customized applications. They also have the most compact dimensions in their class – and the greatest power density. The KR QUANTEC series sets new standards in the technically and economically decisive points: precision, performance, energy efficiency and availability.

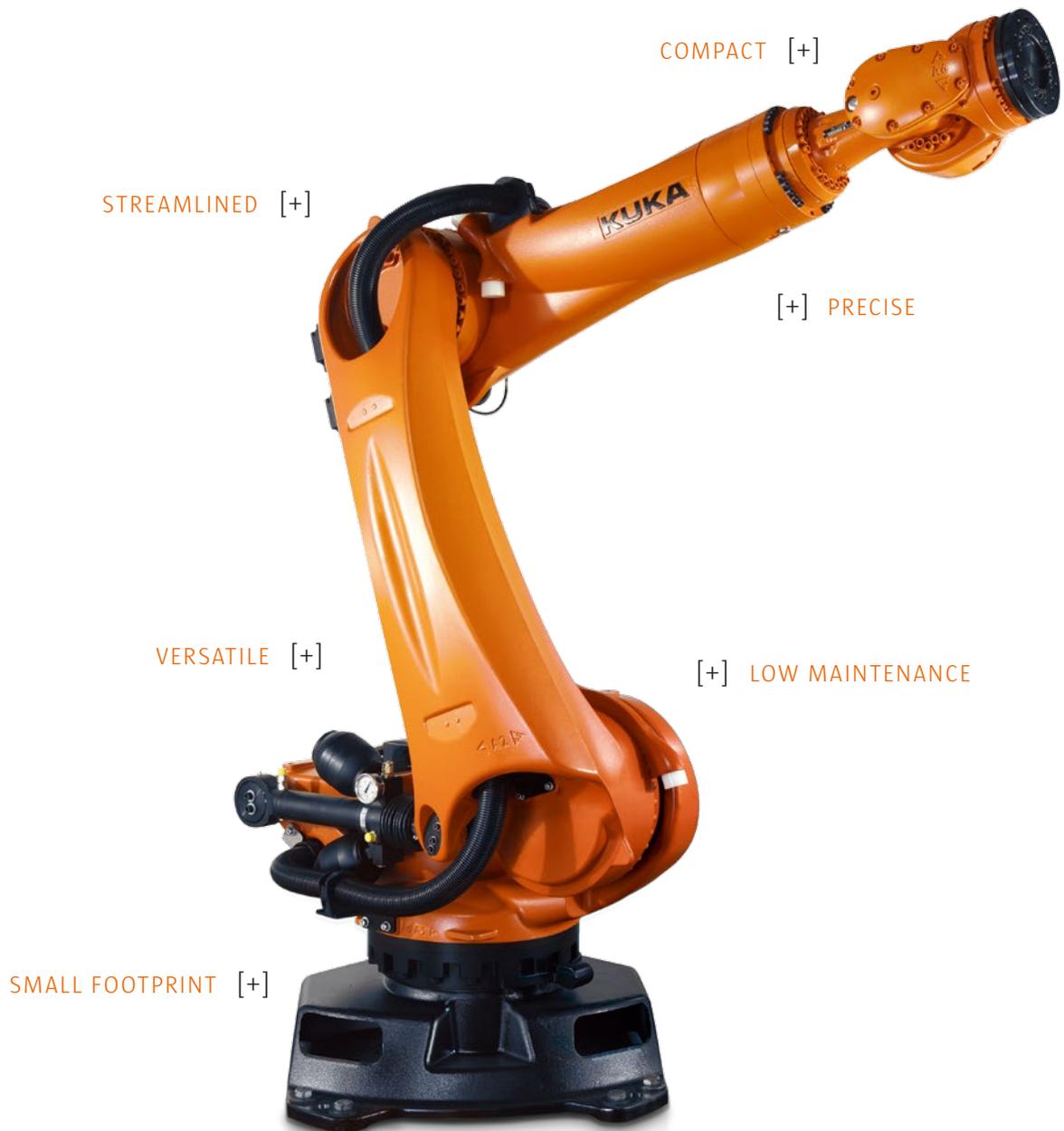


To find out more about KUKA robots for high payloads, scan this QR code with your smartphone.

The KR QUANTEC series

Product overview

Robot	KR QUANTEC pro	KR 90 R2700 pro	KR 120 R2500 pro	KR 150 R2700 extra	KR 180 R2500 extra	KR 210 R2700 extra
	KR QUANTEC extra	KR 90 R3100 extra	KR 120 R2900 extra	KR 210 R2700 prime	KR 240 R2700 prime	KR 240 R2500 prime
	KR QUANTEC prime	KR 150 R3100 prime	KR 180 R2900 prime	KR 270 R2700 ultra	KR 300 R2500 ultra	
	KR QUANTEC ultra	KR 210 R3100 ultra	KR 240 R2900 ultra			
	KR QUANTEC nano	KR 120 R1800 nano	KR 160 R1570 nano			
Controller	KR C4					
Teach pendant	KUKA smartPAD					





1

2



3

1 KR QUANTEC: unbeatable power density, long reach and high payload

2 Reduced interference contour thanks to the hollow shaft in axis 1 for routing all cables

3 Extremely compact hydropneumatic counterbalancing system*

Features and advantages

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

STREAMLINED. The KR QUANTEC series robots have fewer interference contours and are equipped with a thin wrist for improved accessibility, especially for work in confined spaces.

VERSATILE. KR QUANTEC robots are multi-talented. No other robot family is suitable for so many different applications, from jobs like material handling and spot welding to machining small parts.

SMALL FOOTPRINT. To simplify planning, all models are installed on a compact base frame, with a nearly identical hole pattern for fastening to the mounting base.

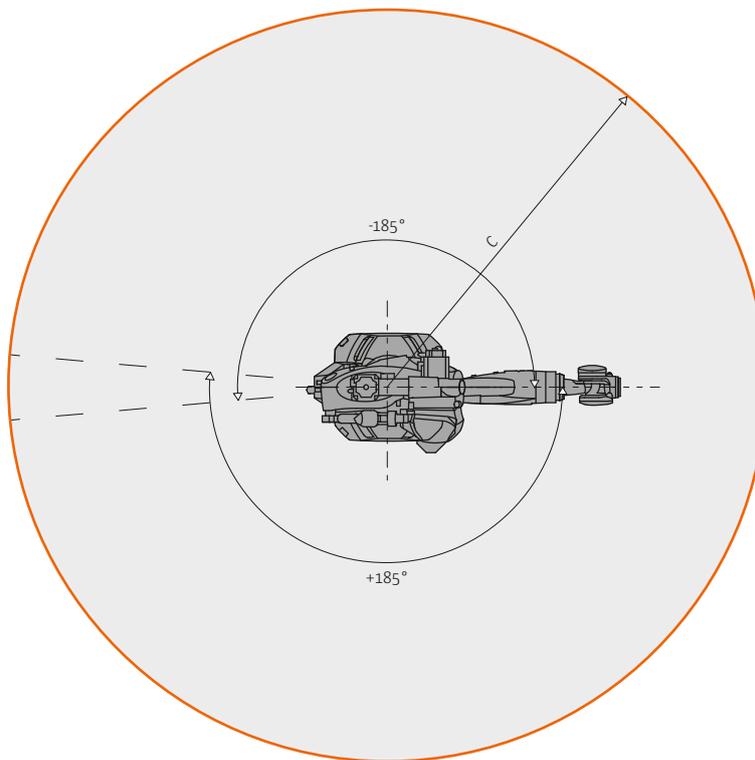
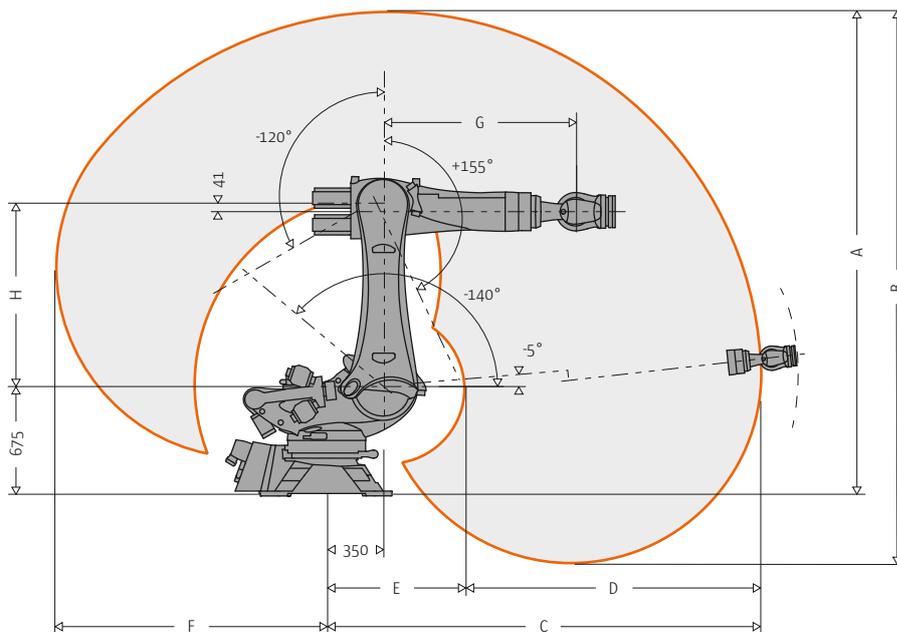
LOW MAINTENANCE. These dependable KUKA robots boast the longest maintenance intervals on the market, at around 20,000 operating hours thus ensuring maximum productivity.

PRECISE. Thanks to their robust design KR QUANTEC robots operate with constant precision throughout the work envelope and offer excellent dynamic performance and unmatched repeatability.

*The KR QUANTEC nano has no counterbalancing system.

KR QUANTEC pro

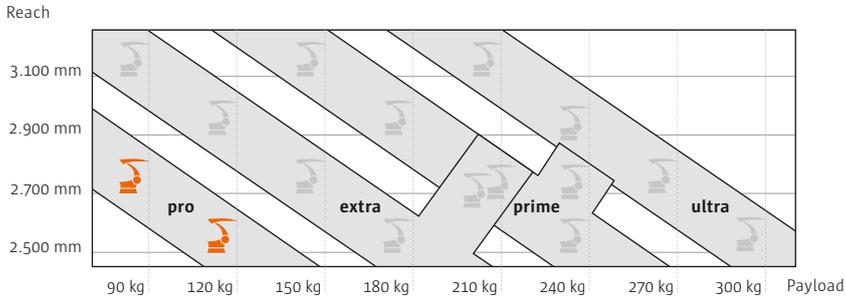
Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 120 R2500 pro	2,826 mm	3,051 mm	2,496 mm	1,699 mm	797 mm	1,532 mm	1,000 mm	1,150 mm	41 m ³
KR 90 R2700 pro	3,026 mm	3,451 mm	2,696 mm	1,874 mm	822 mm	1,732 mm	1,200 mm	1,150 mm	55 m ³



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¹⁾ Relative to intersection of axes 4/5.

