

KUKA



KUKA Linear Units
and Positioners

for All Payload Categories

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.

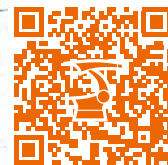
Maximum productivity all along the line.

On course for success with

KUKA linear units and positioners.

LINEAR UNITS. Maximize your productivity all the way down the line. KUKA linear units allow you to increase workspaces significantly. Another major advantage: the linear units function as external axes, thus dispensing with the need for an additional controller. The KUKA product range covers every payload category, every environment and every requirement. The spectrum ranges from ceiling-mounted units to the high-speed variant and even linear units with a protective cover. You thus hold all the options for decisively expanding your success margin.

POSITIONERS. The objective of every automation solution is to boost productivity and quality. You can reach any position with a KUKA positioner – because it allows fast and precise alignment of the workpieces. This makes them ideal for automating production operations. For this purpose, service-proven standard robotics components are used, which can be combined to form customized solutions. The result is highly dynamic automatic positioners with one to three axes. Depending on the specific task, kinematic systems of all sizes can be implemented for payloads ranging from 250 to 4,000 kg. With KUKA you are in a strong position to implement your automation ideas.



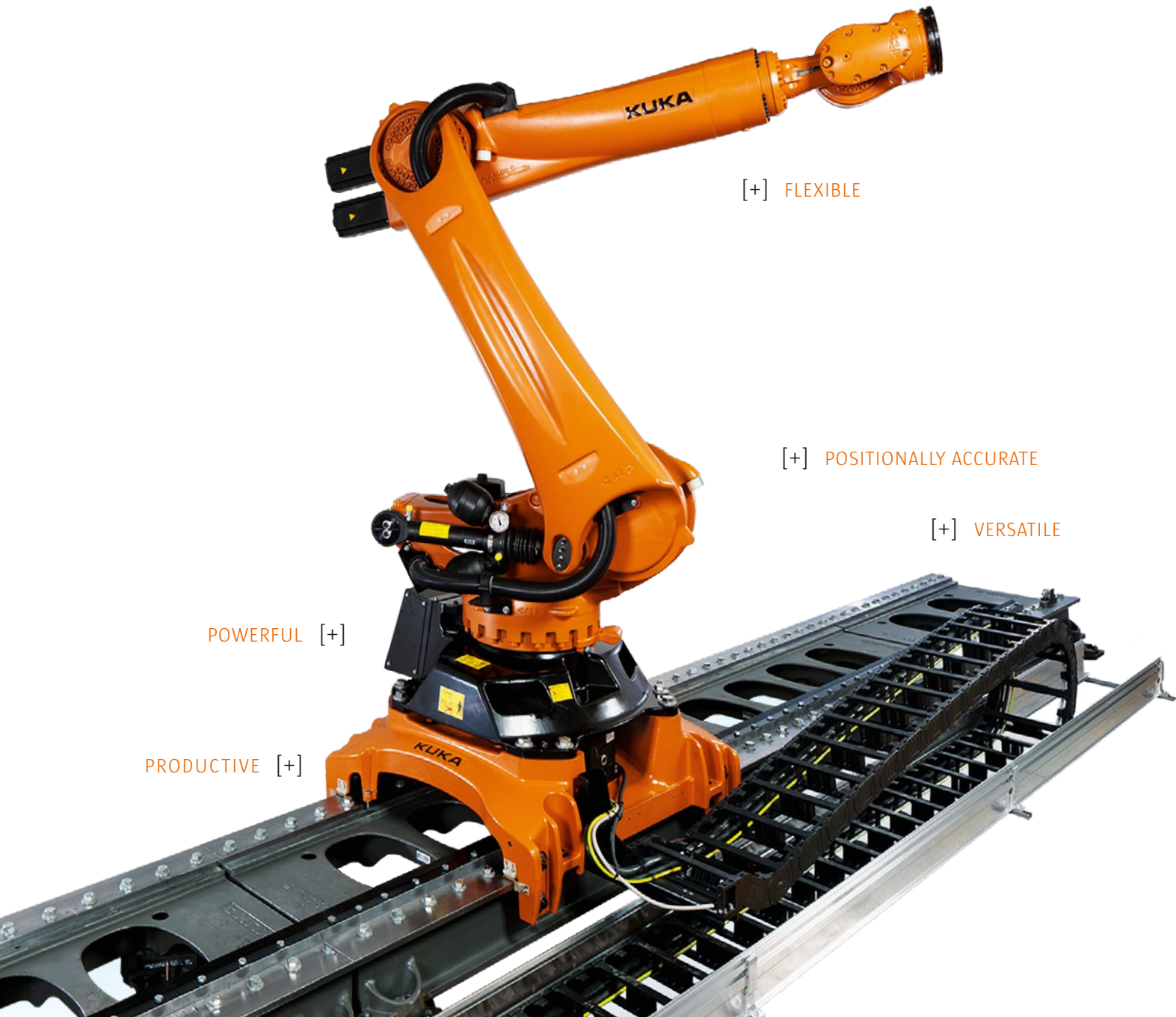
Find out more about the additional components from KUKA Robotics for compact, flexible and efficient manufacturing concepts. Just scan this QR code with your smartphone.

Enlarge the working range of your robot.

The linear units from KUKA.

Product overview

Linear units designed for robot categories	Low Payloads, 5-16 kg	KL 250-3
	Medium Payloads, 30-60 kg	KL 1000-2, KL 1000-2 S
	High Payloads, 90-300 kg	KL 1500-3, KL 1500-3 S, KL 1500-3 T, KL 2000
	Heavy Payloads, 360-1,300 kg	KL 1500-3, KL 1500-3 S, KL 1500-3 T, KL 3000
Controller	KR C4	
Teach pendant	KUKA smartPAD	



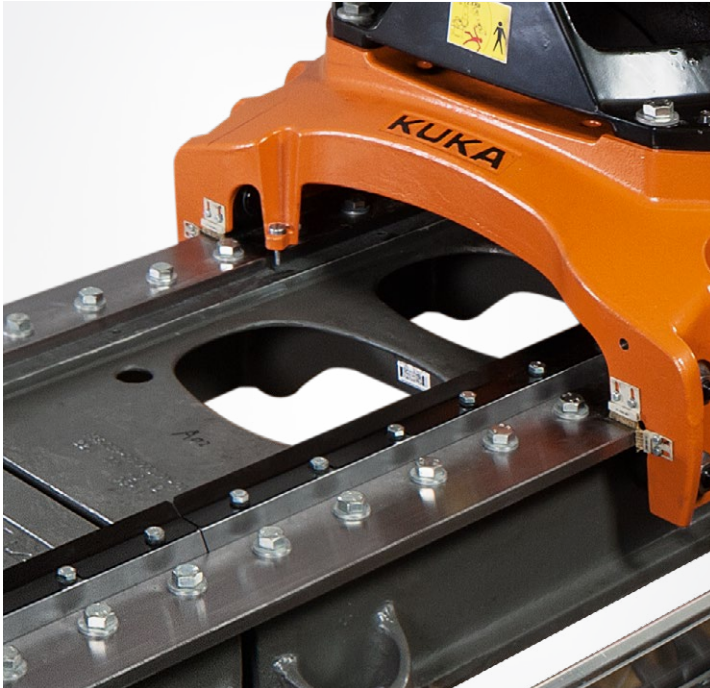
[+] FLEXIBLE

[+] POSITIONALLY ACCURATE

[+] VERSATILE

POWERFUL [+]

PRODUCTIVE [+]

**1**

1 The linear units from KUKA can be extended as desired.

Advantages and functions

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.

FLEXIBLE. Long travel extends the work envelope by several times the reach of the robot. They are ideal for linking production lines.

