

# KUKA



Industrial robotics\_low payloads



## Making light work of it all

KUKA's low payload category from 6 kg to 22 kg

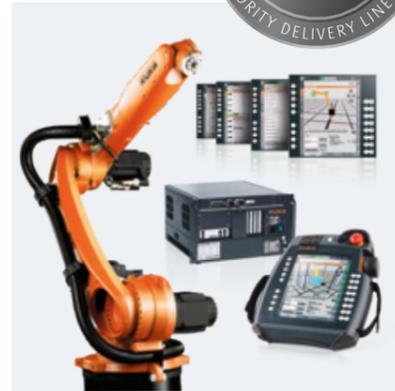
KUKA robots with low payloads demonstrate unique strengths in bonding, sealing, foaming and all tasks requiring a high path accuracy. In arc welding, KUKA robots for low payloads boast the best acceleration values on the market.

Even light work such as component testing, small-part assembly or grinding, polishing, assembly as well as machine loading and unloading is in the best of hands when performed by KUKA robots of the low payload category. With optimal reach and payload coverage, this range of robots offers a level of performance that is hard to beat.

Entrust your automation to high-performance professionals: the KR CYBERTECH robots. Worldwide, no other portfolio offers a comparable combination of high power density, compact masses and application-relevant specialization in the low payload category.

**Delivery in three weeks for a high-performance package made to measure – the KUKA Ready Packs make it happen.** Select a model from our range for low payloads – including a preconfigured controller, teach pendant and software with accessories based on your requirement profile.

As preconfigured package solutions, the KUKA Ready Packs combine selected, high-capability KUKA products with short delivery times and the best terms – all this in service-proven KUKA quality.



Scan this QR code with your smartphone and find out more about KUKA robots for low payloads.



Always in safe hands with KUKA robots for low payloads

Outstanding advantage: world-class acceleration in arc welding



# Made for highly efficient automation

KUKA robots for low payloads

## Product overview

<b>KR CYBERTECH nano</b>	KR 6 R1820		
	KR 6 R1820 arc HW		
	KR 8 R1620		
	KR 8 R1620 arc HW		
	KR 10 R1420		
	KR 8 R1420 arc HW		
<b>Controller</b>	KR C4 compact	KR C4 smallsize-2	
<b>Teach pendant</b>	KUKA smartPAD		
<b>KR CYBERTECH</b>	KR 8 R2100-2 arc HW		
	KR 8 R2010-2		
	KR 12 R1810-2		
	KR 16 R2010-2		
	KR 16 R1610-2		
	KR 20 R1810-2		
	KR 22 R1610-2		
	KR 20 R1810-1	KR 20 R2010 KS-F	
	<b>Controller</b>	KR C4	
	<b>Teach pendant</b>	KUKA smartPAD	

## Reach / payload

2,200 mm									
2,000 mm		H I				F		C	
1,800 mm	L O			G				B D	
1,600 mm		K N				E			A
1,400 mm		M	J						
1,200 mm									
	6 kg	8 kg	10 kg	12 kg	14 kg	16 kg	18 kg	20 kg	22 kg

- A KR 22 R1610-2
- B KR 20 R1810-1
- C KR 20 R2010 KS-F
- D KR 20 R1810-2
- E KR 16 R1610-2
- F KR 16 R2010-2
- G KR 12 R1810-2
- H KR 8 R2010-2
- I KR 8 R2100-2 arc HW
- J KR 10 R1420
- K KR 8 R1620
- L KR 6 R1820
- M KR 8 R1420 arc HW
- N KR 8 R1620 arc HW
- O KR 6 R1820 arc HW

\_Reliable handling

\_Precise machining

\_Differentiated payload capacities

\_High-accuracy CP motion

\_Extremely flexible



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

**Precise machining.** The KR CYBERTECH portfolio includes powerful robots for the precise machining of workpieces. The KR CYBERTECH thus paves the way for precision in many other areas of manufacturing.

**High-accuracy CP motion.** Thanks to new controller structures, all KR CYBERTECH robots work with extremely high path accuracy and speed. Their acceleration values and the new, ergonomic design with minimized disruptive contours already reveal their talent for automation at the highest level.

**Differentiated payload capacities.** The KR CYBERTECH robots already demonstrate in the selection phase that they are high-precision devices. In fine intervals, they cover the entire spectrum of the low payload category.

**Extremely flexible.** Flexible production has long since become normal. With the new KR CYBERTECH generation, it has also become extremely cost-effective since every robot model is systematically designed to adapt flexibly to ever-changing production circumstances. From confined spaces to large distances, whether installed on the floor, wall or ceiling, or at any other angle, the KR CYBERTECH robots can master a wide range of different requirement profiles in any desired installation position.

# KR CYBERTECH nano

## KR 6 R1820

**Perfected for handling and assembly.** Fast and incredibly agile with the utmost precision. Down to the very last detail, KR CYBERTECH nano robots are designed as high-end handling robots.

**Compact design.** Reduced volume with greater payload capacity and longer reach. KR CYBERTECH nano robots work in confined spaces.

**Minimized interference radius.** With an interference radius of just 67 mm, the KR CYBERTECH nano robots have set a new global benchmark.

**Maximum workspace.** With their large working envelope to the rear and long downward reach, KR CYBERTECH nano robots can work in areas inaccessible to conventional robots.

**Best-in-class repeatability.** Besides many other innovative technical details, the KR CYBERTECH nano robots impress with a repeatability of 0.04 mm.

**Flexibility in any position.** Exceptional performance when installed on the floor, wall or ceiling, or at any other angle. KR CYBERTECH nano robots are suitable for every installation position in their standard versions – without requiring “extras”.



KR CYBERTECH nano	KR 6 R1820
Max. reach	1,820 mm
Rated payload	6 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	16 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Variant	<b>HP</b>
Robot footprint	333.5 mm x 307 mm
Weight (excluding controller), approx.	160 kg

Axis data / Range of motion	Speed with rated payload 6 kg
Axis 1 (A1)	+ / -170° 220°/s
Axis 2 (A2)	+65° / -185° 210°/s
Axis 3 (A3)	+163° / -137° 270°/s
Axis 4 (A4)	+ / -185° 381°/s
Axis 5 (A5)	+ / -120° 311°/s
Axis 6 (A6)	+ / -350° 492°/s

### Operating conditions

Ambient temperature	+5 °C to +45 °C
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### Protection rating

Protection rating, robot	IP 54
Protection rating, in-line wrist	IP 54
Protection rating, High Protection robot	IP 65
Protection rating, High Protection wrist	IP 67