The world's largest range of models in its class



KR 120 R2500 pro

KR 90 R2700 pro

Max. reach	2,500 mm	2,700 mm
Rated payload	120 kg	90 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-	50 kg/-/-
Rated total load	170 kg	140 kg
Pose repeatability	±0.06 mm	±0.06 mm
Number of axes	6	6
Mounting position	Floor	Floor
Variant	-	-
Robot footprint	830 mm x 830 mm	830 mm x 830 mm
Weight (excluding controller), approx.	1,049 kg	1,058 kg

Axis data/

Range of motion	Speed with rated payload 120 kg	Speed with rated payload 90 kg
Axis 1 (A1)	+/-185° 136°/s	136°/s
Axis 2 (A2)	-5°/-140° 130°/s	130°/s
Axis 3 (A3)	+155°/-120° 120°/s	120°/s
Axis 4 (A4)	+/-350° 292°/s	292°/s
Axis 5 (A5)	+/-125° 258°/s	258°/s
Axis 6 (A6)	+/-350° 284°/s	284°/s

Operating conditions

Ambient temperature +10 °C to +55 °C

Protection rating

Protection rating, robot IP 65
Protection rating, in-line wrist IP 65



Controller

KR C4

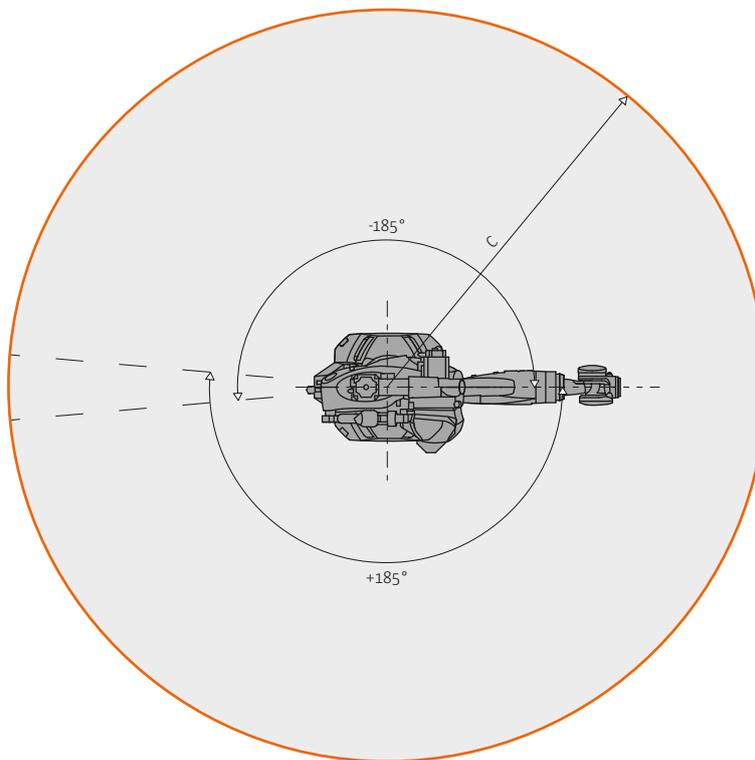
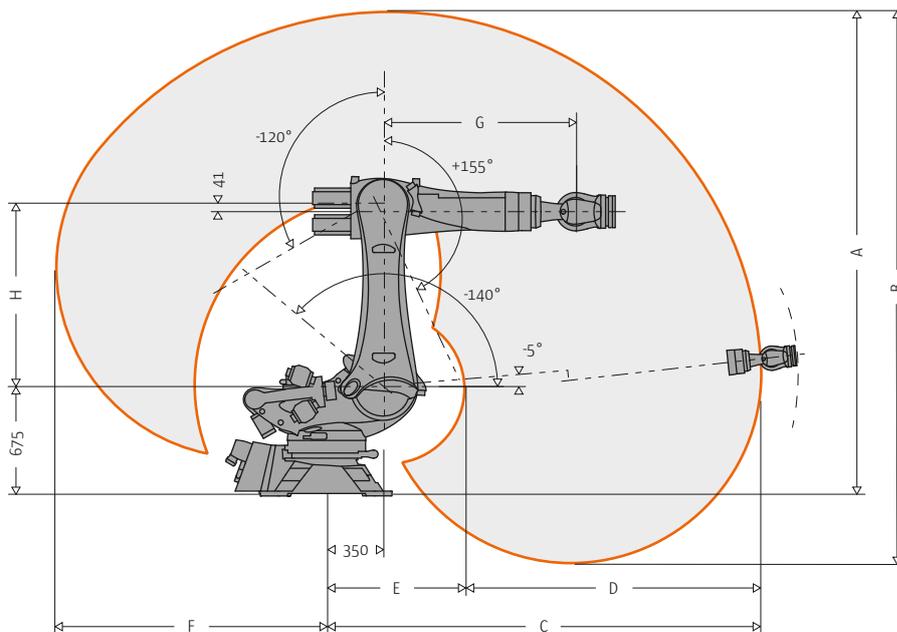


Teach pendant

KUKA smartPAD

KR QUANTEC extra

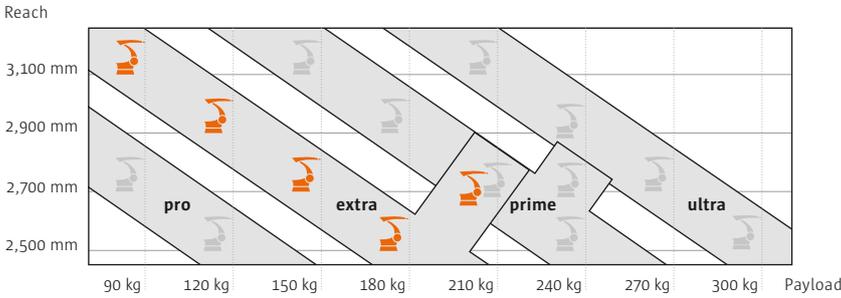
Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 210 R2700 extra	3,026 mm	3,451 mm	2,696 mm	1,874 mm	822 mm	1,732 mm	1,200 mm	1,150 mm	55 m ³
KR 180 R2500 extra	2,826 mm	3,051 mm	2,496 mm	1,699 mm	797 mm	1,532 mm	1,000 mm	1,150 mm	41 m ³
KR 150 R2700 extra	3,026 mm	3,451 mm	2,696 mm	1,874 mm	822 mm	1,732 mm	1,200 mm	1,150 mm	55 m ³
KR 120 R2900 extra	3,226 mm	3,634 mm	2,896 mm	2,016 mm	880 mm	1,885 mm	1,200 mm	1,350 mm	66 m ³
KR 90 R3100 extra	3,426 mm	4,034 mm	3,095 mm	2,187 mm	908 mm	2,085 mm	1,400 mm	1,350 mm	84 m ³



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¹⁾ Relative to intersection of axes 4/5.

The world's largest range of models in its class



	KR 210 R2700 extra	KR 180 R2500 extra	KR 150 R2700 extra	KR 120 R2900 extra	KR 90 R3100 extra
Max. reach	2,696 mm	2,496 mm	2,696 mm	2,896 mm	3,095 mm
Rated payload	210 kg	180 kg	150 kg	120 kg	90 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-	50 kg/-/-	50 kg/-/-	50 kg/-/-	50 kg/-/-
Rated total load	260 kg	230 kg	200 kg	170 kg	140 kg
Pose repeatability	±0.06 mm	±0.06 mm	±0.06 mm	±0.06 mm	±0.06 mm
Number of axes	6	6	6	6	6
Mounting position	Floor	Floor, ceiling	Floor, ceiling	Floor, ceiling	Floor, ceiling
Variant	-	F	F	F	F
Robot footprint	830 mm x 830 mm	830 mm x 830 mm			
Weight (excluding controller), approx.	1,068 kg	1,059 kg	1,068 kg	1,084 kg	1,092 kg
Axis data/	Speed with rated payload 210 kg	Speed with rated payload 180 kg	Speed with rated payload 150 kg	Speed with rated payload 120 kg	Speed with rated payload 90 kg
Range of motion					
Axis 1 (A1)	+/-185°	123°/s	123°/s	123°/s	123°/s
Axis 2 (A2)	-5°/-140°	115°/s	115°/s	115°/s	115°/s
Axis 3 (A3)	+155°/-120°	112°/s	120°/s	120°/s	120°/s
Axis 4 (A4)	+/-350°	179°/s	179°/s	292°/s	292°/s
Axis 5 (A5)	+/-125°	172°/s	172°/s	258°/s	258°/s
Axis 6 (A6)	+/-350°	219°/s	219°/s	284°/s	284°/s

Operating conditions

Ambient temperature +10 °C to +55 °C

Protection rating

Protection rating, robot IP 65
 Protection rating, inline wrist IP 65
 Protection rating, foundry in-line wrist IP 65

 Controller

KR C4

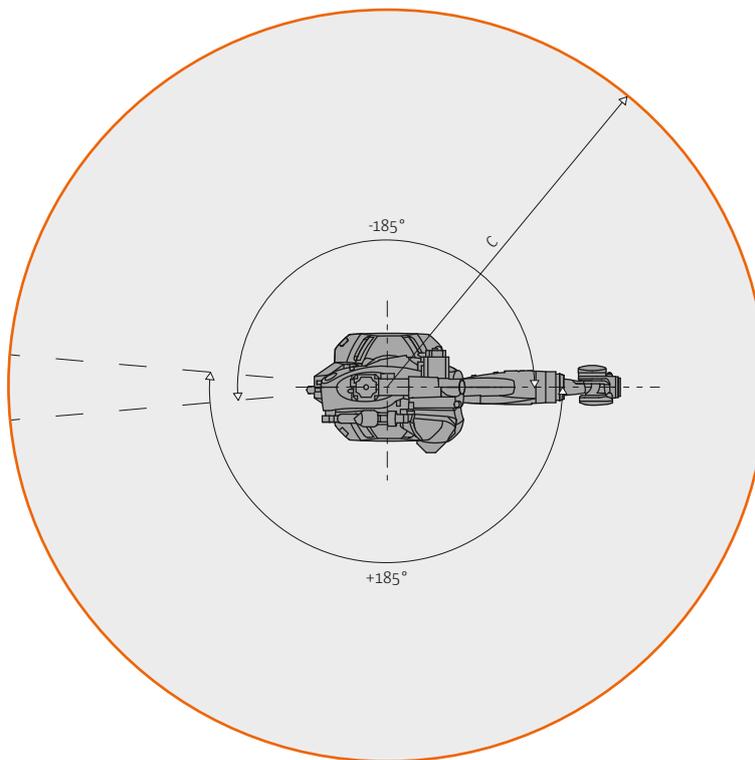
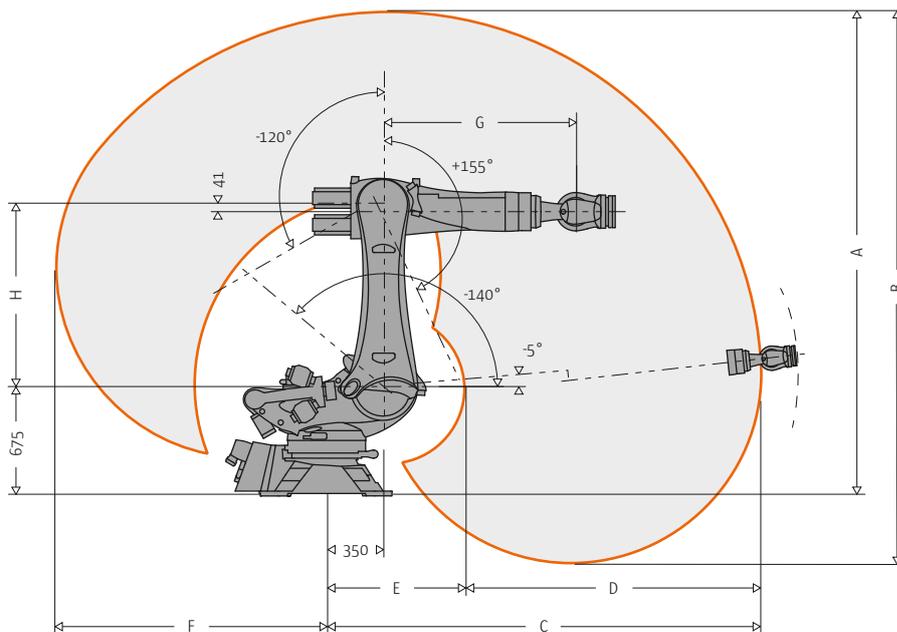
 Teach pendant