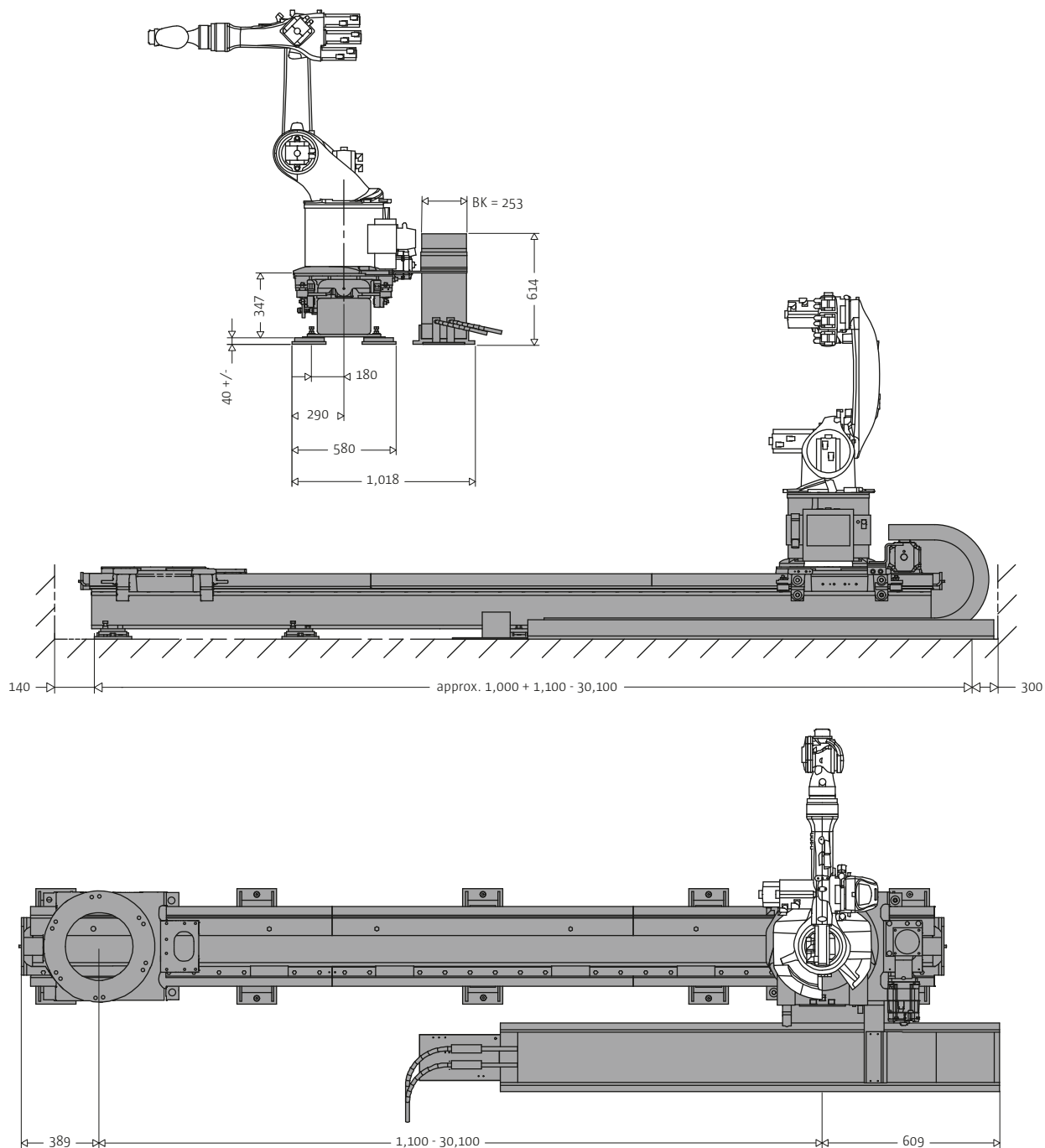
POWERFUL. Additional version with high torque (e.g. for milling applications) and a high-speed variant for tasks requiring extreme speed and short cycle times.

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

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

KL 250-3

Dimensions



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Features and advantages

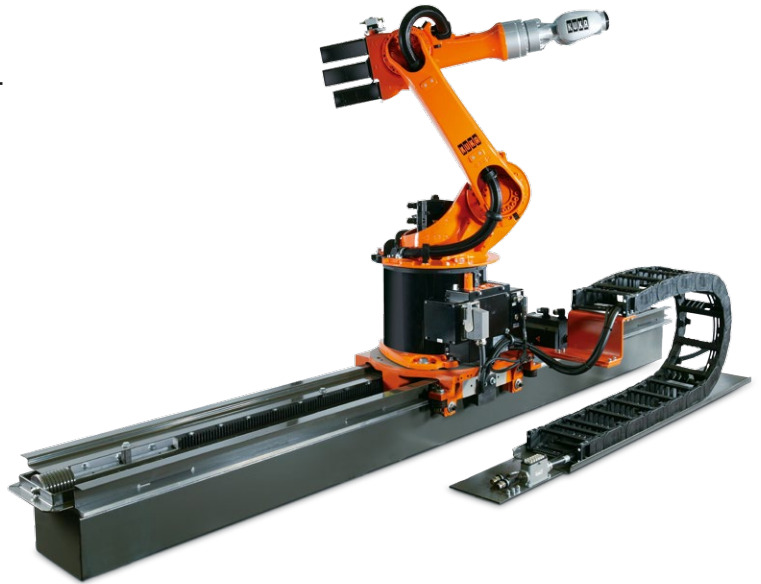
FLEXIBLE. Long travel extends the work envelope by several times the reach of the robot.

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.



KL 250-3

Max. number of carriages	4
Max. rated travel	30,100 mm
Speed 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
Rated payload	300 kg
Mass of beam per meter	175 kg
Min. rated travel	1,100 mm
Gradation of rated travel	500 mm
Transmission of force	Rack

Compatibility

Robots of the low payload category (5 to 16 kg)

_____	KR 5 arc, KR 5 arc HW
_____	KR 6-3
_____	KR 16-3, KR 16-3 S, KR 16 L6-3, KR 16 arc HW, KR 16 L8 arc HW
_____	KR 16-2 KS, KR 16-2 KS-S, KR 16 L6-2 KS