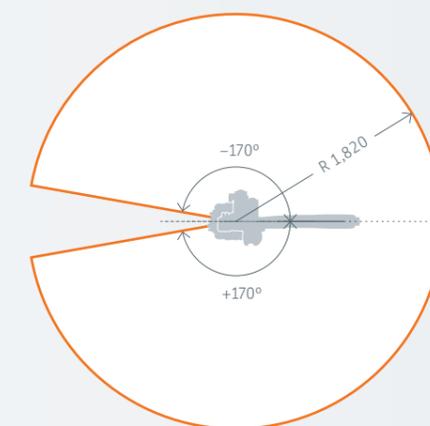
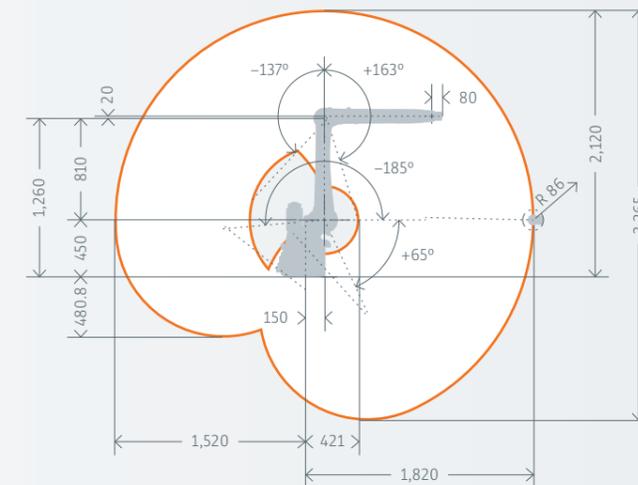
Controller	KR C4 compact, KR C4 smallsize-2
Teach pendant	KUKA smartPAD

### Workspace

### Volume

KR 6 R1820

22.97 m³



**HP** The High Protection (HP) variant enables the standard robots to have a higher protection rating.

## KR CYBERTECH arc nano

### KR 6 R1820 arc HW

**Perfected for continuous-path motion.** Extremely high path accuracy and speed with new controller structures. KR CYBERTECH arc nano robots were created for path applications at the very highest level – even deep inside the workpieces.

**Compact design.** Reduced volume with greater payload capacity and longer reach. KR CYBERTECH arc nano robots work in confined spaces.

**Minimized disruptive contour.** A streamlined arm/wrist design, a minimized disruptive contour of axis 2 and optimal integration of the welding equipment.

**Maximum workspace.** With their large working envelope to the rear and long downward reach, KR CYBERTECH arc nano robots can work in areas inaccessible to conventional robots.

**Functional wrist.** 50 mm hollow wrist with a reduced wrist diameter of only 150.2 mm. Hollow axis 6 is capable of infinite rotation and the main axis motion is reduced, allowing extremely short cycle times combined with utmost motion precision. Particularly where reaching backward is concerned or moving up very close to the workpieces.

**Flexibility in any position.** Exceptional performance when installed on the floor, wall or ceiling, or at any other angle. KR CYBERTECH arc nano robots are suitable for every installation position in their standard versions – without requiring “extras”.



KR CYBERTECH arc nano	KR 6 R1820 arc HW
Max. reach	1,821 mm
Rated payload	6 kg
Rated suppl. load, arm/link arm/rot. column	10 kg / - / -
Rated total load	16 kg
Pose repeatability	±0.04 mm
Hollow shaft in the wrist flange	∅ 50 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Variant	-
Robot footprint	333.5 mm x 307 mm
Weight (excluding controller), approx.	180 kg

Axis data / Range of motion	Speed with rated payload 6 kg
Axis 1 (A1)      + / -170°	220°/s
Axis 2 (A2)      +65° / -185°	178°/s
Axis 3 (A3)      +180° / -120°	270°/s
Axis 4 (A4)      + / -165°	430°/s
Axis 5 (A5)      +140° / -115°	430°/s
Axis 6 (A6)      + / -350°	630°/s

#### Operating conditions

Ambient temperature	+5 °C to +45 °C
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#### Protection rating

Protection rating, robot	IP 54
Protection rating, hollow wrist	IP 54

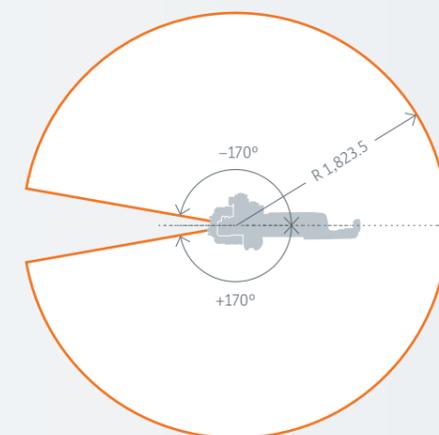
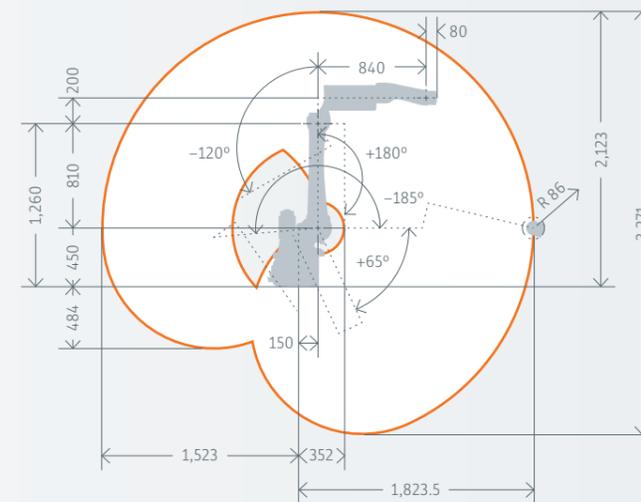
Controller	KR C4 compact, KR C4 smallsize-2
Teach pendant	KUKA smartPAD

#### Workspace

KR 6 R1820 arc HW

#### Volume

23.19 m<sup>3</sup>



# KR CYBERTECH nano

## KR 8 R1620

**Perfected for handling and assembly.** Fast and incredibly agile with the utmost precision. Down to the very last detail, KR CYBERTECH nano robots are designed as high-end handling robots.

**Compact design.** Reduced volume with greater payload capacity and longer reach. KR CYBERTECH nano robots work in confined spaces.

**Minimized interference radius.** With an interference radius of just 67 mm, the KR CYBERTECH nano robots have set a new global benchmark.

**Maximum workspace.** With their large working envelope to the rear and long downward reach, KR CYBERTECH nano robots can work in areas inaccessible to conventional robots.

**Best-in-class repeatability.** Besides many other innovative technical details, the KR CYBERTECH nano robots impress with a repeatability of 0.04 mm.

**Flexibility in any position.** Exceptional performance when installed on the floor, wall or ceiling, or at any other angle. KR CYBERTECH nano robots are suitable for every installation position in their standard versions – without requiring “extras”.