KUKA smartPAD

F Variant for environments with a high degree of fouling and high temperatures

KR QUANTEC prime

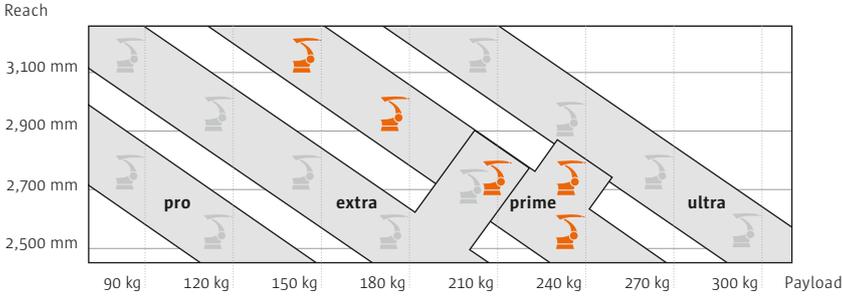
Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 240 R2500 prime	2,826 mm	3,051 mm	2,496 mm	1,699 mm	797 mm	1,532 mm	1,000 mm	1,150 mm	41 m ³
KR 240 R2700 prime	3,026 mm	3,451 mm	2,696 mm	1,874 mm	822 mm	1,732 mm	1,200 mm	1,150 mm	55 m ³
KR 210 R2700 prime	3,026 mm	3,451 mm	2,696 mm	1,874 mm	822 mm	1,732 mm	1,200 mm	1,150 mm	55 m ³
KR 180 R2900 prime	3,226 mm	3,634 mm	2,896 mm	2,016 mm	880 mm	1,885 mm	1,200 mm	1,350 mm	66 m ³
KR 150 R3100 prime	3,426 mm	4,034 mm	3,095 mm	2,187 mm	908 mm	2,085 mm	1,400 mm	1,350 mm	84 m ³



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The world's largest range of models in its class



	KR 240 R2500 prime	KR 240 R2700 prime	KR 210 R2700 prime	KR 180 R2900 prime	KR 150 R3100 prime
Max. reach	2,496 mm	2,696 mm	2,696 mm	2,896 mm	3,095 mm
Rated payload	240 kg	240 kg	210 kg	180 kg	150 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-				
Rated total load	290 kg	290 kg	260 kg	230 kg	200 kg
Pose repeatability	±0.06 mm				
Number of axes	6	6	6	6	6
Mounting position	Floor	Floor	Floor, ceiling	Floor	Floor
Variant	-	-	CR F	-	-
Robot footprint	830 mm x 830 mm				
Weight (excluding controller), approx.	1,102 kg	1,111 kg	1,111 kg	1,106 kg	1,114 kg
Axis data/	Speed with rated				
Range of motion	payload 240 kg	payload 240 kg	payload 210 kg	payload 180 kg	payload 150 kg
Axis 1 (A1)	+/-185°	105°/s	105°/s	105°/s	105°/s
Axis 2 (A2)	-5°/-140°	107°/s	107°/s	107°/s	107°/s
Axis 3 (A3)	+155°/-120°	114°/s	114°/s	114°/s	114°/s
Axis 4 (A4)	+/-350°	136°/s	179°/s	136°/s	179°/s
Axis 5 (A5)	+125°/-122,5°	129°/s	172°/s	129°/s	172°/s
Axis 6 (A6)	+/-350°	206°/s	219°/s	206°/s	219°/s

Operating conditions

Ambient temperature +10 °C to +55 °C

Protection rating

Protection rating, robot IP 65
 Protection rating, inline wrist IP 65
 Protection rating, foundry in-line wrist IP 67

 Controller

KR C4

 Teach pendant

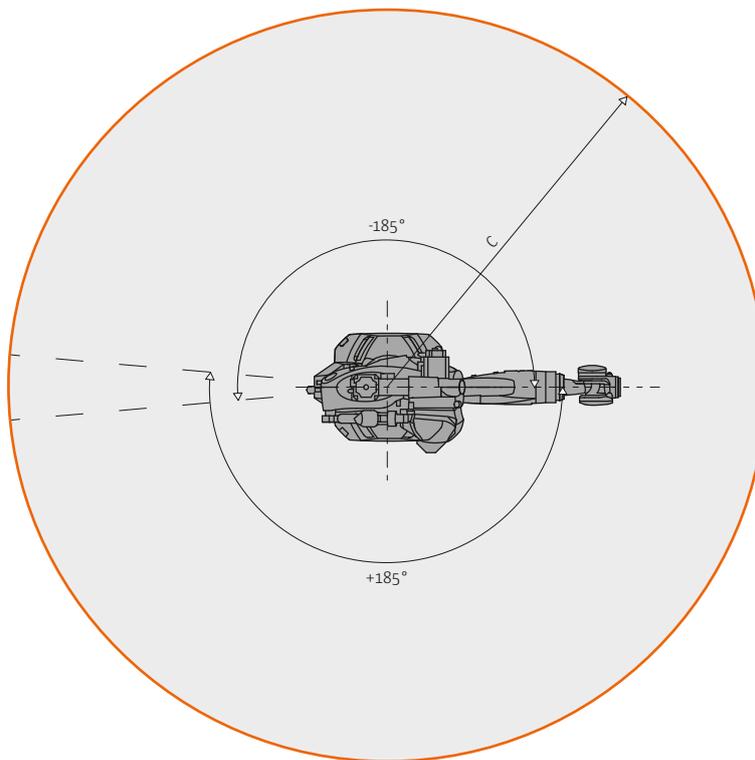
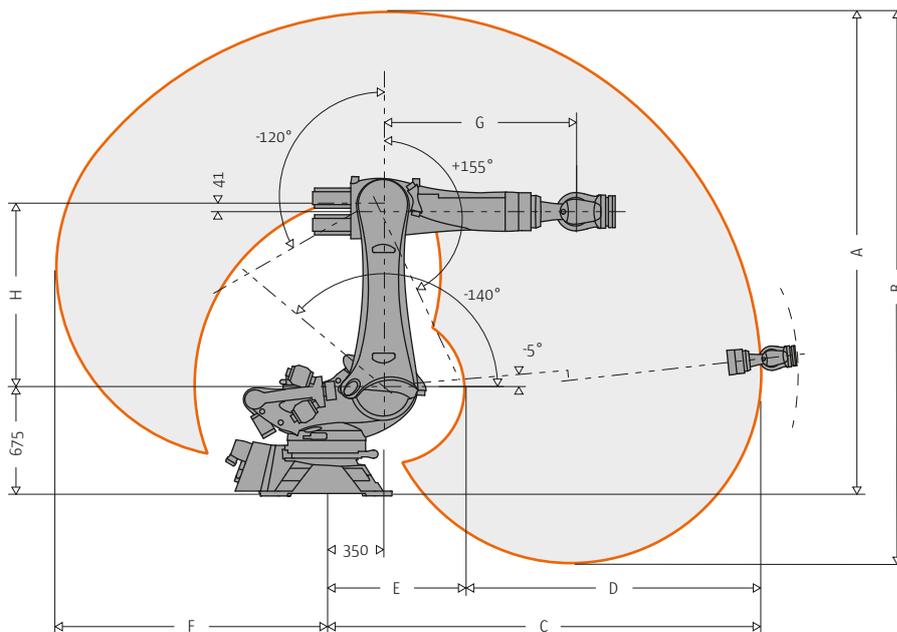
KUKA smartPAD

CR suitable for cleanrooms

F Variant for environments with a high degree of fouling and high temperatures

KR QUANTEC ultra

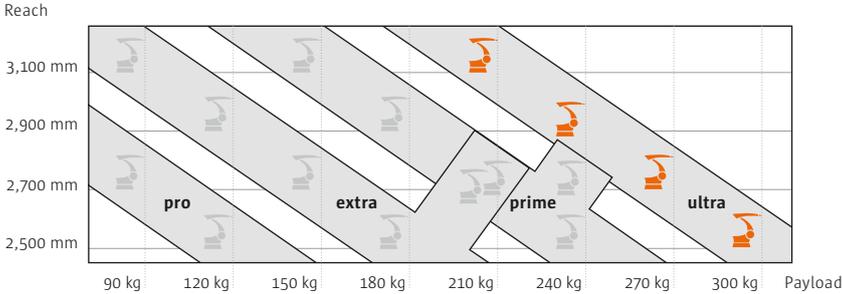
Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 300 R2500 ultra	2,826 mm	3,051 mm	2,496 mm	1,699 mm	797 mm	1,532 mm	1,000 mm	1,150 mm	41 m ³
KR 270 R2700 ultra	3,026 mm	3,451 mm	2,696 mm	1,874 mm	822 mm	1,732 mm	1,200 mm	1,150 mm	55 m ³
KR 240 R2900 ultra	3,226 mm	3,634 mm	2,896 mm	2,016 mm	880 mm	1,885 mm	1,200 mm	1,350 mm	66 m ³
KR 210 R3100 ultra	3,426 mm	4,034 mm	3,095 mm	2,187 mm	908 mm	2,085 mm	1,400 mm	1,350 mm	84 m ³



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The world's largest range of models in its class



	KR 300 R2500 ultra	KR 270 R2700 ultra	KR 240 R2900 ultra	KR 210 R3100 ultra
Max. reach	2,496 mm	2,696 mm	2,896 mm	3,095 mm
Rated payload	300 kg	270 kg	240 kg	210 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-	50 kg/-/-	50 kg/-/-	50 kg/-/-
Rated total load	350 kg	320 kg	290 kg	260 kg
Pose repeatability	±0.06 mm	±0.06 mm	±0.06 mm	±0.06 mm
Number of axes	6	6	6	6
Mounting position	Floor, ceiling	Floor, ceiling	Floor, ceiling	Floor, ceiling
Variant	F	F	F	F
Robot footprint	830 mm x 830 mm			
Weight (excluding controller), approx.	1,120 kg	1,129 kg	1,145 kg	1,154 kg
Axis data/	Speed with rated	Speed with rated	Speed with rated	Speed with rated
Range of motion	payload 300 kg	payload 270 kg	payload 240 kg	payload 210 kg
Axis 1 (A1)	+/-185°	105°/s	105°/s	105°/s
Axis 2 (A2)	-5°/-140°	101°/s	101°/s	101°/s
Axis 3 (A3)	+155°/-120°	107°/s	107°/s	107°/s
Axis 4 (A4)	+/-350°	122°/s	122°/s	136°/s
Axis 5 (A5)	+125°/-122,5°	113°/s	113°/s	129°/s
Axis 6 (A6)	+/-350°	175°/s	175°/s	206°/s