Operating conditions

Data for the mechanical unit

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

_____	KR C4
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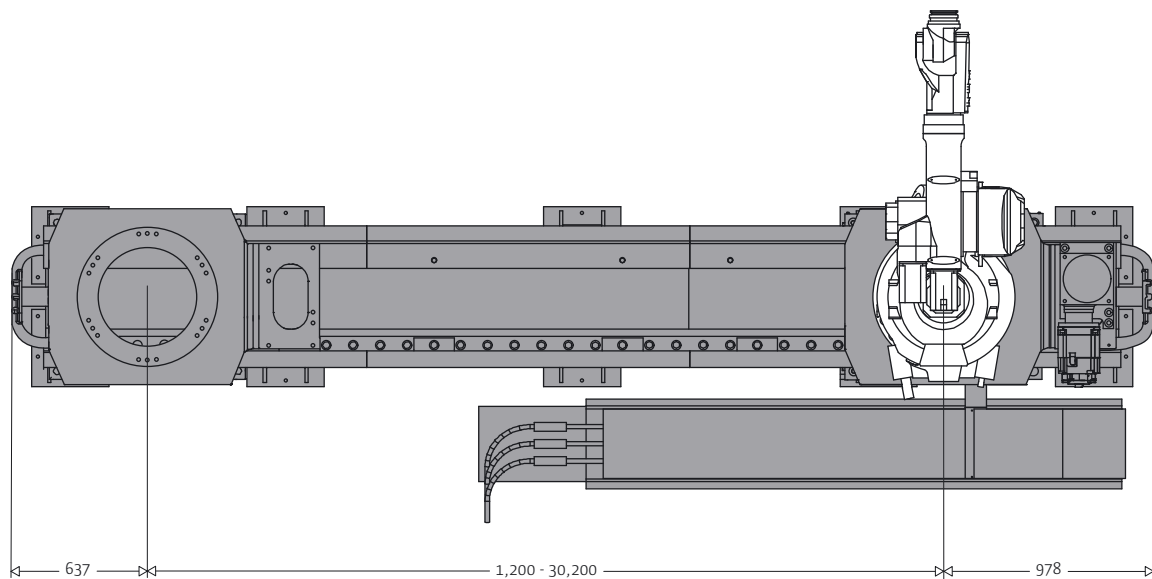
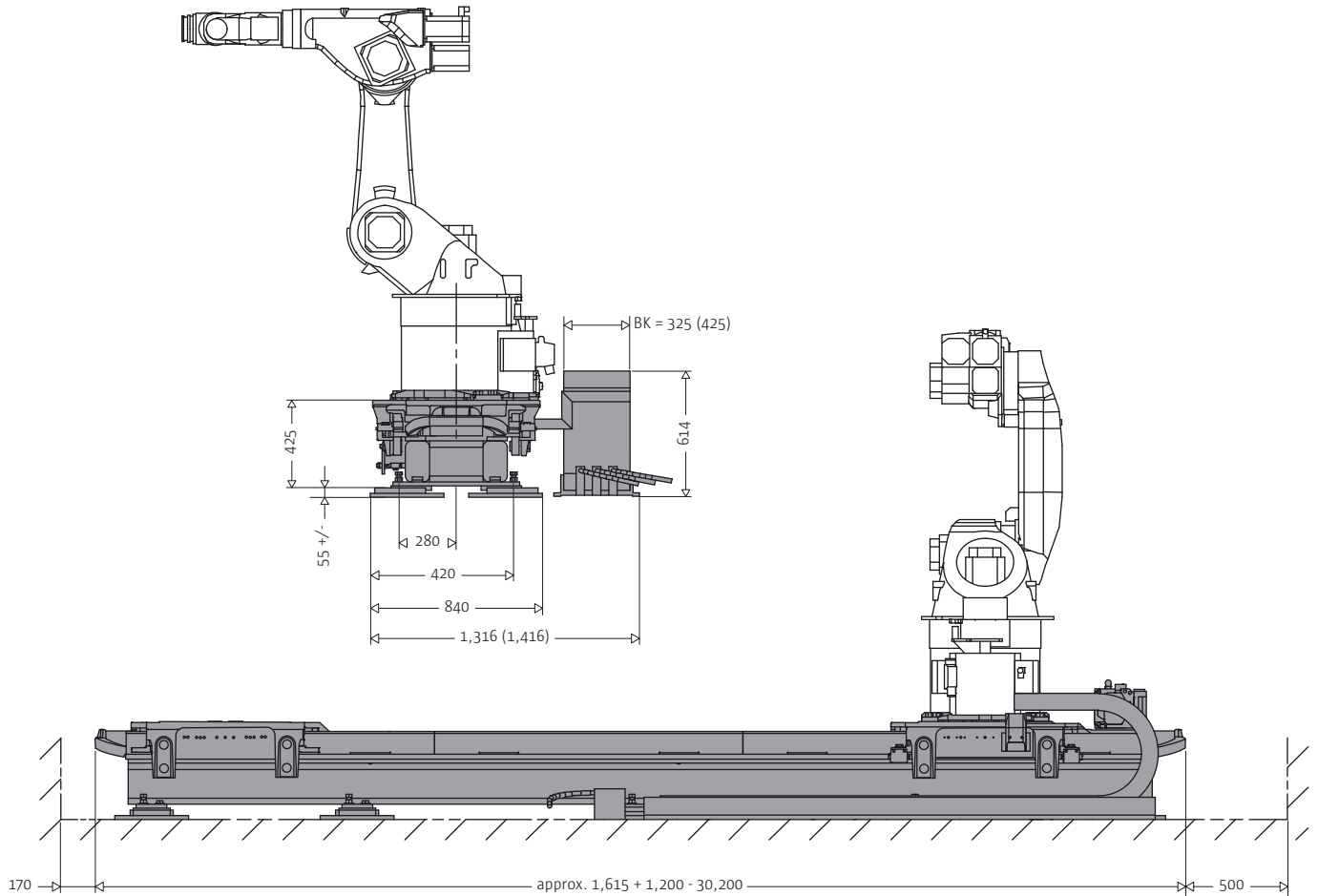


Teach pendant

_____	KUKA smartPAD
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KL 1000-2

Dimensions



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Features and advantages

POWERFUL. Additional high-speed variant or tasks requiring extreme speed and short cycle times.

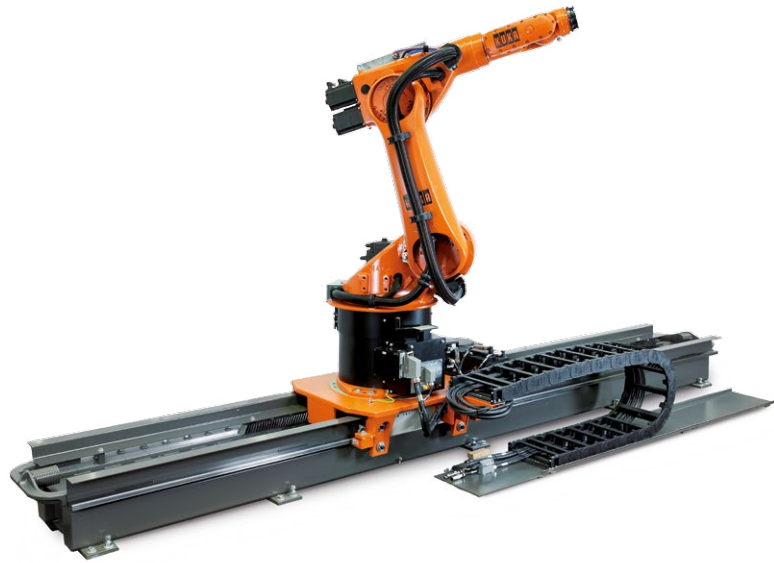
FLEXIBLE. Long travel extends the work envelope by several times the reach of the robot. The linear units function as external axes, thus dispensing with the need for an additional controller.

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 MEDIUM PAYLOADS. This linear unit is suitable for robots with a payload from 30 to 60 kg.



	KL 1000-2	KL 1000-2 S
Max. number of carriages	4	4
Max. rated travel	30,200 mm	30,200 mm
Speed with rated payload	1.89 m/s	2.35 m/s
Pose repeatability	<±0.02 mm	<±0.02 mm
Number of axes	1	1
Variant	CV, C	CV, C
Mounting position	Floor, ceiling	Floor, ceiling
Mass of carriage	320 kg	320 kg
Rated payload	1,000 kg	1,000 kg
Mass of beam per meter	300 kg	300 kg
Min. rated travel	1,200 mm	1,200 mm
Gradation of rated travel	500 mm	500 mm
Transmission of force	Rack	Rack

Compatibility

Robots of the medium payload category (30 to 60 kg)

- _____ KR 30-3, KR 30 L16-2, KR 30-3 HA, KR 30-4 KS
- _____ KR 60-3, KR 60 L45-3, KR 60 L30-3
- _____ KR 60-3 HA, KR 60 L45-3 HA, KR 60 L30-3 HA
- _____ KR 60-4 KS, KR 60 L30-4 KS, KR 60 L16-2 KS, KR 60 L45-4 KS