KR CYBERTECH nano	KR 8 R1620
Max. reach	1,620 mm
Rated payload	8 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	18 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Variant	<b>HP</b>
Robot footprint	333.5 mm x 307 mm
Weight (excluding controller), approx.	155 kg

Axis data / Range of motion		Speed with rated payload 8 kg
Axis 1 (A1)	+ / -170°	220°/s
Axis 2 (A2)	+65° / -185°	210°/s
Axis 3 (A3)	+163° / -137°	270°/s
Axis 4 (A4)	+ / -185°	381°/s
Axis 5 (A5)	+ / -120°	311°/s
Axis 6 (A6)	+ / -350°	492°/s

### Operating conditions

Ambient temperature	+5 °C to +45 °C
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### Protection rating

Protection rating, robot	IP 54
Protection rating, in-line wrist	IP 54
Protection rating, High Protection robot	IP 65
Protection rating, High Protection wrist	IP 67

Controller	KR C4 compact, KR C4 smallsize-2
Teach pendant	KUKA smartPAD

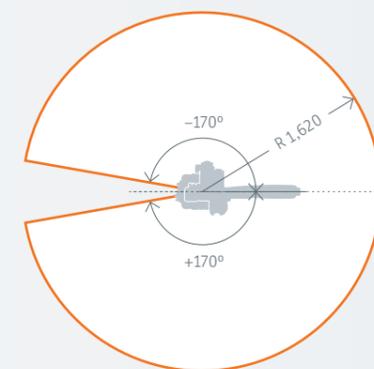
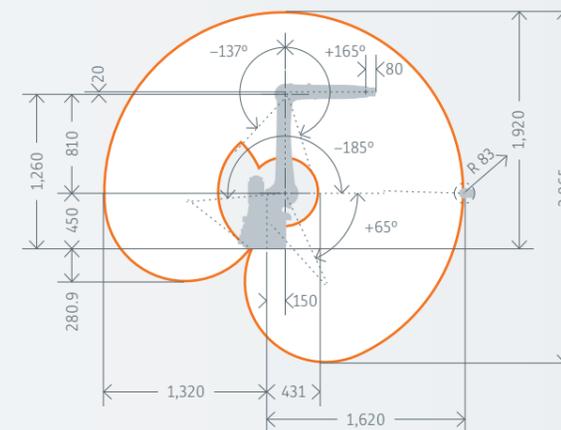
**HP** The High Protection (HP) variant enables the standard robots to have a higher protection rating.

### Workspace

KR 8 R1620

### Volume

15.93 m<sup>3</sup>



## KR CYBERTECH arc nano

### KR 8 R1620 arc HW

**Perfected for continuous-path motion.** Extremely high path accuracy and speed with new controller structures. KR CYBERTECH arc nano robots were created for path applications at the very highest level – even deep inside the workpieces.

**Compact design.** Reduced volume with greater payload capacity and longer reach. KR CYBERTECH arc nano robots work in confined spaces.

**Minimized disruptive contour.** A streamlined arm/wrist design, a minimized disruptive contour of axis 2 and optimal integration of the welding equipment.

**Maximum workspace.** With their large working envelope to the rear and long downward reach, KR CYBERTECH arc nano robots can work in areas inaccessible to conventional robots.

**Functional wrist.** 50 mm hollow wrist with a reduced wrist diameter of only 150.2 mm. Hollow axis 6 is capable of infinite rotation and the main axis motion is reduced, allowing extremely short cycle times combined with utmost motion precision. Particularly where reaching backward is concerned or moving up very close to the workpieces.

**Flexibility in any position.** Exceptional performance when installed on the floor, wall or ceiling, or at any other angle. KR CYBERTECH arc nano robots are suitable for every installation position in their standard versions – without requiring “extras”.



KR CYBERTECH arc nano	KR 8 R1620 arc HW
Max. reach	1,621 mm
Rated payload	8 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	18 kg
Pose repeatability	±0.04 mm
Hollow shaft in the wrist flange	∅ 50 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Variant	-
Robot footprint	333.5 mm x 307 mm
Weight (excluding controller), approx.	175 kg

Axis data / Range of motion	Speed with rated payload 8 kg
Axis 1 (A1) + / -170°	220°/s
Axis 2 (A2) +65° / -185°	178°/s
Axis 3 (A3) +180° / -120°	270°/s
Axis 4 (A4) + / -165°	430°/s
Axis 5 (A5) +140° / -115°	430°/s
Axis 6 (A6) + / -350°	630°/s

#### Operating conditions

Ambient temperature	+5 °C to +45 °C
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#### Protection rating

Protection rating, robot	IP 54
Protection rating, hollow wrist	IP 54

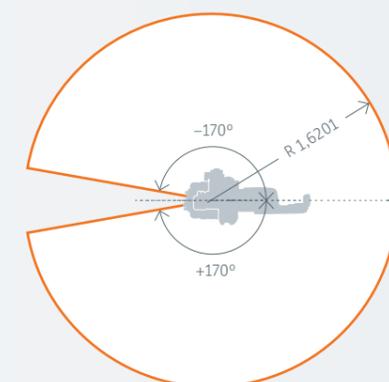
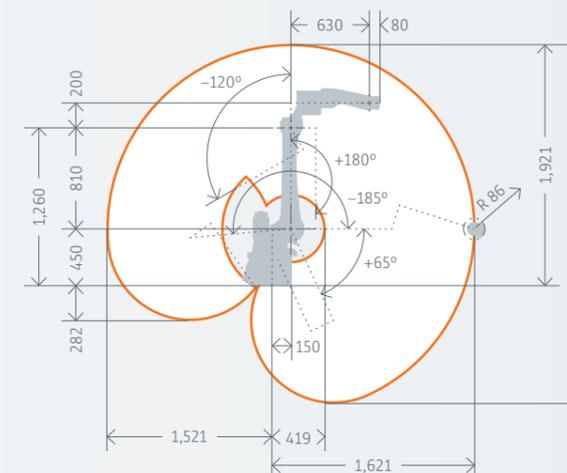
Controller	KR C4 compact, KR C4 smallsize-2
Teach pendant	KUKA smartPAD

#### Workspace

KR 8 R1620 arc HW

#### Volume

15.97 m<sup>3</sup>



# KR CYBERTECH nano

## KR 10 R1420

**Perfected for handling and assembly.** Fast and incredibly agile with the utmost precision. Down to the very last detail, KR CYBERTECH nano robots are designed as high-end handling robots.

**Compact design.** Reduced volume with greater payload capacity and longer reach. KR CYBERTECH nano robots work in confined spaces.

**Minimized disruptive contour.** A streamlined arm/wrist design, a minimized disruptive contour of axis 2 and optimal integration of the welding equipment.

**Maximum workspace.** With their large working envelope to the rear and long downward reach, KR CYBERTECH nano robots can work in areas inaccessible to conventional robots.

**Best-in-class repeatability.** Besides many other innovative technical details, the KR CYBERTECH nano robots impress with a repeatability of 0.04 mm.

**Flexibility in any position.** Exceptional performance when installed on the floor, wall or ceiling, or at any other angle. KR CYBERTECH nano robots are suitable for every installation position in their standard versions – without requiring “extras”.