Operating conditions

Ambient temperature +10 °C to +55 °C

Protection rating

Protection rating, robot IP 65
 Protection rating, inline wrist IP 65
 Protection rating, foundry in-line wrist IP 67

Controller

KR C4

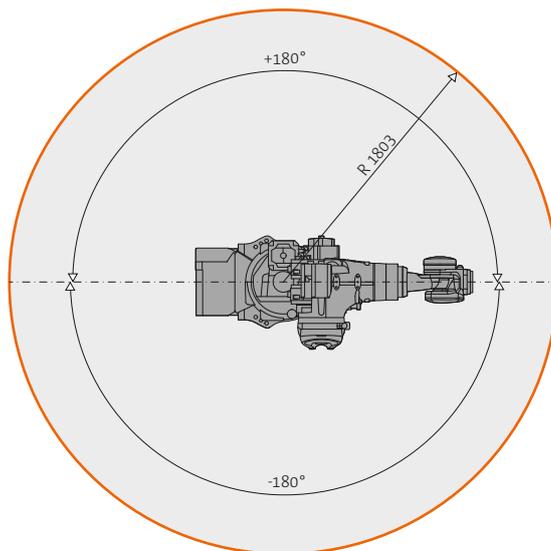
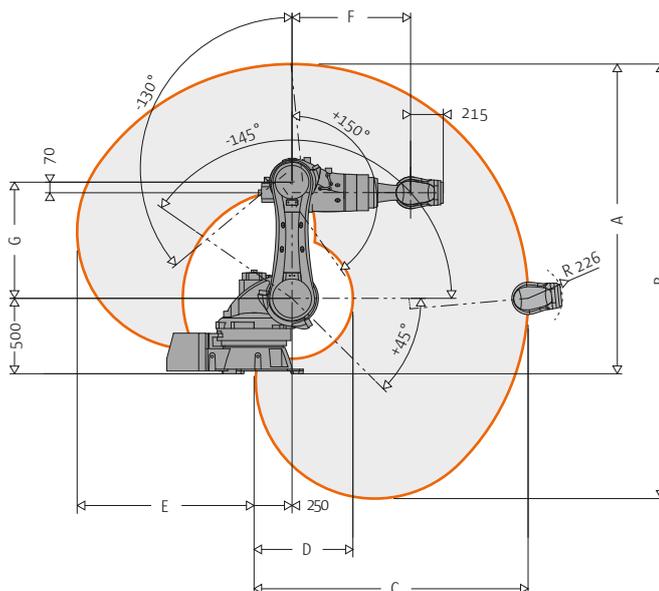
Teach pendant

KUKA smartPAD

F Variant for environments with a high degree of fouling and high temperatures

KR QUANTEC nano

Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Volume
KR 120 R1800 nano	2,053 mm	2,881 mm	1,803 mm	585 mm	1,164 mm	780 mm	770 mm	20.6 m ³
KR 160 R1570 nano	1,823 mm	2,468 mm	1,573 mm	600 mm	963 mm	710 mm	610 mm	13.5 m ³



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KR 120 R1800 nano

KR 160 R1570 nano

Max. reach	1,803 mm	1,573 mm
Rated payload	120 kg	160 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-	50 kg/-/-
Rated total load	170 kg	210 kg
Pose repeatability	±0.06 mm	±0.06 mm
Number of axes	6	6
Mounting position	Floor, ceiling	Floor, ceiling
Variant	-	-
Robot footprint	901 mm x 610 mm	901 mm x 610 mm
Weight (excluding controller), approx.	684 kg	677 kg

Axis data	Range of motion	Speed with rated payload 120 kg	Range of motion	Speed with rated payload 160 kg
Axis 1 (A1)	+/-180°	123°/s	+/-180°	123°/s
Axis 2 (A2)	+45°/-145°	114°/s	+45°/-145°	114°/s
Axis 3 (A3)	+150°/-130°	86°/s	+145°/-130°	86°/s
Axis 4 (A4)	+/-350°	179°/s	+/-350°	179°/s
Axis 5 (A5)	+/-125°	172°/s	+/-120°	172°/s
Axis 6 (A6)	+/-350°	220°/s	+/-350°	220°/s

Operating conditions

Ambient temperature +10 °C bis +55 °C

Protection rating

Protection rating, robot IP 65
 Protection rating, inline wrist IP 65



Controller

KR C4



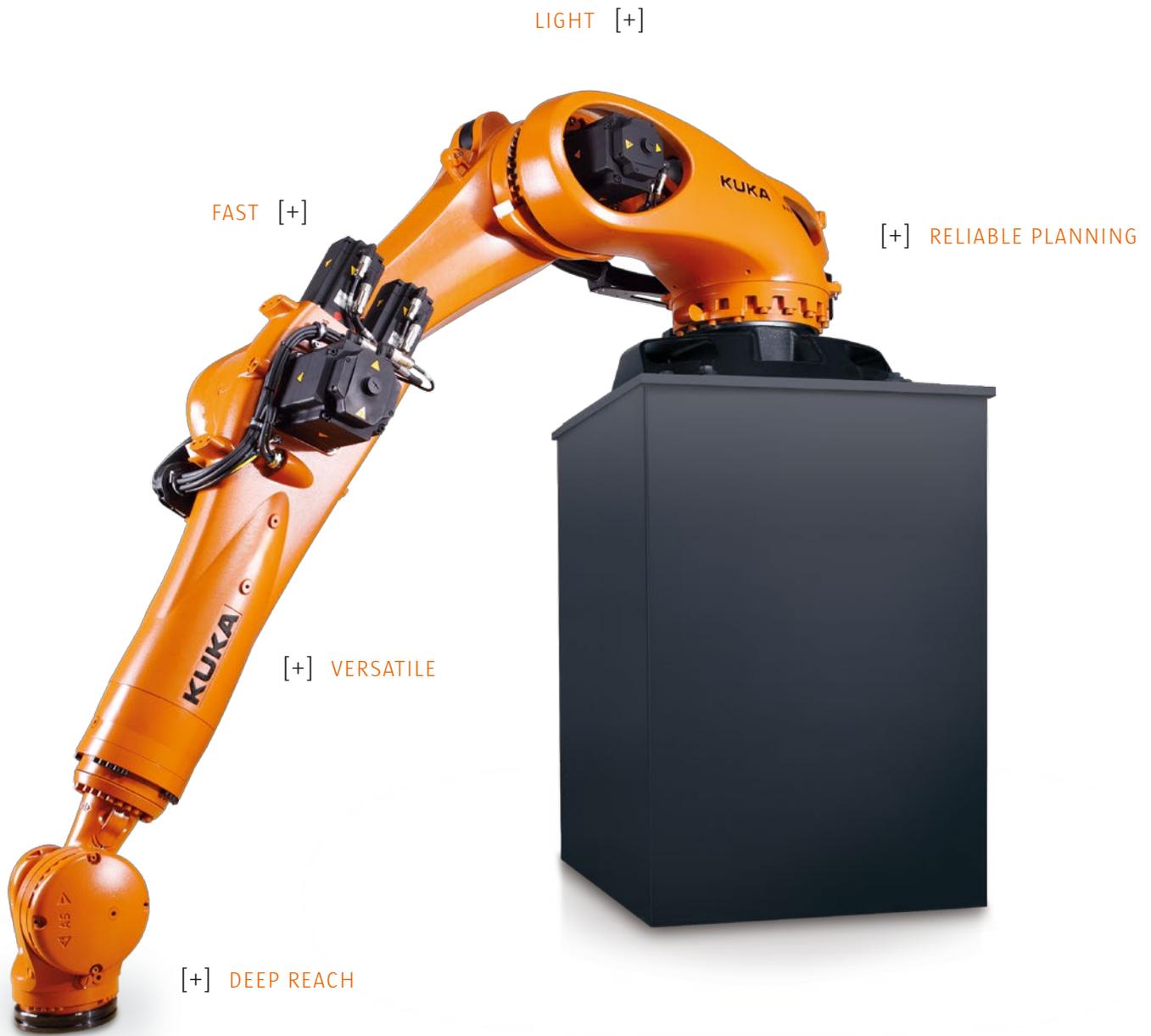
Teach pendant

KUKA smartPAD

The KR QUANTEC K series

Product overview

Robot	KR QUANTEC prime K	KR 90 R3700 prime K	KR 120 R3500 prime K	KR 150 R3300 prime K
	KR QUANTEC prime K	KR 180 R3100 prime K	KR 210 R2900 prime K	
	KR QUANTEC ultra K	KR 120 R3900 ultra K	KR 150 R3700 ultra K	KR 180 R3500 ultra K
	KR QUANTEC ultra K	KR 210 R3300 ultra K	KR 240 R3100 ultra K	KR 270 R2900 ultra K
Controller	KR C4			
Teach pendant	KUKA smartPAD			



LIGHT [+]

FAST [+]

[+] RELIABLE PLANNING

[+] VERSATILE

[+] DEEP REACH



1

2



1 Robot knee positioned lower and further forward for greater downward reach

2 Extremely compact: the robot wrist of the new KR QUANTEC series

Features and advantages

VERSATILE. The intelligent payload and reach intervals allow simple and reliable planning. KUKA also offers shelf-mounted robots covering a payload range from 16 kg to 270 kg.