Operating conditions

Data for the mechanical unit

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

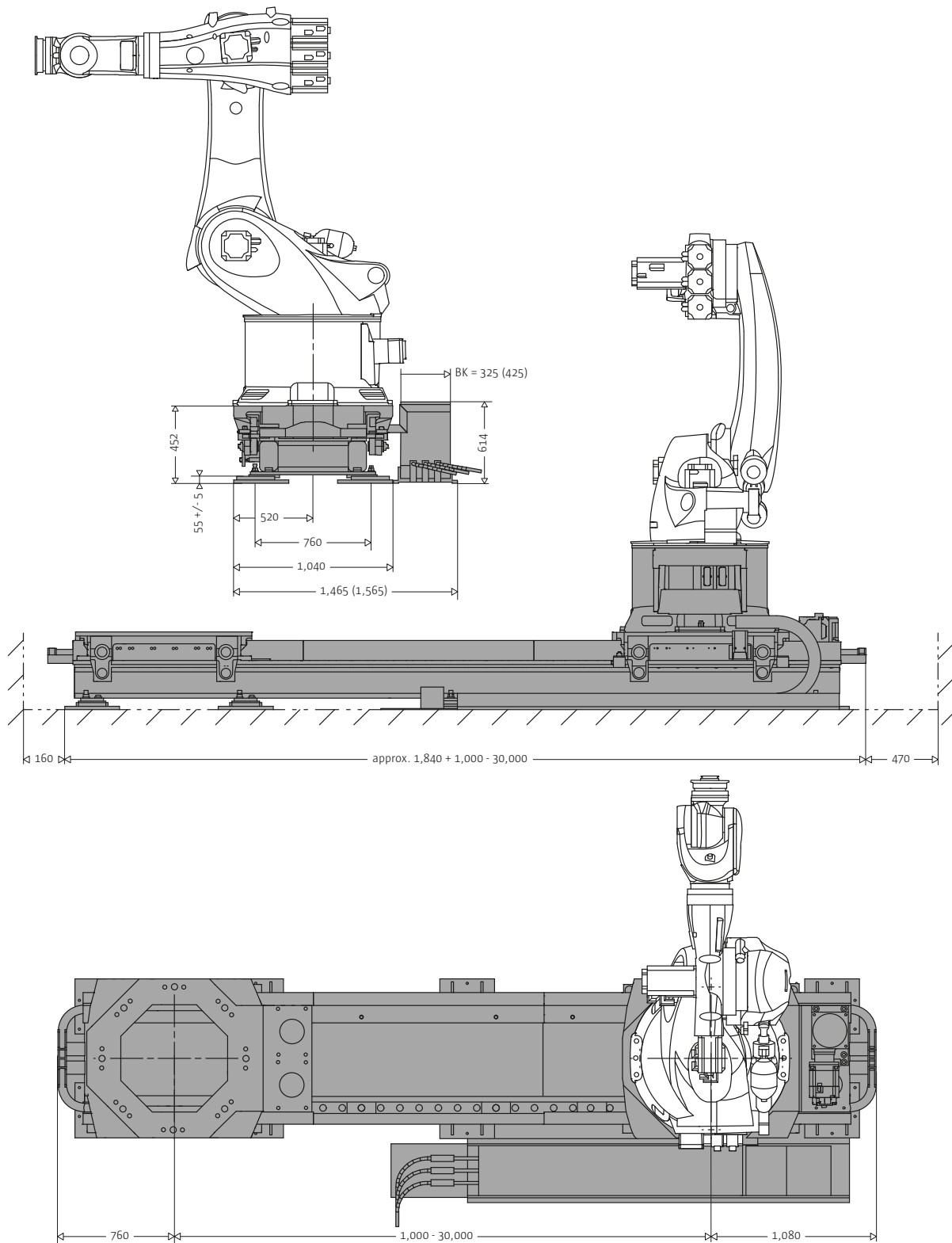
_____ Controller
 _____ KR C4

_____ Teach pendant
 _____ KUKA smartPAD

CV Covered variant
 C Ceiling mounting position

KL 1500-3

Dimensions



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Features and advantages

FLEXIBLE. Long travel extends the work envelope by several times the reach of the robot. The linear units function as external axes, thus dispensing with the need for an additional controller.

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

SPECIALLY FOR HIGH AND HEAVY PAYLOADS.

This linear unit is suitable for robots with a payload from 90 to 600 kg.



	KL 1500-3	KL 1500-3 S	KL 1500-3 T
Max. number of carriages	4	4	4
Max. rated travel	30,000 mm	30,000 mm	30,000 mm
Speed with rated payload	1.45 m/s	2.35 m/s	1.89 m/s
Pose repeatability	<±0.02 mm	<±0.02 mm	<±0.02 mm
Number of axes	1	1	1
Variant			
Mounting position	Floor, ceiling	Floor, ceiling	Floor, ceiling
Mass of carriage	440 kg	440 kg	440 kg
Mass of rated payload	2,000 kg	3,800 kg	3,800 kg
Mass of beam per meter	345 kg	345 kg	345 kg
Min. 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

Compatibility


Robots of the high/heavy payload category (90 to 600 kg)


- KR QUANTEC pro, KR QUANTEC extra, KR QUANTEC prime, KR QUANTEC ultra
- KR QUANTEC prime K, KR QUANTEC ultra K
- KR 360-3, KR 360-3 L280-3, KR 360-3 L240-3
- KR 500-3, KR 500 L420-3, KR 500 L340-3
- KR 500-3 MT, KR 500 L480 MT

Operating conditions

Data for the mechanical unit

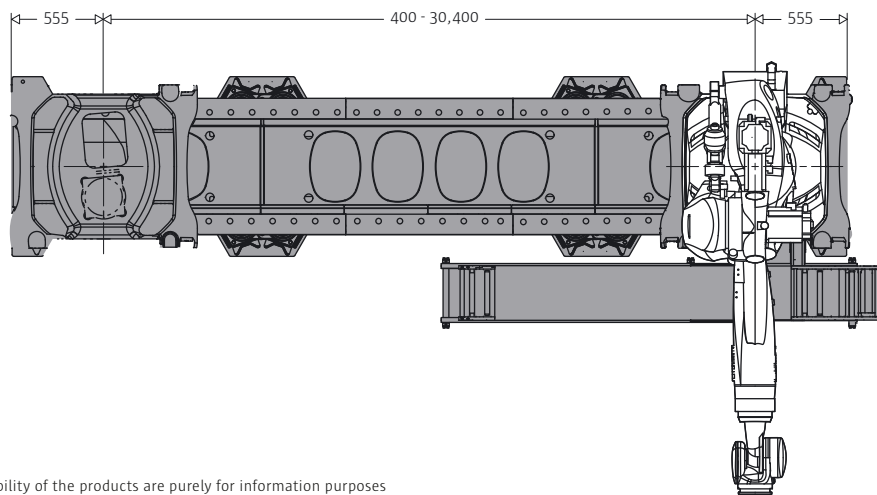
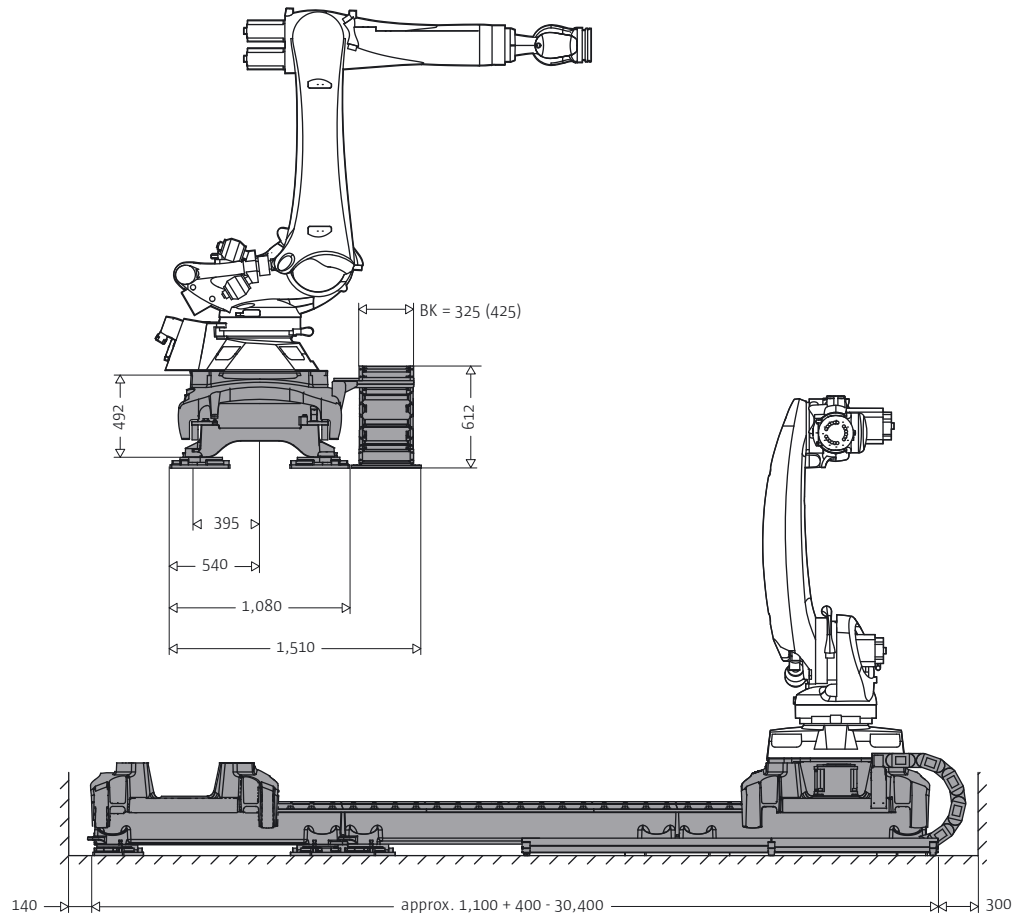
Ambient temperature — +10 °C to +55 °C