KR CYBERTECH nano	KR 10 R1420
Max. reach	1,420 mm
Rated payload	10 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	20 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Variant	<b>HP</b>
Robot footprint	333.5 mm x 307 mm
Weight (excluding controller), approx.	145 kg

Axis data /		Speed with rated payload 10 kg
Range of motion		
Axis 1 (A1)	+ / -170°	220°/s
Axis 2 (A2)	+65° / -185°	210°/s
Axis 3 (A3)	+163° / -137°	270°/s
Axis 4 (A4)	+ / -185°	381°/s
Axis 5 (A5)	+ / -120°	311°/s
Axis 6 (A6)	+ / -350°	492°/s

### Operating conditions

Ambient temperature	+5 °C to +45 °C
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### Protection rating

Protection rating, robot	IP 54
Protection rating, in-line wrist	IP 54
Protection rating, High Protection robot	IP 65
Protection rating, High Protection wrist	IP 67

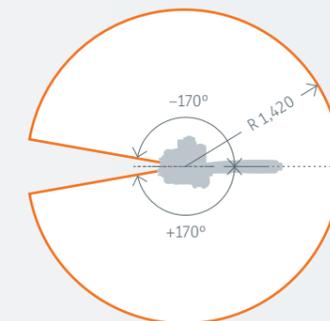
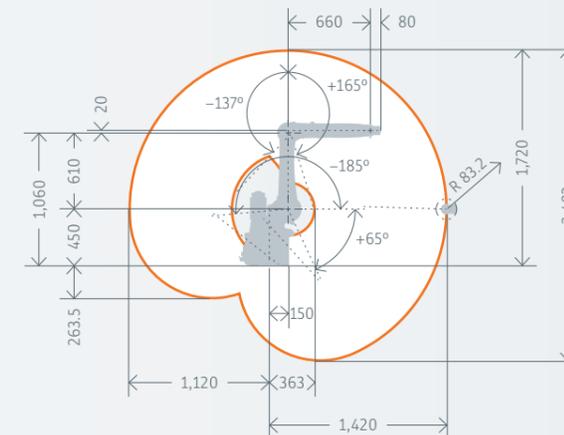
Controller	KR C4 compact, KR C4 smallsize-2
Teach pendant	KUKA smartPAD

### Workspace

Volume

KR 10 R1420

10.64 m<sup>3</sup>



**HP** The High Protection (HP) variant enables the standard robots to have a higher protection rating.

## KR CYBERTECH arc nano

### KR 8 R1420 arc HW

**Perfected for continuous-path motion.** Extremely high path accuracy and speed with new controller structures. KR CYBERTECH arc nano robots were created for path applications at the very highest level – even deep inside the workpieces.

**Compact design.** Reduced volume with greater payload capacity and longer reach. KR CYBERTECH arc nano robots work in confined spaces.

**Minimized interference radius.** With an interference radius of just 67 mm, the KR CYBERTECH arc nano robots have set a new global benchmark.

**Maximum workspace.** With their large working envelope to the rear and long downward reach, KR CYBERTECH arc nano robots can work in areas inaccessible to conventional robots.

**Functional wrist.** 50 mm hollow wrist with a reduced wrist diameter of only 150.2 mm. Hollow axis 6 is capable of infinite rotation and the main axis motion is reduced, allowing extremely short cycle times combined with utmost motion precision. Particularly where reaching backward is concerned or moving up very close to the workpieces.

**Flexibility in any position.** Exceptional performance when installed on the floor, wall or ceiling, or at any other angle. KR CYBERTECH arc nano robots are suitable for every installation position in their standard versions – without requiring “extras”.



KR CYBERTECH arc nano	KR 8 R1420 arc HW
Max. reach	1,421 mm
Rated payload	8 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	18 kg
Pose repeatability	±0.04 mm
Hollow shaft in the wrist flange	∅ 50 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Variant	-
Robot footprint	333.5 mm x 307 mm
Weight (excluding controller), approx.	165 kg

Axis data / Range of motion	Speed with rated payload 8 kg
Axis 1 (A1) + / -170°	220°/s
Axis 2 (A2) +65° / -185°	178°/s
Axis 3 (A3) +180° / -120°	270°/s
Axis 4 (A4) + / -165°	430°/s
Axis 5 (A5) +140° / -115°	430°/s
Axis 6 (A6) + / -350°	630°/s

#### Operating conditions

Ambient temperature	+5 °C to +45 °C
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#### Protection rating

Protection rating, robot	IP 54
Protection rating, hollow wrist	IP 54

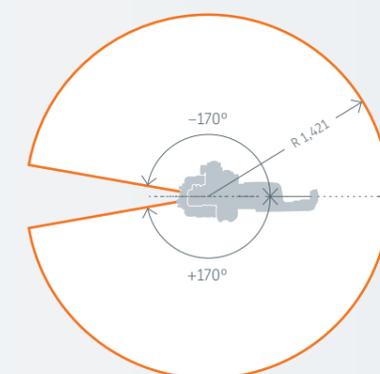
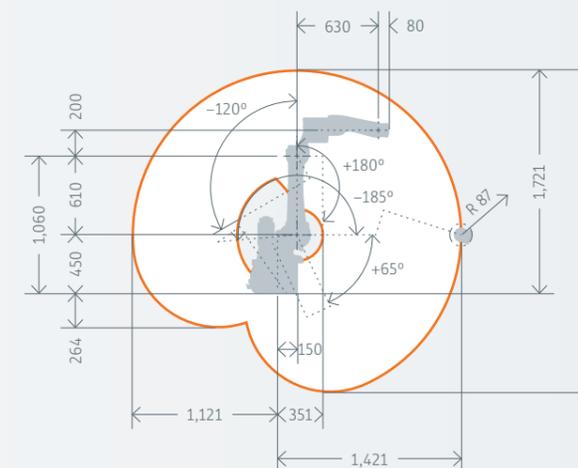
Controller	KR C4 compact, KR C4 smallsize-2
Teach pendant	KUKA smartPAD

#### Workspace

KR 8 R1420 arc HW

#### Volume

10.68 m<sup>3</sup>



# KR CYBERTECH arc

## KR 8 R2100-2 arc HW

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

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

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

**Greater volume of working envelope.** Especially the KR 8 R2100-2 arc HW, with its combination of an 8 kg payload and 2,100 mm reach, has an enormous working envelope to the rear. Ceiling mounting ensures long reach and high accessibility, while opening up additional floor space for further peripheral equipment.



KR CYBERTECH arc	KR 8 R2100-2 arc HW
Max. reach	2,101 mm
Rated payload	8 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	18 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Robot footprint	430.5 mm x 370 mm
Weight (excluding controller), approx.	255 kg

Axis data / Range of motion		Speed with rated payload 8 kg
Axis 1 (A1)	+ / -185°	200°/s
Axis 2 (A2)	+65° / -185°	175°/s
Axis 3 (A3)	+175° / -138°	190°/s
Axis 4 (A4)	+ / -165°	430°/s
Axis 5 (A5)	+140° / -115°	430°/s
Axis 6 (A6)	+ / -350°	630°/s

### Operating conditions

Ambient temperature	+5 °C to +55 °C
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### Protection rating