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

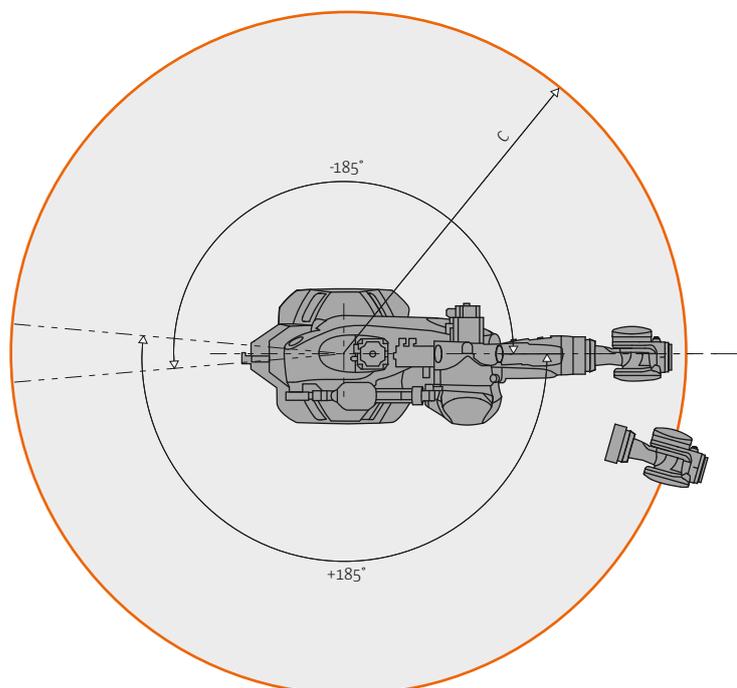
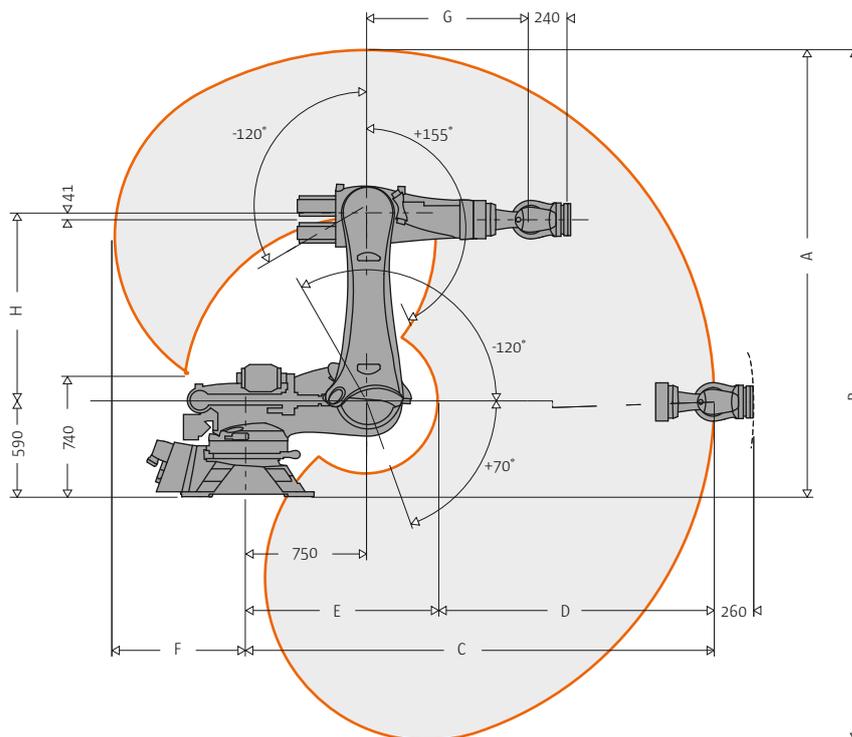
DEEP REACH. KUKA shelf-mounted robots are designed for an especially large downward reach. Thanks to their low height, they require little space above the robot base.

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

RELIABLE PLANNING. Each KUKA robot family shares an identical mounting base hole pattern. This allows different shelf-mounted robots to be used on machines of different sizes without any additional planning measures.

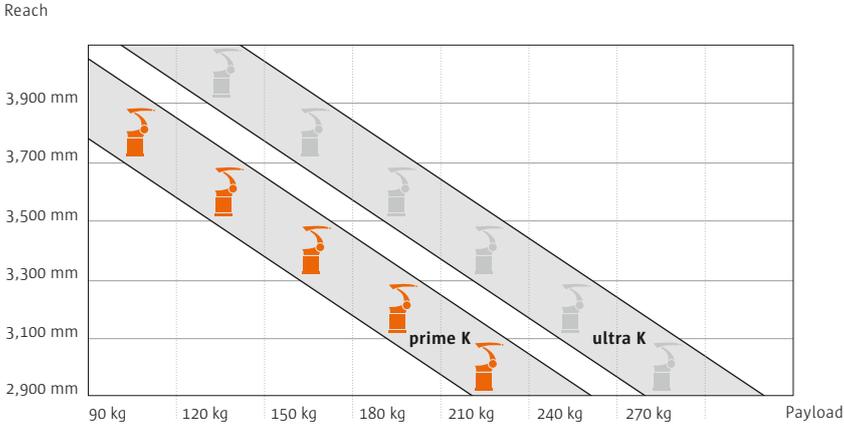
KR QUANTEC prime K

Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 210 R2900 prime K	2,741 mm	4,232 mm	2,901 mm	1,704 mm	1,197 mm	826 mm	1,000 mm	1,150 mm	77.90 m³
KR 180 R3100 prime K	2,941 mm	4,632 mm	3,101 mm	1,879 mm	1,222 mm	1,027 mm	1,200 mm	1,150 mm	97.80 m³
KR 150 R3300 prime K	3,141 mm	5,020 mm	3,301 mm	2,021 mm	1,280 mm	1,126 mm	1,200 mm	1,350 mm	120.62 m³
KR 120 R3500 prime K	3,341 mm	5,420 mm	3,501 mm	2,193 mm	1,308 mm	1,326 mm	1,400 mm	1,350 mm	146.73 m³
KR 90 R3700 prime K	3,541 mm	5,820 mm	3,701 mm	2,301 mm	1,400 mm	1,526 mm	1,600 mm	1,350 mm	175.26 m³



¹⁾ Relative to intersection of axes 4/5.

A single series for the entire payload range



	KR 210 R2900 prime K	KR 180 R3100 prime K	KR 150 R3300 prime K	KR 120 R3500 prime K	KR 90 R3700 prime K
Max. reach	2,901 mm	3,101 mm	3,301 mm	3,501 mm	3,701 mm
Rated payload	210 kg	180 kg	150 kg	120 kg	90 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-	50 kg/-/-	50 kg/-/-	50 kg/-/-	50 kg/-/-
Rated total load	260 kg	230 kg	200 kg	170 kg	140 kg
Pose repeatability	±0.06 mm	±0.06 mm	±0.06 mm	±0.06 mm	±0.06 mm
Number of axes	6	6	6	6	6
Mounting position	Floor	Floor	Floor	Floor	Floor
Variant	-	-	-	-	-
Robot footprint	830 mm x 830 mm	830 mm x 830 mm			
Weight (excluding controller), approx.	1,180 kg	1,168 kg	1,184 kg	1,192 kg	1,204 kg
Axis data/	Speed with rated payload 210 kg	Speed with rated payload 180 kg	Speed with rated payload 150 kg	Speed with rated payload 120 kg	Speed with rated payload 90 kg
Range of motion					
Axis 1 (A1)	+/-185°	105°/s	105°/s	105°/s	105°/s
Axis 2 (A2)	+70°/-120°	107°/s	107°/s	107°/s	107°/s
Axis 3 (A3)	+155°/-120°	114°/s	114°/s	114°/s	114°/s
Axis 4 (A4)	+/-350°	136°/s	179°/s	179°/s	292°/s
Axis 5 (A5)	+125°/-122,5°	129°/s	172°/s	172°/s	258°/s
Axis 6 (A6)	+/-350°	206°/s	219°/s	219°/s	284°/s

Operating conditions

Ambient temperature _____ +10 °C to +55 °C

Protection rating

Protection rating, robot _____ IP 65
 Protection rating, in-line wrist _____ IP 65



Controller

KR C4



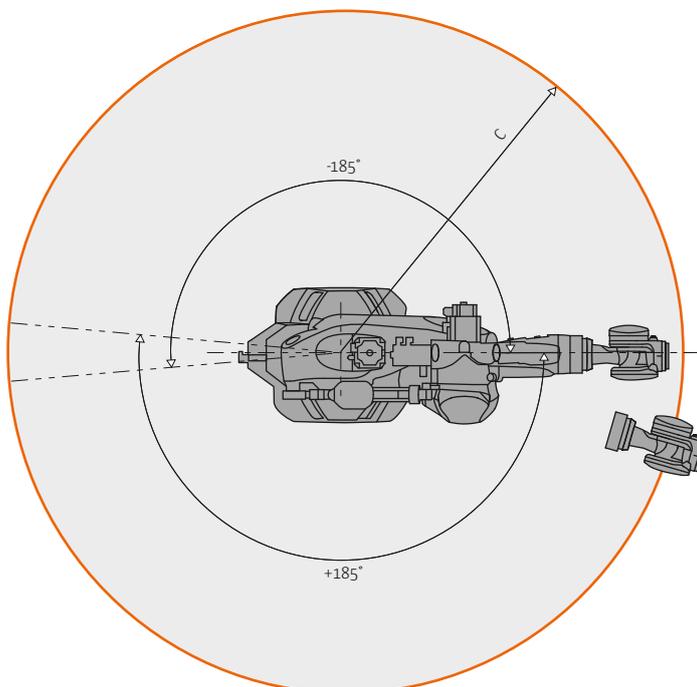
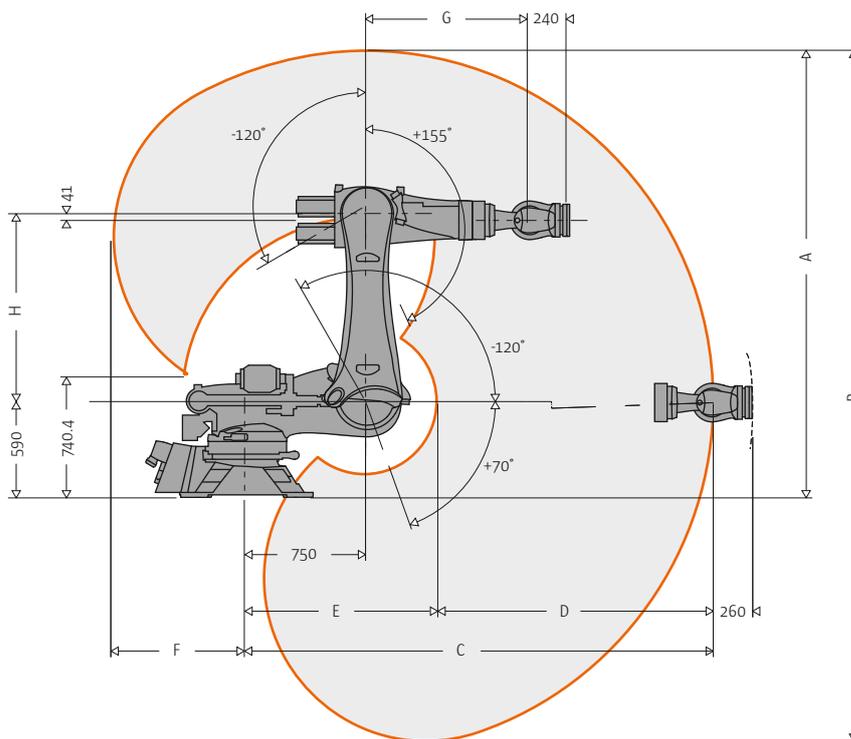
Teach pendant