 Controller
— KR C4

 Teach pendant
— KUKA smartPAD

KL 2000

Dimensions



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Features and advantages

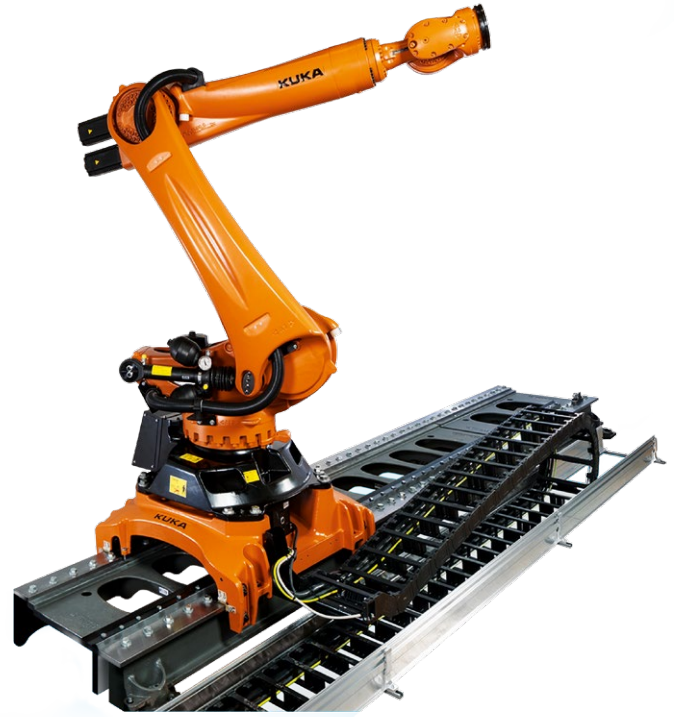
FLEXIBLE. Long travel extends the work envelope by several times the reach of the robot.

POWERFUL. Works quickly and precisely, with maximum payload and robustness.

VERSATILE. A protective cover is available for keeping out dirt during tasks in harsh environments.

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

SPECIALLY FOR HIGH AND HEAVY PAYLOADS. This linear unit is suitable for robots with a payload from 90 to 300 kg.



KL 2000

Max. number of carriages	_____	4
Max. rated travel	_____	29,900 mm
Speed with rated payload	_____	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
Min. rated travel	_____	400 mm
Max. gradation of rated travel	_____	500 mm
Transmission of force	_____	Rack

Compatibility

Robots of the high payload category (90 to 300 kg)

_____ KR QUANTEC pro, KR QUANTEC extra, KR QUANTEC prime, KR QUANTEC ultra

Operating conditions

Data for the mechanical unit

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



Controller

_____ KR C4

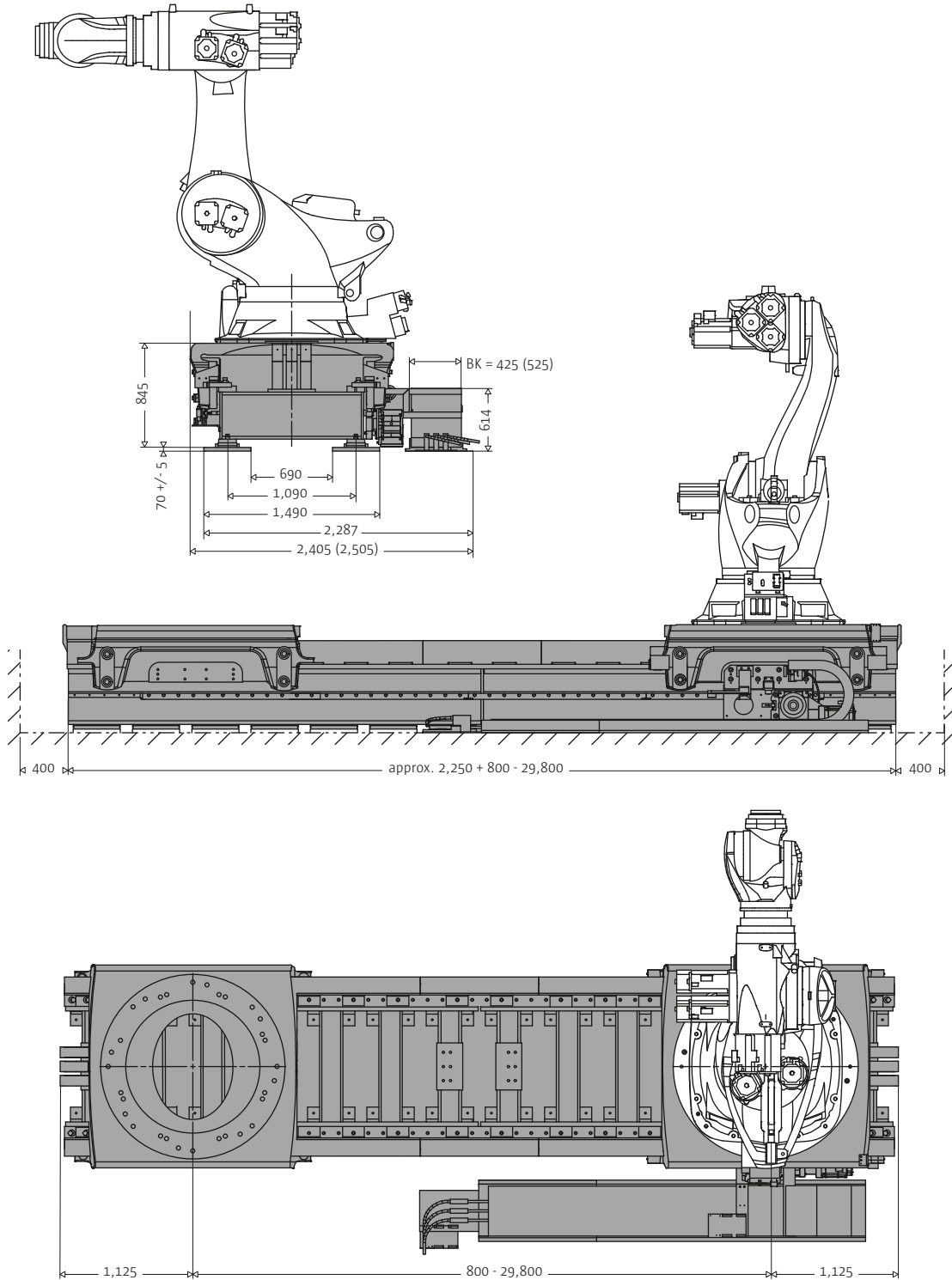


Teach pendant

_____ KUKA smartPAD

KL 3000

Dimensions



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Features and advantages

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

POWERFUL. Works quickly and precisely, with maximum payload and robustness.

VERSATILE. A protective cover is available for keeping out dirt during tasks in harsh environments.

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

SPECIALLY FOR HEAVY PAYLOADS.

This linear unit is suitable for robots with a payload from 700 to 1,300 kg.



KL 3000

Max. number of carriages	_____	2
Max. rated travel	_____	29,800 mm
Speed with rated payload	_____	1.45 m/s
Pose repeatability	_____	<±0.02 mm
Number of axes	_____	1
Variant	_____	CV
Mounting position	_____	Floor
Mass of carriage	_____	2,500 kg
Mass of rated payload	_____	6,500 kg
Mass of beam per meter	_____	720 kg
Min. rated travel	_____	800 mm
Gradation of rated travel	_____	500 mm
Transmission of force	_____	Rack

Compatibility

Robots of the heavy payload category (700 to 1,300 kg)

_____ KR 700 PA, KR 1000 titan, KR 1000 L750 titan

Operating conditions

Data for the mechanical unit

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



Controller

_____ KR C4



Teach pendant

_____ KUKA smartPAD

Getting to the point with economic efficiency and process reliability. The positioners from KUKA.

Product overview

Positioner	1-axis positioner	KP1-MD 250, KP1-MD 500, KP1-MD 750, KP1-MD 1000, KP1-MD 2000 KP1-MDC 250, KP1-MDC 500, KP1-MDC 750, KP1-MDC 1000, KP1-MDC 2000, KP1-MDC 4000
	2-axis positioner	KP1-H 250, KP1-H 500, KP1-H 750, KP1-H 1000
	3-axis positioner	KP1-HC 250, KP1-HC 500, KP1-HC 750, KP1-HC 1000, KP1-HC 2000, KP1-HC 4000 KPF1-V500V1, KPF1-V500V2, KPF1-V500V3 KP1-MB 2000, KP1-MB 4000 DKP 400
Controller	KR C4	
Teach pendant	KUKA smartPAD	



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1

1 The tilt-turn positioner can be combined with any KUKA robot.

2 Improved mechanical design



2

Advantages and functions

FASTER. Through the use of proven KR QUANTEC robot gear units, KUKA positioners achieve improved turning times, which are crucial for minimizing non-productive cycle times. The new motor and gear unit combinations also allow extremely fast index times.