Protection rating, robot	IP 65
Protection rating, hollow wrist	IP 54

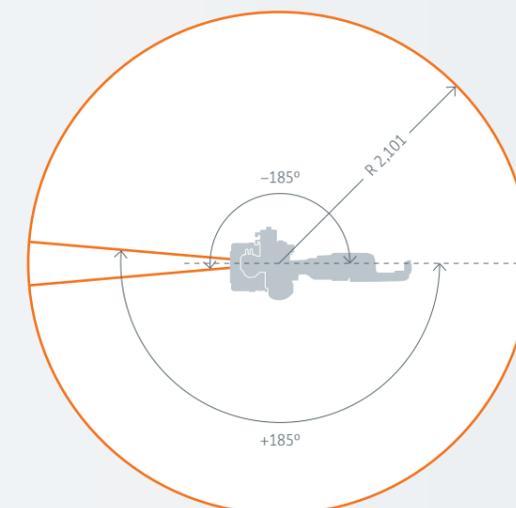
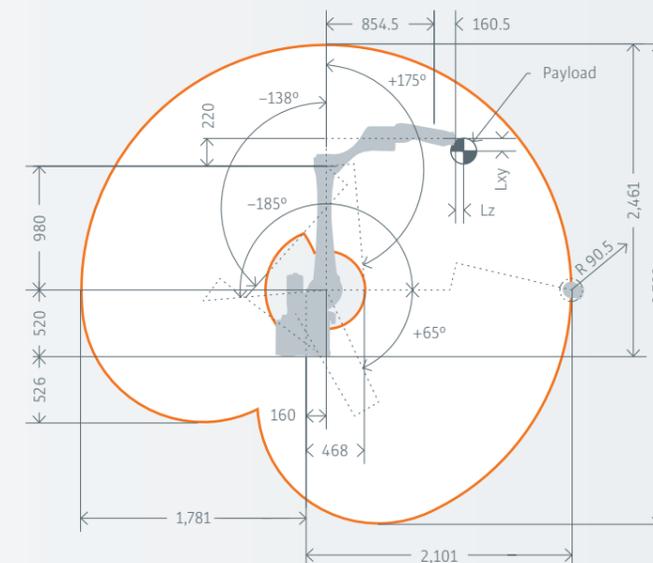
Controller	KR C4
Teach pendant	KUKA smartPAD

### Workspace

KR 8 R2100-2 arc HW

Volume

36.58 m<sup>3</sup>



# KR CYBERTECH

## KR 8 R2010-2

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

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

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

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



KR CYBERTECH	KR 8 R2010-2
Max. reach	2,010 mm
Rated payload	8 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	18 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Robot footprint	430.5 mm x 370 mm
Weight (excluding controller), approx.	270 kg

Axis data / Range of motion		Speed with rated payload 8 kg
Axis 1 (A1)	+ / -185°	200°/s
Axis 2 (A2)	+65° / -185°	175°/s
Axis 3 (A3)	+172° / -142°	190°/s
Axis 4 (A4)	+ / -350°	430°/s
Axis 5 (A5)	+ / -130°	430°/s
Axis 6 (A6)	+ / -350°	630°/s

### Operating conditions

Ambient temperature	+5 °C to +55 °C
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### Protection rating

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

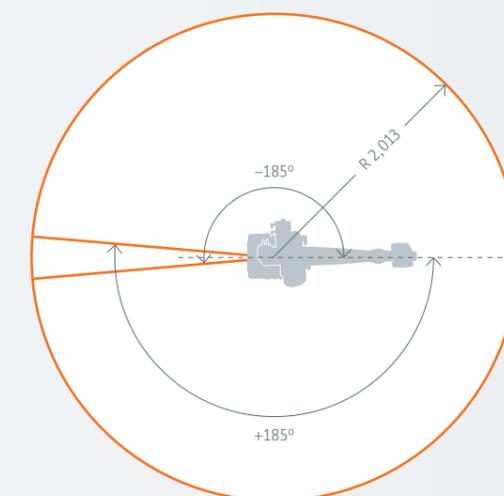
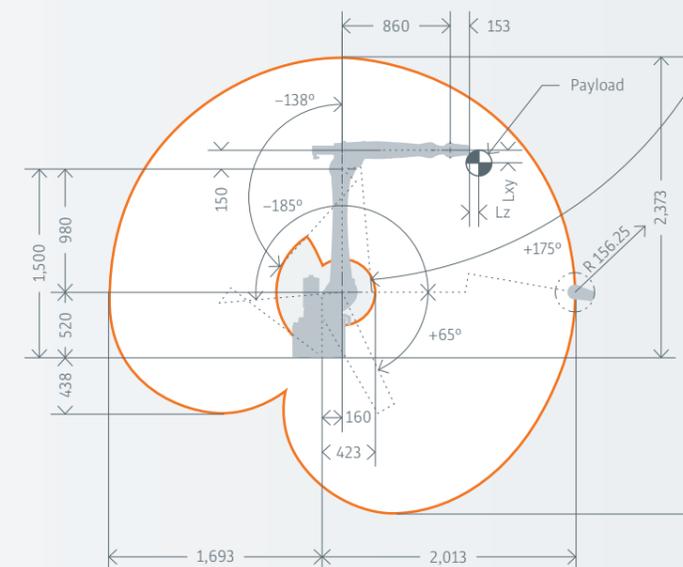
Controller	KR C4
Teach pendant	KUKA smartPAD

### Workspace

KR 8 R2010-2

### Volume

32.50 m<sup>3</sup>



# KR CYBERTECH

## KR 12 R1810-2

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

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

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

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



KR CYBERTECH	KR 12 R1810-2
Max. reach	1,810 mm
Rated payload	12 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	22 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Robot footprint	430.5 mm x 370 mm
Weight (excluding controller), approx.	264 kg

Axis data / Range of motion		Speed with rated payload 12 kg
Axis 1 (A1)	+ / -185°	200°/s
Axis 2 (A2)	+65° / -185°	175°/s
Axis 3 (A3)	+172° / -142°	190°/s
Axis 4 (A4)	+ / -350°	430°/s
Axis 5 (A5)	+ / -130°	430°/s
Axis 6 (A6)	+ / -350°	630°/s

### Operating conditions

Ambient temperature	+5 °C to +55 °C
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### Protection rating

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

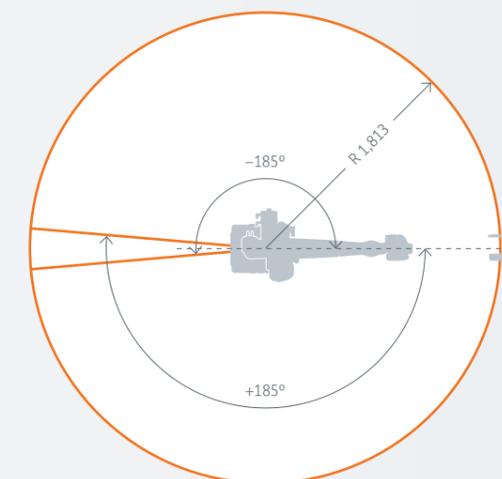
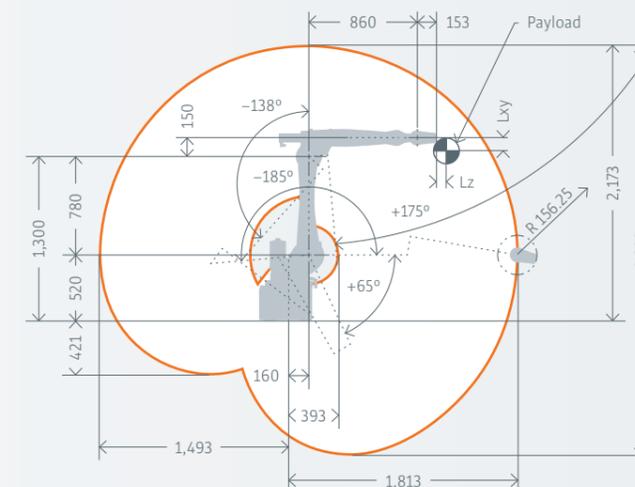
Controller	KR C4
Teach pendant	KUKA smartPAD