KUKA smartPAD

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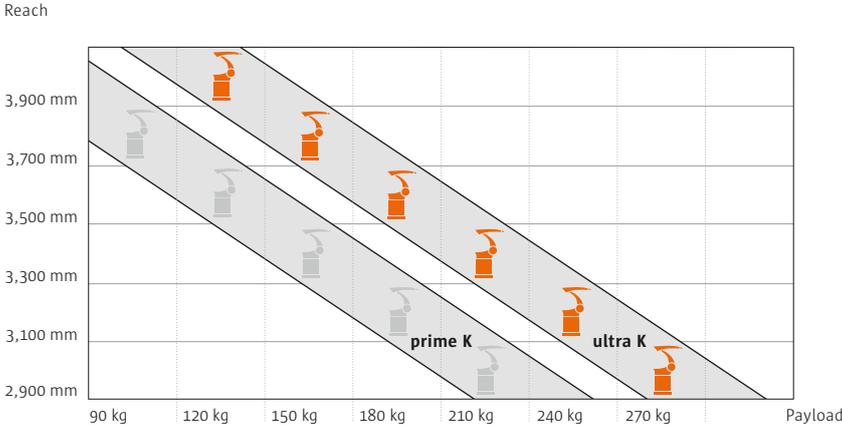
KR QUANTEC ultra K

Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 270 R2900 ultra K	2,741 mm	4,232 mm	2,901 mm	1,704 mm	1,197 mm	826 mm	1,000 mm	1,150 mm	77.90 m ³
KR 240 R3100 ultra K	2,941 mm	4,632 mm	3,101 mm	1,879 mm	1,222 mm	1,026 mm	1,200 mm	1,150 mm	97.80 m ³
KR 210 R3300 ultra K	3,141 mm	5,020 mm	3,301 mm	2,021 mm	1,280 mm	1,126 mm	1,200 mm	1,350 mm	120.62 m ³
KR 180 R3500 ultra K	3,341 mm	5,420 mm	3,501 mm	2,192 mm	1,380 mm	1,326 mm	1,400 mm	1,350 mm	146.73 m ³
KR 150 R3700 ultra K	3,541 mm	5,820 mm	3,701 mm	2,301 mm	1,400 mm	1,526 mm	1,600 mm	1,350 mm	175.26 m ³
KR 120 R3900 ultra K	3,740 mm	6,220 mm	3,901 mm	2,368 mm	1,533 mm	1,725 mm	1,800 mm	1,350 mm	206.72 m ³



¹⁾ Relative to intersection of axes 4/5.

A single series for the entire payload range



	KR 270 R2900 ultra K	KR 240 R3100 ultra K	KR 210 R3300 ultra K	KR 180 R3500 ultra K	KR 150 R3700 ultra K	KR 120 R3900 ultra K
Max. reach	2,901 mm	3,301 mm	3,301 mm	3,501 mm	3,701 mm	3,901 mm
Rated payload	270 kg	240 kg	210 kg	180 kg	150 kg	120 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-					
Rated total load	320 kg	290 kg	260 kg	230 kg	200 kg	170 kg
Pose repeatability	±0.06 mm					
Number of axes	6	6	6	6	6	6
Mounting position	Floor	Floor	Floor	Floor	Floor	Floor
Variant	F	F	F	F	F	F
Robot footprint	830 mm x 830 mm					
Weight (excluding controller), approx.	1,189 kg	1,198 kg	1,214 kg	1,201 kg	1,215 kg	1,221 kg
Axis data/	Speed with rated payload 270 kg	Speed with rated payload 240 kg	Speed with rated payload 210 kg	Speed with rated payload 180 kg	Speed with rated payload 150 kg	Speed with rated payload 120 kg
Range of motion						
Axis 1 (A1)	+/-185°	105°/s	105°/s	105°/s	105°/s	105°/s
Axis 2 (A2)	+70°/-120°	101°/s	101°/s	101°/s	101°/s	101°/s
Axis 3 (A3)	+155°/-120°	107°/s	107°/s	107°/s	107°/s	107°/s
Axis 4 (A4)	+/-350°	122°/s	136°/s	136°/s	179°/s	292°/s
Axis 5 (A5)	+125°/-122,5°	113°/s	129°/s	129°/s	172°/s	258°/s
Axis 6 (A6)	+/-350°	175°/s	206°/s	206°/s	219°/s	284°/s

Operating conditions

Ambient temperature +10 °C to +55 °C

Protection rating

Protection rating, robot IP 65
 Protection rating, inline wrist IP 65
 Protection rating, foundry in-line wrist IP 65 / IP 67

 Controller

KR C4

 Teach pendant

KUKA smartPAD

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F Variant for environments with a high degree of fouling and high temperatures

The high-accuracy robots.

Product overview

Robot	KR 120 R2700 extra HA
	KR 90 R2900 extra HA, KR 90 R3100 extra HA
Controller	KR C4
Teach pendant	KUKA smartPAD



99.9% AVAILABILITY [+]

POSE REPEATABILITY [+]

PATH REPEATABILITY [+]

[+] LOW MAINTENANCE

[+] ROBUST

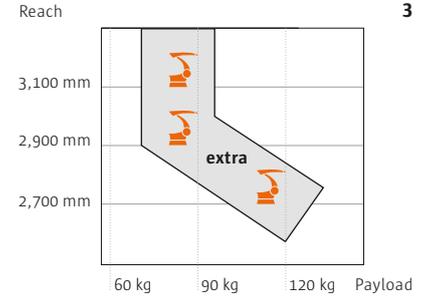
[+] PATH ACCURACY



1



2



3

1 Designed for high-precision specifications, HA series robots are particularly suitable for laser applications or the gauging of components

2 These robots feature particularly high degrees of accuracy and very fast wrist axes

3 The high-accuracy robots

Features and advantages

PATH ACCURACY. KUKA robots set standards with their unparalleled precision – in robot-based welding, for example – while attaining utmost repeatability and unbeatable cycle times.

PATH REPEATABILITY. Highly accurate robot arm with long reach enables linear path repeatability. Optimal for laser applications and other tasks in which utmost precision is required.

POSE REPEATABILITY. Special gear units ensure ideal process results and pose repeatability of ± 0.05 mm.

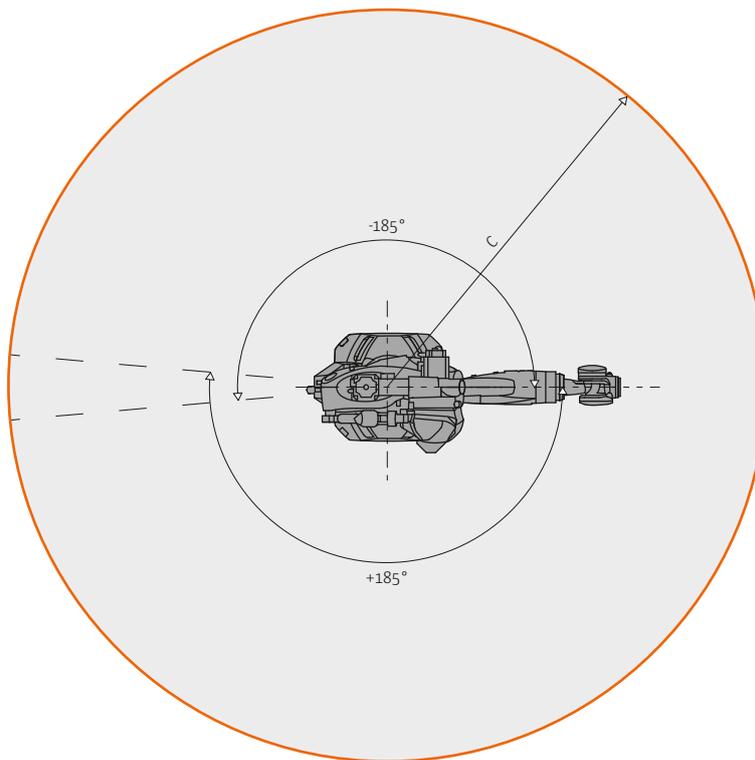
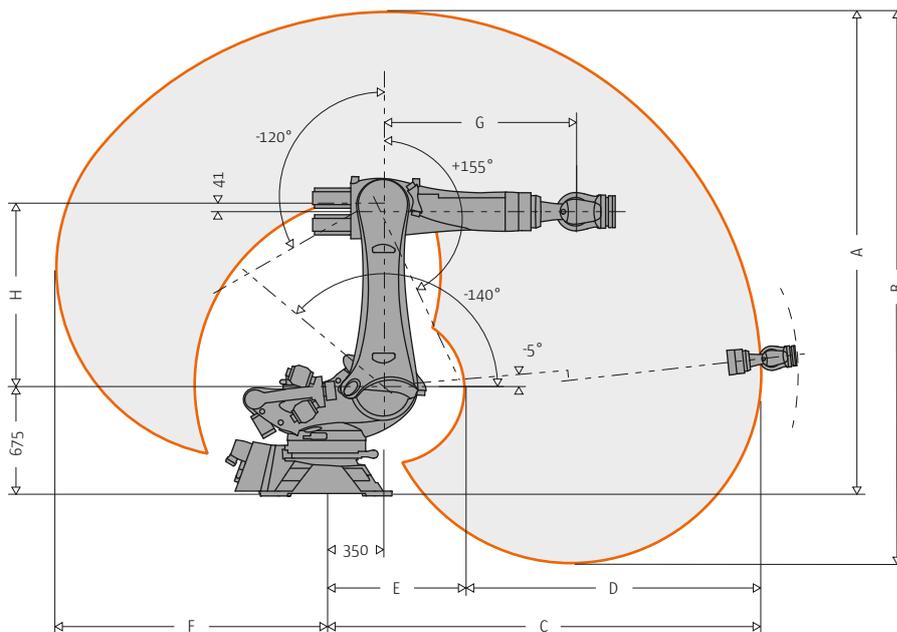
LOW MAINTENANCE. KUKA robots offer the longest maintenance intervals on the market, at around 20,000 operating hours, thus ensuring virtually uninterrupted productivity.

ROBUST. Systematically optimized for durability, the design provides for consistently reliable operation even under extreme conditions.

99.9% AVAILABILITY. KUKA robots for medium payloads allow reliable long-term planning and cost estimation.

KR QUANTEC extra HA

Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volumen
KR 120 R2700 extra HA	3,026 mm	3,451 mm	2,696 mm	1,874 mm	822 mm	1,732 mm	1,200 mm	1,150 mm	55 m ³
KR 90 R2900 extra HA	3,226 mm	3,634 mm	2,896 mm	2,016 mm	880 mm	1,885 mm	1,200 mm	1,350 mm	66 m ³
KR 90 R3100 extra HA	3,426 mm	4,034 mm	3,095 mm	2,187 mm	908 mm	2,085 mm	1,400 mm	1,350 mm	84 m ³



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¹⁾ Relative to intersection of axes 4/5.

Features and advantages

HIGHLY ACCURATE. Special gear units with utmost precision and very high correction velocities ensure ideal process results and very high pose and path repeatability on linear paths.

EFFICIENT. High absolute accuracy and minimal disruptive contours allow optimal offline programming.

SPACE-SAVING. Compact dimensions reduce the footprint and allow space-saving cell layouts.

OPTIMIZED FOR PROCESS FORCES. High stiffness resulting from FEM-optimized structure compensates for process forces generated.