MORE COMPACT. The new mechanical design is characterized above all by the internally routed motor cabling. The integration of this cabling and a more streamlined construction permit an improved and more compact robot design.

MORE POWERFUL. The enormous variability of payload, distance between face plates, and tool radius enables KUKA positioners to retain their dynamic performance and flexibility without limitations.

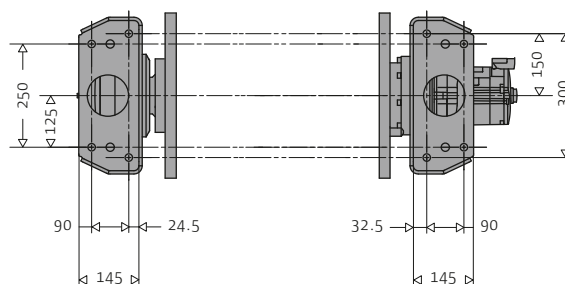
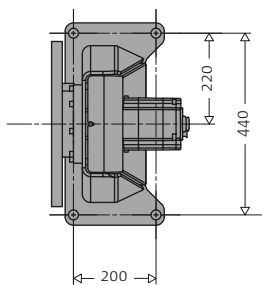
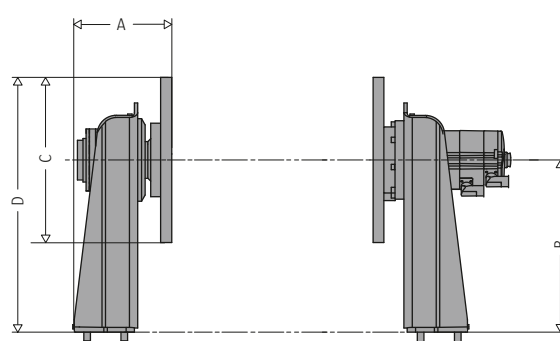
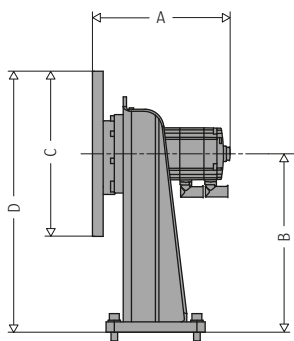
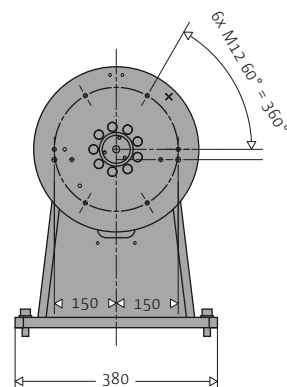
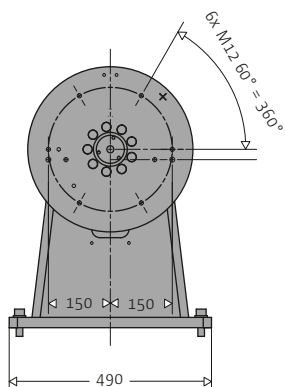
STIFFER. The enhanced design results not only in a more slender and dynamic construction but also particularly in greater stiffness. The use of new motor and gear unit combinations increases both the bending stiffness and the accuracy of the positioner.

MINIMAL DISRUPTIVE CONTOUR. Compared with their predecessors, the current KUKA positioners feature a disruptive contour reduced by up to 60%, making a smaller cell possible – in addition to a more compact robot.

1-axis positioner: KP1-MD/KP1-MDC

Dimensions of the product (example in drawing: KP1-MD)

Dimensions	Dimensions A	Dimensions B	Dimensions C	Dimensions D	Dimensions	Dimensions A	Dimensions B	Dimensions C	Dimensions D
KP1-MD 250	332 mm	432 mm	400 mm	632 mm	KP1-MDC 250	236 mm	417 mm	400 mm	617 mm
KP1-MD 500	403 mm	432 mm	400 mm	632 mm	KP1-MDC 500	236 mm	417 mm	400 mm	617 mm
KP1-MD 750	403 mm	432 mm	400 mm	632 mm	KP1-MDC 750	236 mm	417 mm	400 mm	617 mm
KP1-MD 1000	426.5 mm	432 mm	500 mm	682 mm	KP1-MDC 1000	236 mm	417 mm	400 mm	617 mm



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	KP1-MD 250 KP1-MDC 250	KP1-MD 500 KP1-MDC 500	KP1-MD 750 KP1-MDC 750	KP1-MD 1000 KP1-MDC 1000	KP1-MD 2000 KP1-MDC 2000	KP1-MDC 4000
Max. rated payload	250 kg	500 kg	750 kg	1.000 kg	2.000 kg	4.000 kg
Number of axes	1	1	1	1	1	1
Distance between face plates	flexible	flexible	flexible	flexible	flexible	flexible
Perm. load center distance Lx (MD)	150 mm	150 mm	100 mm	150 mm	200 mm	-
Perm. load center distance Ly	200 mm	200 mm	200 mm	200 mm	200 mm	200 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm
Mounting position	Floor	Floor	Floor	Floor	Floor	Floor
Positioner footprint	flexible	flexible	flexible	flexible	flexible	flexible
Weight (MD/MDC)	91/147 kg	119/175 kg	119/175 kg	187/241 kg	455/677 kg	850 kg
Axis data	with 250 kg rated payload	with 500 kg rated payload	with 750 kg rated payload	with 1,000 kg rated payload	with 2,000 kg rated payload	with 4,000 kg rated payload
Turning range	standard — infinite with ES — ±190°	infinite ±190°	infinite ±190°	infinite ±190°	infinite ±190°	infinite ±190°
Perm. load torque	368 Nm	736 Nm	736 Nm	1,472 Nm	3,900 Nm	5,890 Nm
Perm. tilting torque (MD)	736 Nm	1,472 Nm	2,207 Nm	2,943 Nm	7,652 Nm	-
Perm. mass moment of inertia	180 kg m ²	359 kg m ²	530 kg m ²	719 kg m ²	2,100 kg m ²	4,300 kg m ²
Turning time (180°; 360°)	2.2 s; 3.5 s	2.7 s; 4.6 s	2.9 s; 4.9 s	2.3 s; 4.0 s	3.3 s; 5.8 s	3.8 s; 6.8 s