### Workspace

Volume

KR 12 R1810-2

23.30 m<sup>3</sup>



# KR CYBERTECH

## KR 16 R2010-2

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

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

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

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



KR CYBERTECH	KR 16 R2010-2
Max. reach	2,010 mm
Rated payload	16 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	26 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Robot footprint	430.5 mm x 370 mm
Weight (excluding controller), approx.	270 kg

Axis data / Range of motion		Speed with rated payload 16 kg
Axis 1 (A1)	+ / -185°	200°/s
Axis 2 (A2)	+65° / -185°	175°/s
Axis 3 (A3)	+172° / -142°	190°/s
Axis 4 (A4)	+ / -350°	430°/s
Axis 5 (A5)	+ / -130°	430°/s
Axis 6 (A6)	+ / -350°	630°/s

### Operating conditions

Ambient temperature	+5 °C to +55 °C
---------------------	-----------------

### Protection rating

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

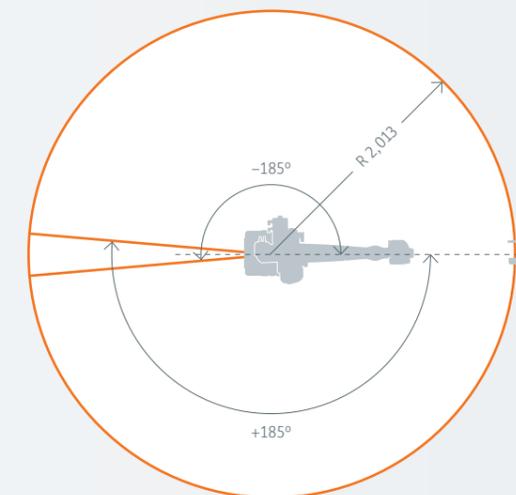
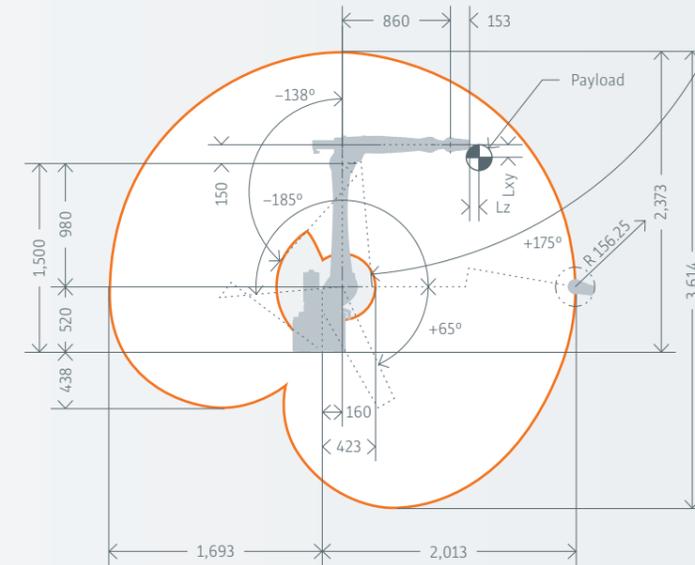
Controller	KR C4
Teach pendant	KUKA smartPAD

### Workspace

KR 16 R2010-2

### Volume

32.50 m<sup>3</sup>



# KR CYBERTECH

## KR 16 R1610-2

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

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



KR CYBERTECH	KR 16 R1610-2
Max. reach	1,610 mm
Rated payload	16 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	26 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Robot footprint	430.5 mm x 370 mm
Weight (excluding controller), approx.	263 kg

Axis data / Range of motion		Speed with rated payload 16 kg
Axis 1 (A1)	+ / -185°	200°/s
Axis 2 (A2)	+65° / -185°	175°/s
Axis 3 (A3)	+172° / -142°	190°/s
Axis 4 (A4)	+ / -350°	430°/s
Axis 5 (A5)	+ / -130°	430°/s
Axis 6 (A6)	+ / -350°	630°/s

### Operating conditions

Ambient temperature	+5 °C to +55 °C
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### Protection rating

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

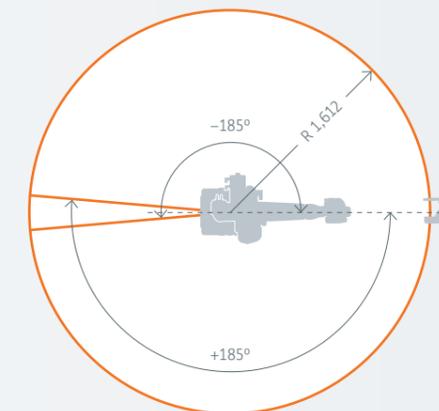
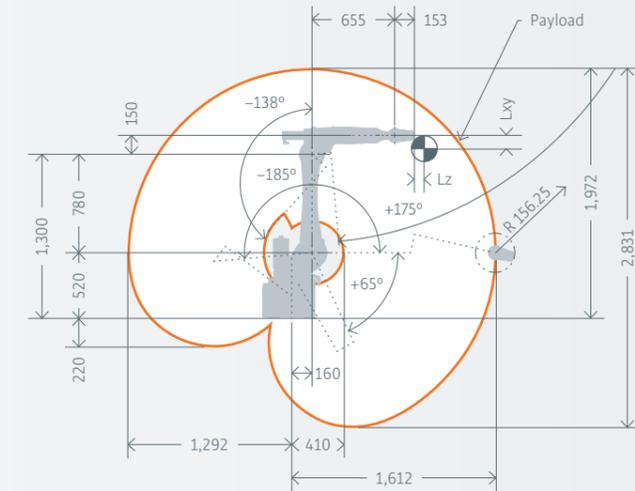
Controller	KR C4
Teach pendant	KUKA smartPAD

### Workspace

Volume

KR 16 R1610-2

16.25 m<sup>3</sup>



# KR CYBERTECH

## KR 20 R1810-2

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

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

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

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



KR CYBERTECH	KR 20 R1810-2
Max. reach	1,810 mm
Rated payload	20 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	30 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Robot footprint	430.5 mm x 370 mm
Weight (excluding controller), approx.	264 kg

Axis data / Range of motion		Speed with rated payload 20 kg
Axis 1 (A1)	+ / -185°	200°/s
Axis 2 (A2)	+65° / -185°	175°/s
Axis 3 (A3)	+172° / -142°	190°/s
Axis 4 (A4)	+ / -350°	430°/s
Axis 5 (A5)	+ / -130°	430°/s
Axis 6 (A6)	+ / -350°	630°/s

### Operating conditions

Ambient temperature	+5 °C to +55 °C
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### Protection rating