	KR 120 R2700 extra HA	KR 90 R2900 extra HA	KR 90 R3100 extra HA
Max. reach	2,696 mm	2,896 mm	3,095 mm
Rated payload	120 kg	90 kg	90 kg
Rated suppl. load, arm/link arm/rot. col. -	50 kg/-/-	50 kg/-/-	50 kg/-/-
Rated total load	170 kg	140 kg	140 kg
Pose repeatability	±0.05 mm	±0.05 mm	±0.05 mm
Number of axes	6	6	6
Mounting position	Floor	Floor	Floor
Variant	-	-	-
Robot footprint	830 mm x 830 mm	830 mm x 830 mm	830 mm x 830 mm
Weight (excluding controller), approx.	1,104 kg	1,121 kg	1,129 kg
Axis data/			
Range of motion		Speed with rated payload 120 kg	Speed with rated payload 90 kg
Achse 1 (A1)	+/-185°	105°/s	105°/s
Achse 2 (A2)	-140°/-5°	101°/s	101°/s
Achse 3 (A3)	-120°/+155°	107°/s	107°/s
Achse 4 (A4)	+/-350°	292°/s	292°/s
Achse 5 (A5)	+/-125°	258°/s	258°/s
Achse 6 (A6)	+/-350°	284°/s	284°/s

Operating conditions

Ambient temperature +10 °C to +55 °C

Protection rating

Protection rating, robot IP 65

Protection rating, inline wrist IP 65



Controller

KR C4

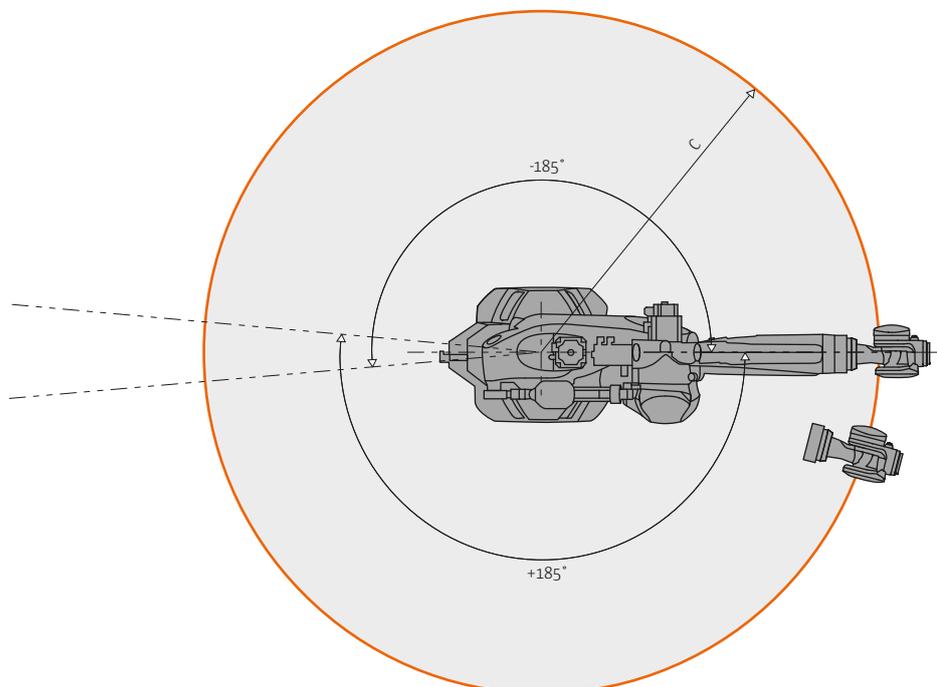
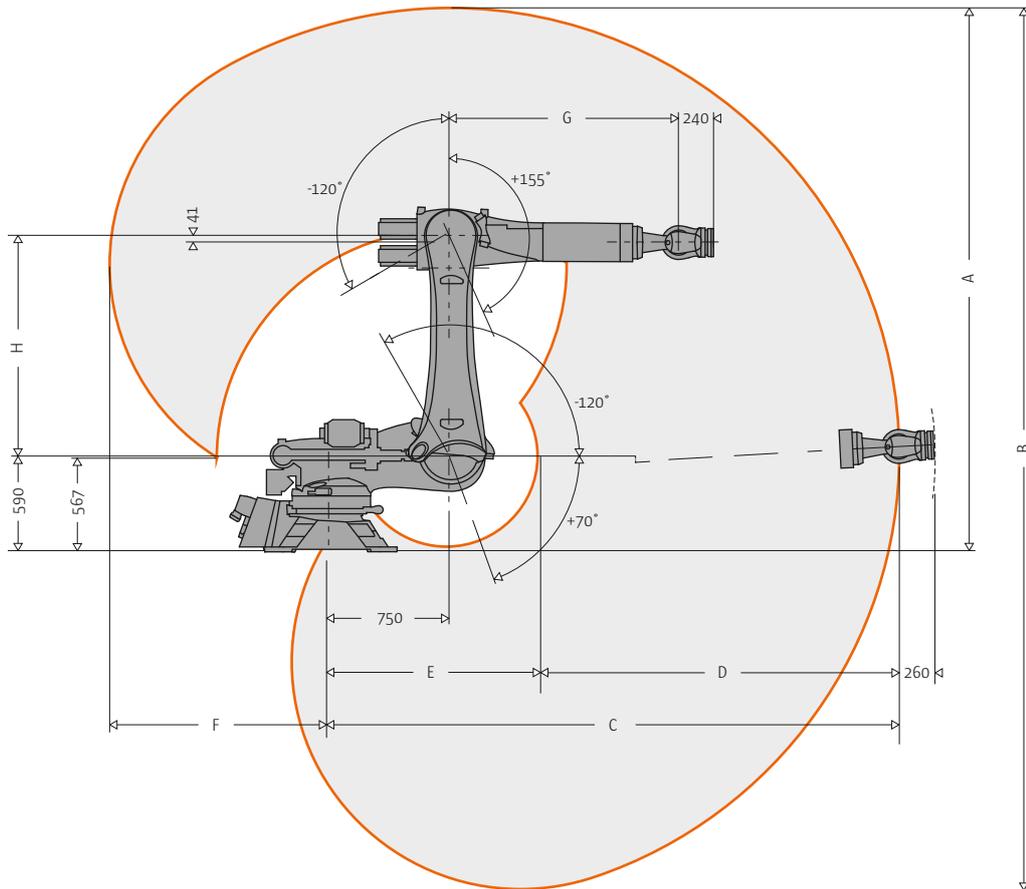


Teach pendant

KUKA smartPAD

KR QUANTEC press

Work envelope ¹⁾	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions E	Dimensions F	Dimensions G	Dimensions H	Volume
KR 120 R3500 press	— 3,341 mm	— 5,420 mm	— 3,501 mm	— 2,192 mm	— 1,308 mm	— 1,326 mm	— 1,400 mm	— 1,350 mm	— 146.73 m ³
KR 100 R3500 press	— 3,341 mm	— 5,420 mm	— 3,501 mm	— 2,192 mm	— 1,308 mm	— 1,326 mm	— 1,400 mm	— 1,350 mm	— 146.73 m ³



Features and advantages

SPECIALIZED. Due to their enormous reach and broad payload spectrum KR QUANTEC press robots are ideally suited to the loading and unloading of even the largest of components in press shops.

ROBUST. The robust design with reinforced axes and highly resistant gear units ensure reliable performance and availability even under constant high stress.

FLEXIBLE. A wide range of applications can be implemented, from press linking across narrow or wide press distances to the transfer of large and medium-sized blanks.

FAST. Thanks to a specially adapted drive train and machine data, the KR QUANTEC press robots shorten processing times and achieve extremely high throughput.

PRECISE. Their precise control and mechanical design give KR QUANTEC press robots a repeatability of ± 0.06 mm, with increased output and higher quality.



KR 120 R3500 press

KR 100 R3500 press

Max. reach	3,501 mm	3,501 mm
Rated payload	120 kg	100 kg
Rated suppl. load, arm/link arm/rot. col.	50 kg/-/-	50 kg/-/-
Rated total load	170 kg	150 kg
Pose repeatability	± 0.06 mm	± 0.06 mm
Number of axes	6	6
Mounting position	Floor, ceiling	Floor, ceiling
Variant	-	-
Robot footprint	830 mm x 830 mm	830 mm x 830 mm
Weight (excluding controller), approx.	1,240 kg	1,240 kg

Axis data/

Range of motion	Speed with rated payload 120 kg	Speed with rated payload 100 kg
Asse 1 (A1)	+/-185° 136°/s	136°/s
Asse 2 (A2)	+70°/-120° 137°/s	137°/s
Asse 3 (A3)	-155°/-120° 114°/s	114°/s
Asse 4 (A4)	+/-350° 136°/s	136°/s
Asse 5 (A5)	+/-122,5° 129°/s	129°/s
Asse 6 (A6)	+/-350° 206°/s	206°/s

Operating conditions

Ambient temperature $+10$ °C to $+55$ °C

Protection rating

Standard variant IP 65



Controller

KR C4



Teach pendant

KUKA smartPAD

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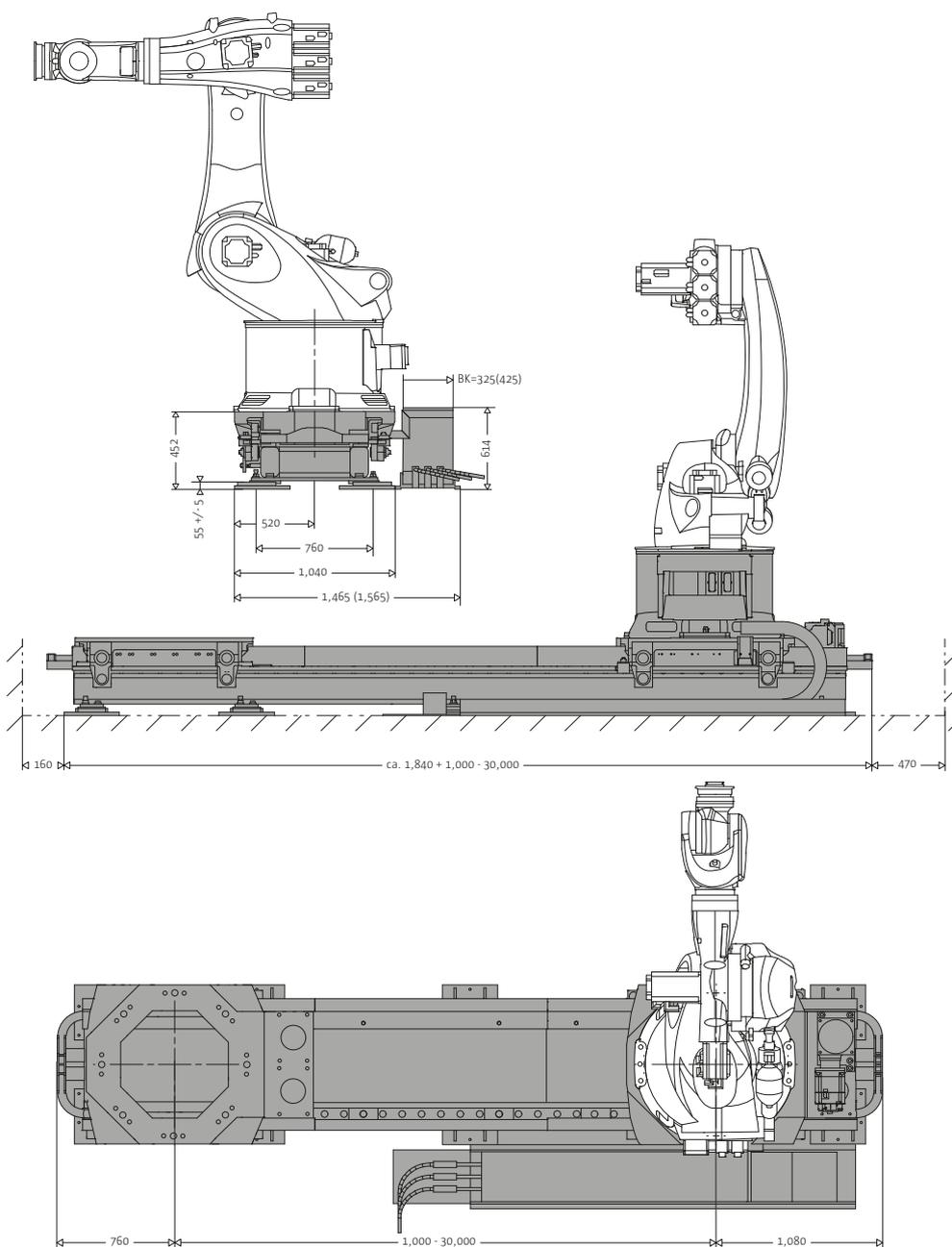
¹⁾ Relative to intersection of axes 4/5.