Operating conditions

Data for the mechanical unit

Ambient temperature +5 °C to +40 °C



Controller

KR C4

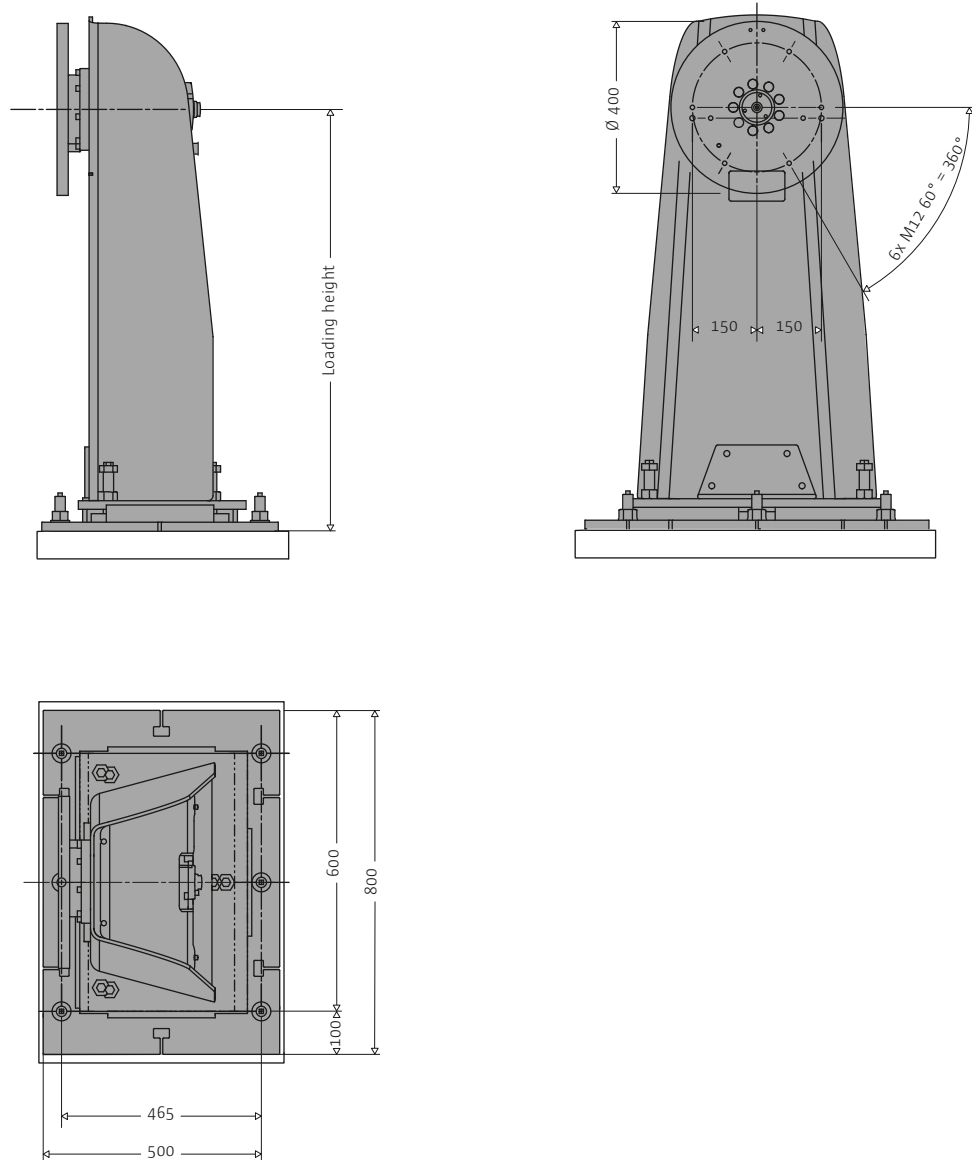


Teach pendant

KUKA smartPAD

1-axis positioner: KP1-H

Dimensions (example in drawing: KP1-H 250 – KP1-H 750)





	KP1 - H 250	KP1 - H 500	KP1 - H 750	KP1 - H 1000
Max. rated payload	250 kg	500 kg	750 kg	1,000 kg
Number of axes	1	1	1	1
Loading height	980/1,080/1,180/1,280 mm	980/1,080/1,180/1,280 mm	980/1,080/1,180/1,280 mm	980/1,080/1,180/1,280 mm
Perm. load center distance Lx	150 mm	150 mm	150 mm	150 mm
Perm. load center distance Ly	200 mm	200 mm	200 mm	200 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm
Mounting position	Floor	Floor	Floor	Floor
Interference circle	-	-	-	-
Weight	259/267/275/283 kg	293/302/310/318 kg	293/302/310/318 kg	399/410/421/432 kg

Axis data	with 250 kg rated payload	with 500 kg rated payload	with 750 kg rated payload	with 1,000 kg rated payload
Turning range	standard infinite	infinite	infinite	infinite
	with ES ±190°	±190°	±190°	±190°
Perm. load torque	368 Nm	736 Nm	736 Nm	1,472 Nm
Perm. tilting torque	1,790 Nm	3,581 Nm	5,371 Nm	7,161 Nm
Perm. mass moment of inertia	180 kg m ²	359 kg m ²	530 kg m ²	719 kg m ²
Turning time (180°; 360°)	2.3 s; 3.7 s	2.5 s; 4.2 s	3.4 s; 5.9 s	2.5 s; 4.2 s

Operating conditions

Data for the mechanical unit

Ambient temperature +5 °C to +40 °C



Controller

KR C4

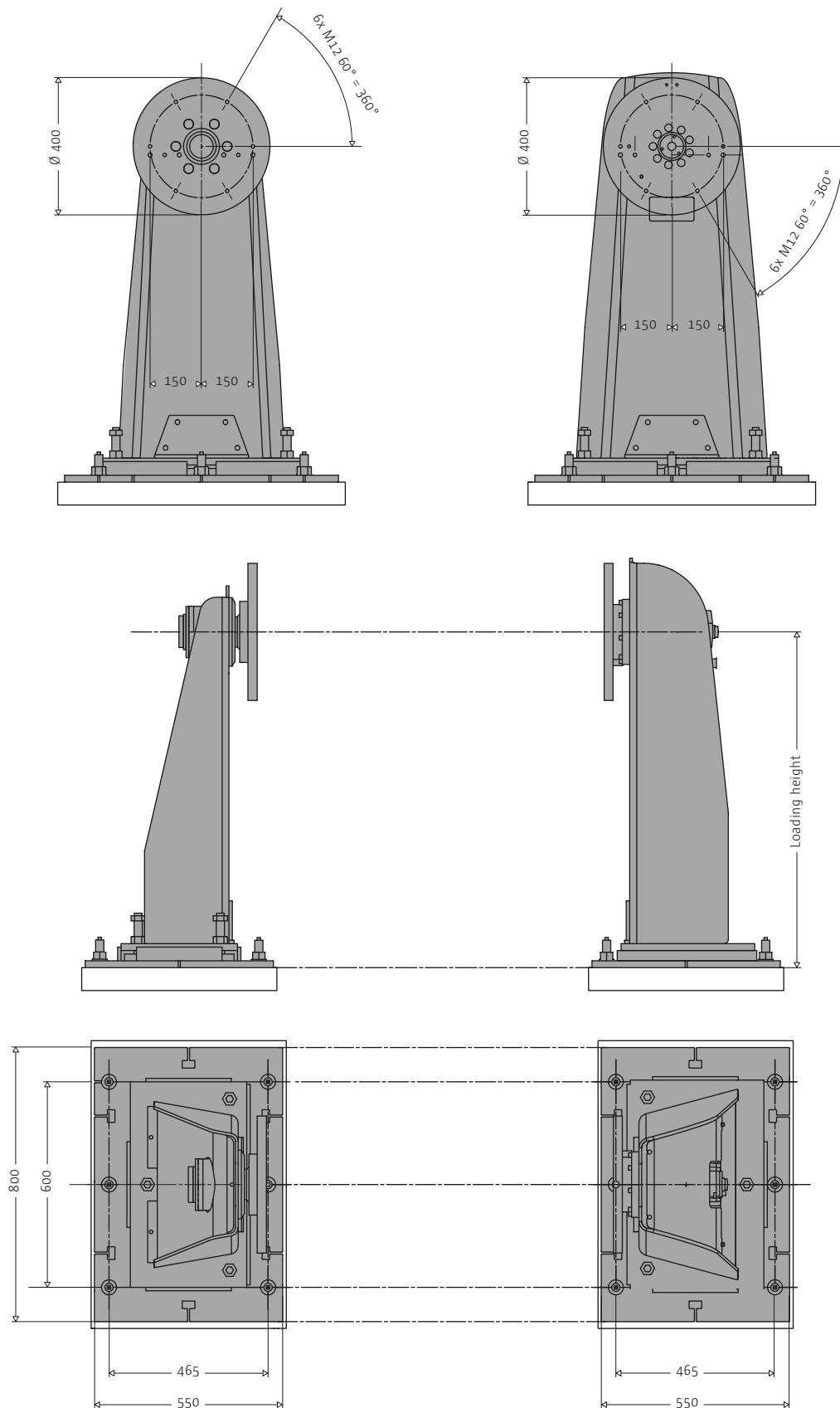


Teach pendant

KUKA smartPAD

1-axis positioner: KP1-HC

Dimensions (example in drawing KP1-HC 250 – KP1-HC 750)





	KP1 - HC 250	KP1 - HC 500	KP1 - HC 750	KP1 - HC 1000	KP1 - HC 2000	KP1 - HC 4000
Max. rated payload	250 kg	500 kg	750 kg	1,000 kg	2,000 kg	4,000 kg
Number of axes	1	1	1	1	1	1
Loading height	980/1,080 mm 1,180/1,280 mm	980/1,080 mm 1,180/1,280 mm	980/1,080 mm 1,180/1,280 mm	980/1,080 mm 1,180/1,280 mm	1,000/1,250 mm 1,500 mm	1,000/1,250 mm 1,500 mm
Distance between face plates	flexible	flexible	flexible	flexible	flexible	flexible
Perm. load center distance Ly	150 mm	150 mm	150 mm	150 mm	200 mm	150 mm
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm
Mounting position	Floor	Floor	Floor	Floor	Floor	Floor
Interference circle	-	-	-	-	-	-
Weight	466/479 kg 492/506 kg	538/551 kg 563/577 kg	538/551 kg 563/577 kg	648/663 kg 680/695 kg	1,085/1,175 kg 1,263 kg	1,246/1,343 kg 1,440 kg