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

Controller	KR C4
Teach pendant	KUKA smartPAD



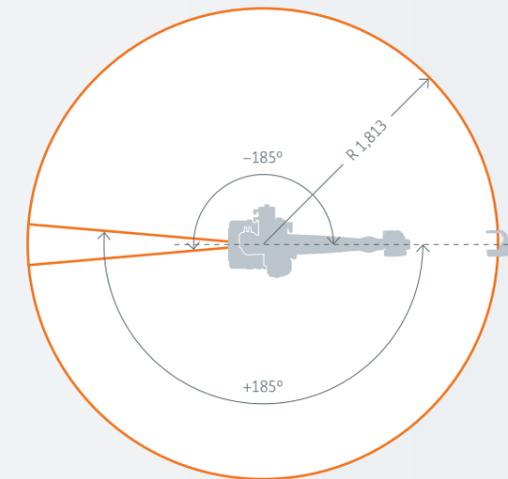
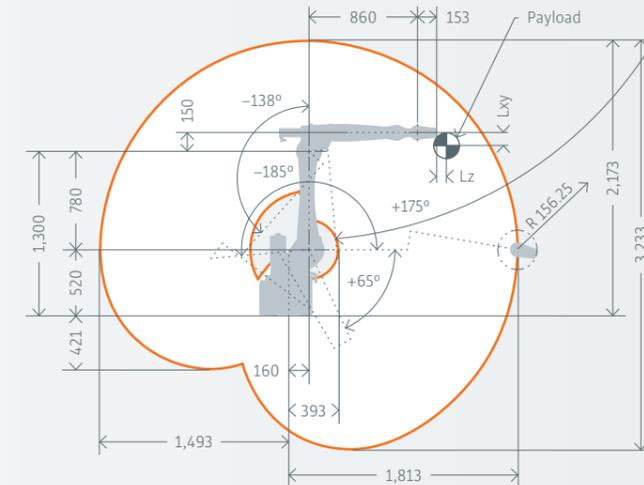
reddot award 2017  
winner

### Workspace

KR 20 R1810-2

### Volume

23.30 m<sup>3</sup>



# KR CYBERTECH

## KR 22 R1610-2

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

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

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

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



KR CYBERTECH	KR 22 R1610-2
Max. reach	1,610 mm
Rated payload	22 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	32 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor, ceiling, wall, angle
Robot footprint	430.5 mm x 370 mm
Weight (excluding controller), approx.	263 kg

Axis data /		Speed with
Range of motion		rated payload 22 kg
Axis 1 (A1)	+ / -185°	200°/s
Axis 2 (A2)	+65° / -185°	175°/s
Axis 3 (A3)	+175° / -138°	190°/s
Axis 4 (A4)	+ / -350°	430°/s
Axis 5 (A5)	+ / -130°	430°/s
Axis 6 (A6)	+ / -350°	630°/s

### Operating conditions

Ambient temperature	+5 °C to +55 °C
---------------------	-----------------

### Protection rating

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

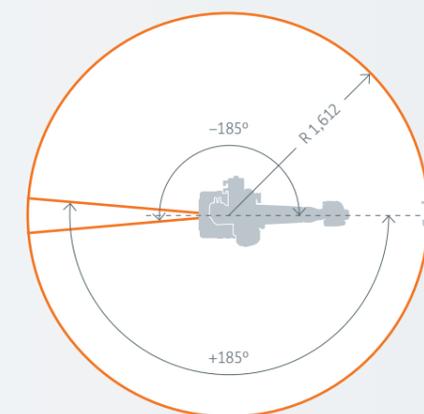
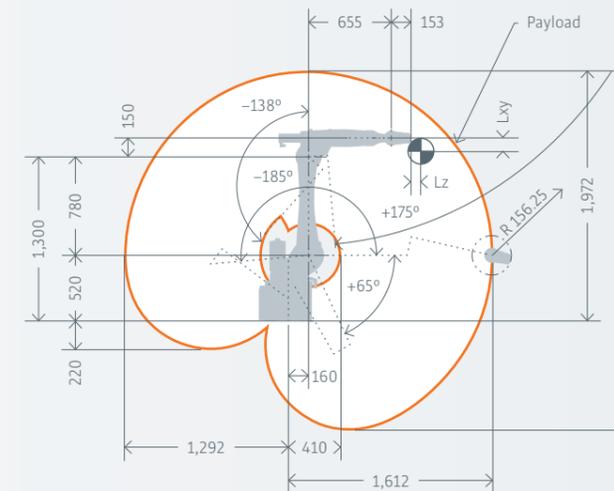
Controller	KR C4
Teach pendant	KUKA smartPAD

### Workspace

Volume

KR 22 R1610-2

16.25 m<sup>3</sup>



## KR CYBERTECH

### KR 20 R1810-1

The right variant for every task. This robot can be optimally integrated into a wide range of operating conditions. The KR CYBERTECH KR 20 R1810-1 is available in the following variants: as a cleanroom variant, for food-compatible lubricants or also in the foundry version.



KR CYBERTECH	KR 20 R1810-1 F	KR 20 R1810-1 HO	KR 20 R1810-1 CR
Max. reach	1,810 mm	1,810 mm	1,810 mm
Rated payload	20 kg	20 kg	20 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -	10 kg / - / -	10 kg / - / -
Rated total load	30 kg	30 kg	30 kg
Pose repeatability	±0.04 mm	±0.04 mm	±0.04 mm
Number of axes	6	6	6
Mounting position	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle	Floor, ceiling, wall, angle
Variant	<b>F</b>	<b>HO</b>	<b>CR</b>
Robot footprint	430.5 mm x 370 mm	430.5 mm x 370 mm	430.5 mm x 370 mm
Weight (excluding controller), approx.	264 kg	264 kg	264 kg

Axis data / Range of motion	Speed with rated payload 20 kg		Speed with rated payload 20 kg		Speed with rated payload 20 kg	
Axis 1 (A1)	+ / -185°	200°/s	+ / -185°	200°/s	+ / -185°	200°/s
Axis 2 (A2)	+65° / -185°	175°/s	+65° / -185°	175°/s	+65° / -185°	175°/s
Axis 3 (A3)	+175° / -138°	190°/s	+175° / -138°	190°/s	+172° / -142°	190°/s
Axis 4 (A4)	+ / -350°	430°/s	+ / -350°	430°/s	+ / -350°	430°/s
Axis 5 (A5)	+ / -130°	430°/s	+ / -130°	430°/s	+ / -130°	430°/s
Axis 6 (A6)	+ / -350°	630°/s	+ / -350°	630°/s	+ / -350°	630°/s

#### Operating conditions

Ambient temperature	+5 °C to +55 °C	+5 °C to +55 °C	+5 °C to +55 °C
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#### Protection rating

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

Controller	KR C4	KR C4	KR C4
Teach pendant	KUKA smartPAD	KUKA smartPAD	KUKA smartPAD

## KR CYBERTECH

### KR 20 R2010 KS-F

High process reliability. Economical. Robust. Even in the demanding environments of the foundry and forging industry, our robots offer consistently high performance. The robust design convinces through systematic lightweight construction, compact dimensions and a high payload – and, thanks to its long downward reach, it is ideally suited for working from above.