KL 1500-3

Product overview

Linear unit	KL 1500-3, KL 1500-3 S, KL 1500-3 T
Designed for robot categories	high payloads, heavy payloads
Controller	KR C4
Teach pendant	KUKA smartPAD

Dimensions of the product



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Features and advantages

FLEXIBLE. Long travel of up to 30 m extends the work envelope by several times the reach of the robot. Ideal for linking production lines.

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.

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

POSITIONALLY ACCURATE. Up to four robots can be operated on a linear axis. Multiple robot positions on the linear axis allow optimal adaptation to existing requirements and workspaces.



	KL 1500-3 T	KL 1500-3 S	KL 1500-3
Number of carriages	4	4	4
Maximum rated travel	30,000 mm	30,000 mm	30,000 mm
Maximum velocity	1.89 m/s	2.35 m/s	1.45 m/s
Pose repeatability	< ±0.02 mm	< ±0.02 mm	< ±0.02 mm
Number of axes	1	1	1
Variant	C, CV	C, CV	C, CV
Mounting position	Floor, ceiling	Floor, ceiling	Floor, ceiling
Mass of carriage	440 kg	440 kg	440 kg
Mass of rated payload	3,800 kg	3,800 kg	2,000 kg
Mass of beam per meter	345 kg	345 kg	345 kg
Minimum rated travel	1,000 mm	1,000 mm	1,000 mm
Gradation of rated travel	500 mm	500 mm	500 mm
Transmission of force	Rack	Rack	Rack

Operating conditions

Ambient temperature +10 °C to +55 °C



Controller

KR C4



Teach pendant

KUKA smartPAD

C Ceiling mounting position

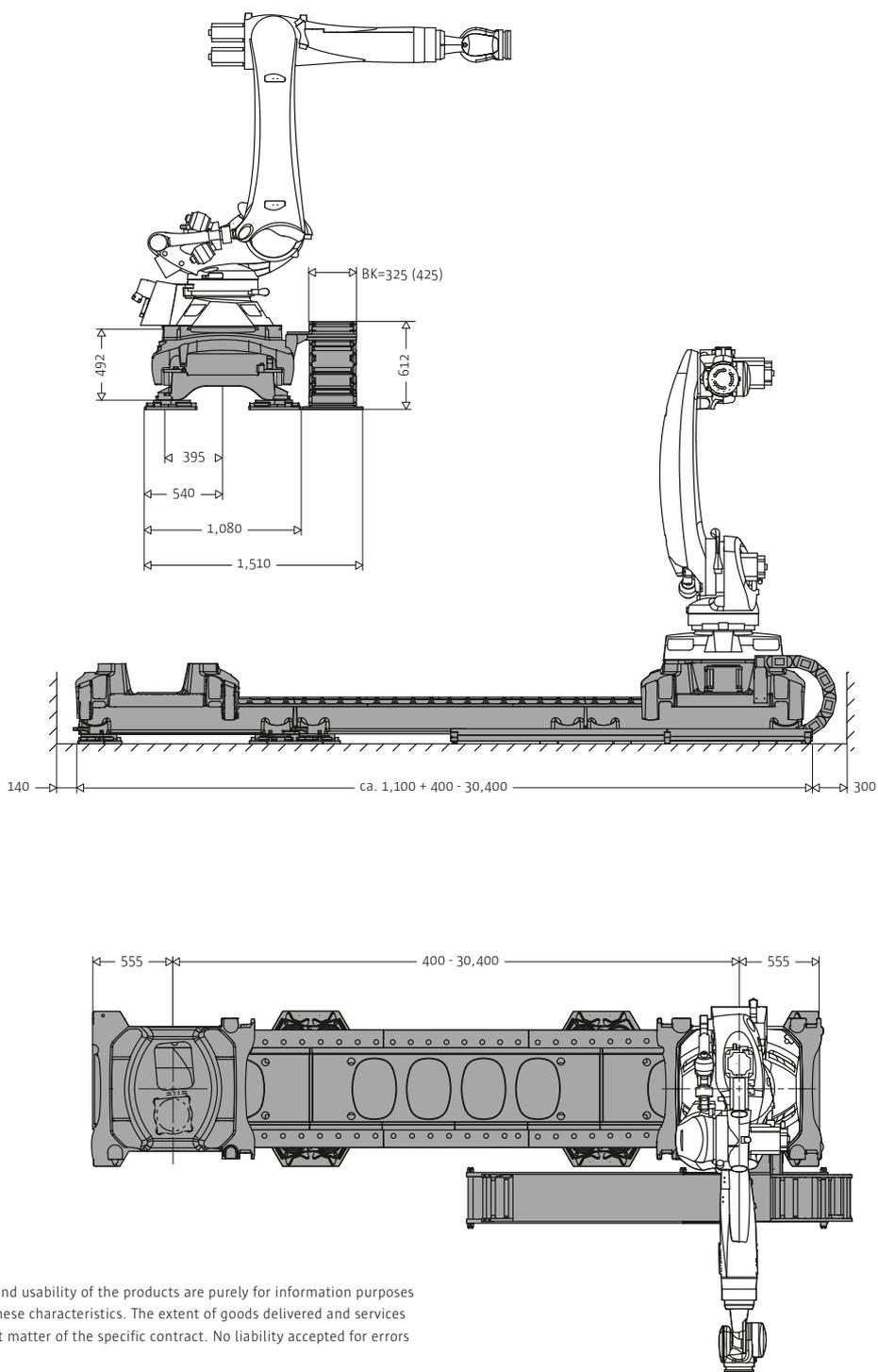
CV Covered version

KL 2000

Product overview

Linear unit	KL 2000
Designed for robot categories	high payloads, heavy payloads
Controller	KR C4
Teach pendant	KUKA smartPAD

Dimensions of the product



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Features and advantages

FLEXIBLE. Long travel of up to 30 m extends the work envelope by several times the reach of the robot. Ideal for linking production lines.

POWERFUL. Higher performance and energy efficiency due to the reduced mass of the beam and the carriage.

MODULAR. Thanks to the modular design of the linear unit, the length can be altered as desired using standard components.

POSITIONALLY ACCURATE. Up to four robots can be operated on a linear axis. Multiple robot positions on the linear axis allow optimal adaptation to existing requirements and workspaces.



KL 2000

Number of carriages	4
Maximum rated travel	29,900 mm
Maximum velocity	1.96 m/s
Pose repeatability	<±0.02 mm
Number of axes	1
Variant	-
Mounting position	Floor
Mass of carriage	350 kg
Mass of rated payload	2,000 kg
Mass of beam per meter	240 kg
Minimum rated travel	400 mm
Gradation of rated travel	500 mm
Transmission of force	Rack

Operating conditions

Ambient temperature	+10 °C to +55 °C
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Controller

KR C4



Teach pendant

KUKA smartPAD

An unbeatable team.

Product overview

[+] FASTER AS A TEAM



Robots and other kinematic systems

[+] SAFER AS A TEAM



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.

99.99%

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 [+]



[+] ENERGY-EFFICIENT

COMMUNICATION TALENT [+]

ROBUSTNESS [+]

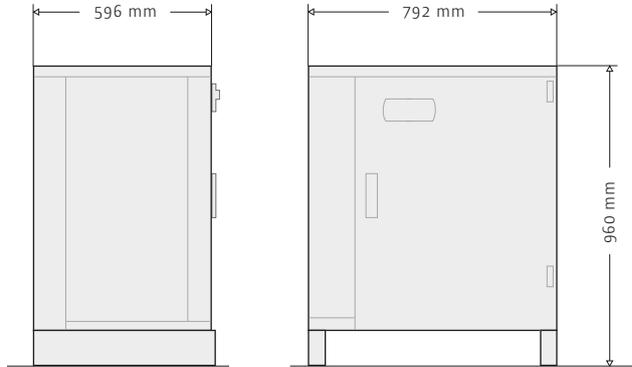




1



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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.



KR C4 controller

Type	_____	KR C4
Processor	_____	Multi-core technology
Hard drive	_____	HDD, SSD optional
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

ERGONOMICALLY OPTIMIZED [+]

[+] UNIVERSAL APPLICATION

ANTIREFLECTION TOUCH DISPLAY [+]



[+] 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 (D x W x H)	80 mm x 330 mm x 260 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

KUKA.WorkVisual	Engineering environment for all KUKA robots for system configuration, programming, data backup, diagnosis, and more.
KUKA.Load	Supports the evaluation of the load on a KUKA robot or the selection of a suitable robot for a given load.
KUKA.UserTech	Fast programming of motion and program sequences using freely definable buttons, input masks and parameter lists.
KUKA.ExpertTech	Faster, simpler programming even for non-experts in KRL code via menu-guided command selection.
KUKA.HMI Zenon	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.
KUKA.RemoteView	Allows remote access to the robot via a secure Internet connection, thereby offering the possibility of remote diagnosis or start-up support.
KUKA.VirtualRemotePendant	Allows the use of EtherNet communication to run the user interface of the KUKA smartPAD on an external PC and to operate the robot.
KUKA.RobotSensorInterface	Supports simple and flexible interfacing with sensors in the KR C4. It is also possible to integrate a number of channels with hard real-time requirements.
KUKA.VisionTech	"onBoard" vision system including image processing, camera and sensors. Extensive configuration options enable the flexible use of the robot in an unstructured environment.
KUKA.ConveyorTech	Organizes the cooperation of robots and conveyors. Allows efficient, dynamic handling of parts, even for complex applications.
KUKA.ForceTorqueControl	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.
KUKA.SafeOperation	Flexible programming of safe cooperation between humans and machines. Definition of safe workspaces, velocities, envelopes around robot tools, and cooperation with the operator.
KUKA.SafeRangeMonitoring	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:



www.contact.kuka-robotics.com



www.facebook.com/KUKA.Robotics



www.youtube.com/kukarobotgroup

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