KR CYBERTECH	KR 20 R2010 KS-F
Max. reach	2,010 mm
Rated payload	20 kg
Rated suppl. load, arm/link arm/rot.	10 kg / - / -
Rated total load	30 kg
Pose repeatability	±0.04 mm
Number of axes	6
Mounting position	Floor
Variant	<b>F</b>
Robot footprint	440 mm x 370 mm
Weight (excluding controller), approx.	242 kg

Axis data / Range of motion	Speed with rated payload 20 kg	
Axis 1 (A1)	+ / -125°	200°/s
Axis 2 (A2)	+90° / -120°	175°/s
Axis 3 (A3)	+172° / -138°	190°/s
Axis 4 (A4)	+ / -350°	430°/s
Axis 5 (A5)	+ / -130°	430°/s
Axis 6 (A6)	+ / -350°	630°/s

#### Operating conditions

Ambient temperature	+5 °C to +55 °C
---------------------	-----------------

#### Protection rating

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

Controller	KR C4
Teach pendant	KUKA smartPAD

- CR** Suitable for cleanrooms
- F** Foundry version
- HO** Food-compatible lubricants

# KL 250-3

## Product overview

Linear unit	KL 250-3
Designed for robot category	Low payloads
Controller	KR C4
Teach pendant	KUKA smartPAD



**Flexible.** Long travel extends the work envelope by several times the reach of the robot.

**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 one linear axis. Multiple robot positions on the linear axis allow optimal adaptation to existing requirements and workspaces.

**Productive.** Moving workpieces/tools with additional carriages, driven or non-driven (tender carriages) helps to shorten cycle times.

**Specially for low payloads.** This linear unit is suitable for robots with a payload from 5 to 16 kg.



Linear unit	KL 250-3
Max. number of carriages	4
Rated payload	300 kg
Velocity with rated payload	1.47 m/s
Pose repeatability	<±0.02 mm
Number of axes	1
Variant	 cv
Mounting position	Floor, ceiling
Mass of carriage	95 kg
Mass of beam per meter	175 kg
Min. rated travel	1,100 mm
Max. rated travel	30,100 mm
Max. gradation of rated travel	500 mm
Power transmission	Rack

Operating conditions	
Ambient temperature	+10 °C to +55 °C
Controller	KR C4
Teach pendant	KUKA smartPAD

 Covered

## An unbeatable team

### KUKA System Components



#### Faster as a team

**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.



#### Safer as a team

**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.



#### Simpler as a team

**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

**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.

# 99.995 % availability

Robust and low on maintenance, this unbeatable team works non-stop on your success.

## 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. Both now and in the future.

±0.002 sec I/O response time

\_Universal application

\_For all payloads

\_Allrounder



\_Energy-efficient

\_Communication talent

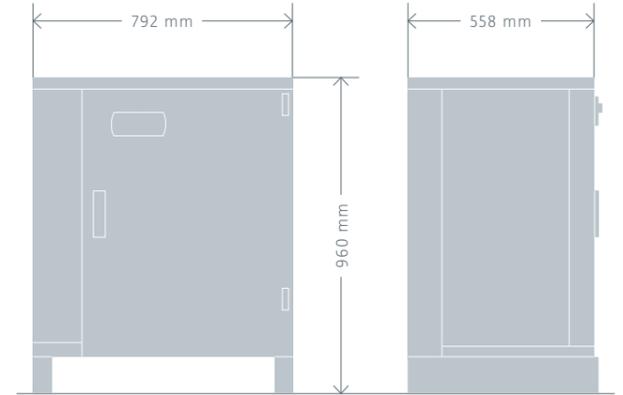
\_Robust



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



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.



**Allrounder.** 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.

**Robust.** 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%<sup>1</sup> 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

Dimensions (H x W x D)	960 mm x 792 mm x 558 mm
Processor	Multi-core technology
Hard drive	SSD
Interface	USB3.0, GbE, DVI-D, DisplayPort
Number of axes (max.)	9
Protection rating	IP 54
Weight	150 kg

#### Power supply connection

Mains frequency	49 Hz to 61 Hz
Rated supply voltage	AC 3 x 208 V to 3 x 575 V
w/o transformer	AC 3 x 380 V / 400 V / 440 V / 480 V
Permissible tolerance of rated voltage	-10 % to +10 %
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 to +50°C

<sup>1</sup> In standby mode and Ecomode

## KUKA smartPAD – next generation

The operation of robots reinvented

**Touch display. Graphics support. Flexible interaction.** The more diverse the robots' abilities become, the greater the importance of intuitive user interfaces for their operation. The KUKA smartPAD was designed to master even complex tasks easily. It can be deployed universally for all payload categories and is easy to handle thanks to its large touch display and ergonomic design. Intelligent, interactive dialogs provide the user with those operator control elements that are currently required. This makes work faster, more efficient and smarter all-round.

\_State-of-the-art hardware

\_Brilliant, capacitive touch display

\_Ergonomic 6D mouse



\_Integrated protectors

\_Comfortable, relaxed handling

\_For left- and right-handed operation



Simple, intuitive operator control via touch display



Ergonomic 6D mouse



Two easily accessible USB ports

**Integrated protectors** offer the greatest possible protection in the event of falling. The scratch-resistant display and the IP 54 protection rating enable operation in harsh industrial environments.

**Comfortable, relaxed handling.** The new KUKA smartPAD features impressively pleasant handling. Straps and handgrips that can be used with both hands greatly simplify operator control. An optional shoulder strap enables work without tiring the operator – particularly during time-intensive projects.

**State-of-the-art hardware.** Thanks to the latest hardware, the KUKA smartPAD impresses with strong performance. Two easily accessible USB ports enable direct saving and loading of application programs and connection of other supported USB devices.

**Simple robot jogging with the ergonomic 6D mouse.** It offers intuitive jogging and reorientation of the robot in three or six degrees of freedom.

**Efficient operation with brilliant, capacitive touch display.** Inputs are made quickly and easily via the 8.4" screen.

**Elements for ergonomic left- and right-handed operation** and a service flap for simple cable exchange round off the user-friendly design of the KUKA smartPAD.

### KUKA smartPAD teach pendant

Display	scratch-resistant industrial touch display
Display size	8.4"
Dimensions (H x W x D)	292 mm x 247 mm x 63 mm
Weight	1,100 g



reddot award 2018  
winner

## KUKA 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 display 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 KR C4. 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

<b>KUKA.Gripper &amp; SpotTech</b>	Programming of grippers and weld guns via easy-to-use inline forms for many industrial applications.
<b>KUKA.ArcTech</b>	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.
<b>KUKA.LaserTech</b>	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.
<b>KUKA.ServoGun</b>	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.
<b>KUKA.GlueTech</b>	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.
<b>KUKA.RoboTeam</b>	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.
<b>KUKA.EtherNet KRL</b>	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.
<b>KUKA.OPC-Server</b>	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.
<b>KUKA.PLC Multiprog</b>	Programming environment for an extremely fast Soft PLC conforming to the IEC 61131 standard. Expands the functionality of the KR C4 and offers virtually unlimited openness in the programming of automation cells and applications.
<b>KUKA.PLC ProConOS</b>	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.
<b>KUKA.PLC mxA</b>	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.
<b>KUKA.CNC</b>	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.
<b>KUKA.Sim</b>	The simulation programs of KUKA.Sim allow robotic cells to be planned with true-to-life accuracy.



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