Axis data	with 250 kg rated payload	with 500 kg rated payload	with 750 kg rated payload	with 1,000 kg rated payload	with 2,000 kg rated payload	with 4,000 kg rated payload
Turning range	standard — infinite with ES — ±190°	infinite — ±190°	infinite — ±190°	infinite — ±190°	infinite — ±190°	infinite — ±190°
Perm. load torque	368 Nm	736 Nm	736 Nm	1,472 Nm	3,900 Nm	5,890 Nm
Perm. mass moment of inertia	180 kg m ²	359 kg m ²	530 kg m ²	719 kg m ²	2,100 kg m ²	4,300 kg m ²
Turning time (180°; 360°)	2.3 s; 3.7 s	2.7 s; 4.6 s	3.4 s; 5.9 s	2.3 s; 4.0 s	3.3 s; 5.8 s	3.8 s; 6.8 s

Operating conditions

Data for the mechanical unit

Ambient temperature — +5 °C to +40 °C



Controller

KR C4

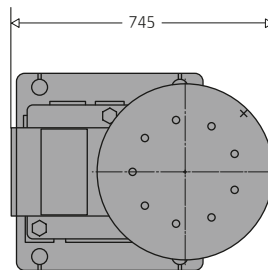
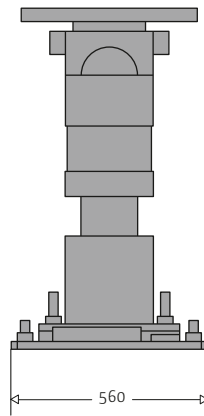
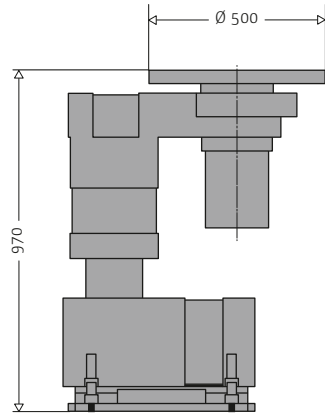


Teach pendant

KUKA smartPAD

1-axis positioner: KPF1-V

Dimensions (example in drawing KPF1-V500V1)





	KPF1-V500V1	KPF1-V500V2	KPF1-V500V3
Max. rated payload	500 kg	500 kg	500 kg
Number of axes	1	1	1
Loading height	970 mm	820 mm	620 mm
Perm. load center distance Lx	-	-	-
Perm. load center distance Ly	150 mm	150 mm	150 mm
Pose repeatability	±0.06 mm	±0.06 mm	±0.06 mm
Mounting position	Floor	Floor	Floor
Interference circle	-	-	-
Weight	323 kg	281 kg	268 kg

Axis data		with 500 kg rated payload	with 500 kg rated payload	with 500 kg rated payload
Turning range	standard	±190°	±190°	±190°
	with ES	±190°	±190°	±190°
Perm. load torque		580 Nm	580 Nm	580 Nm
Perm. tilting torque		-	-	-
Perm. mass moment of inertia		110 kg m ²	110 kg m ²	110 kg m ²
Turning time (90°; 180°)		1.24 s; 1.92 s	1.24 s; 1.92 s	1.24 s; 1.92 s

Operating conditions

Data for the mechanical unit

Ambient temperature +5 °C to +40 °C



Controller

KR C4

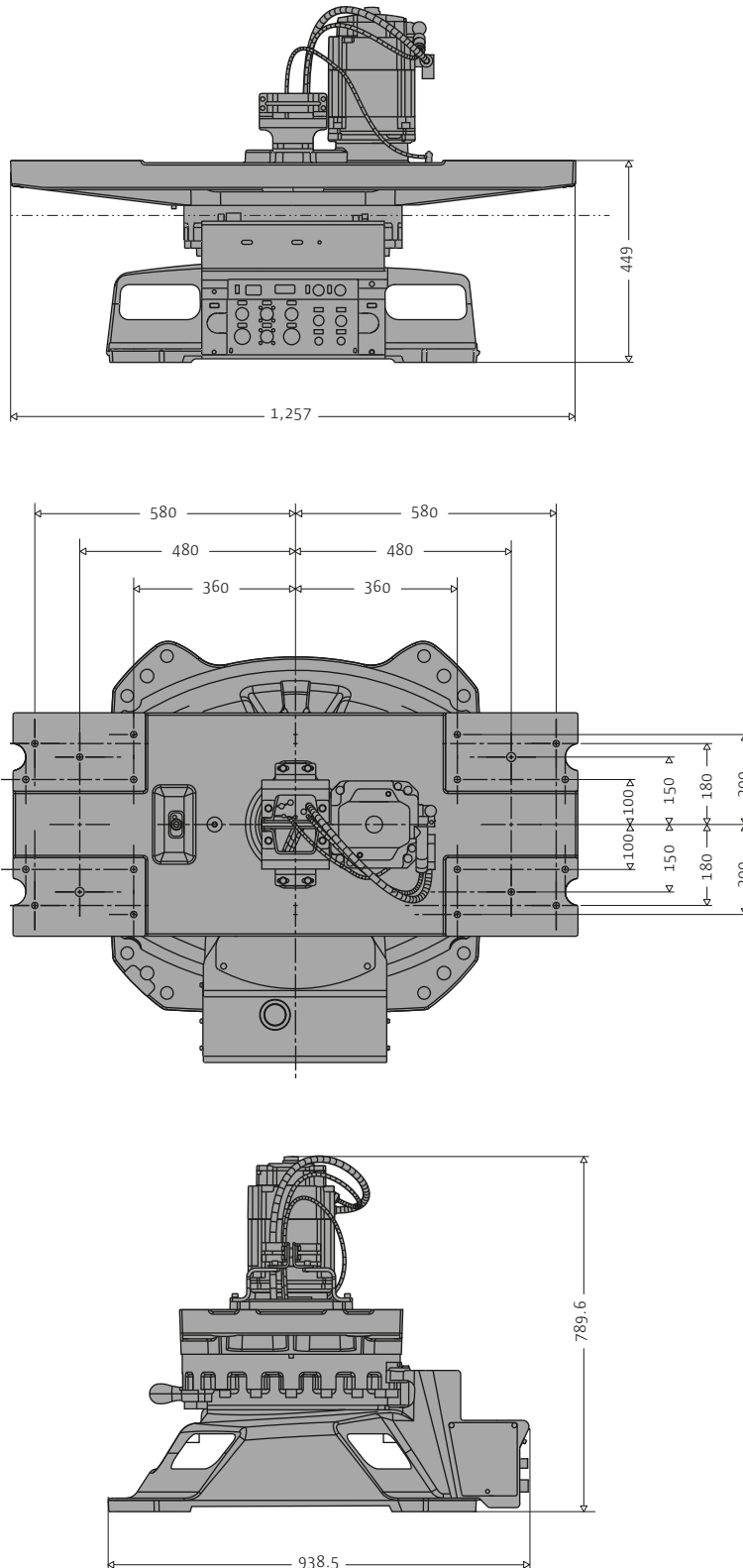


Teach pendant

KUKA smartPAD

1-axis positioner: KP1-MB

Dimensions



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



KP1-MB 2000

KP1-MB 4000

Max. rated payload	2,000 kg	4,000 kg
Number of axes	1	1
Pose repeatability	±0.08 mm	±0.08 mm
Mounting position	Floor	Floor
Interference circle	-	-
Weight	530 kg	530 kg

Axis data	with 2,000 kg rated payload		with 4,000 kg rated payload	
	Turning range	standard	±190°	±190°
	with ES	±190°	±190°	±190°
Perm. load torque		-		-
Perm. tilting torque		25,000 Nm		30,000 Nm
Perm. mass moment of inertia		4,867 kg m ²		7,857 kg m ²
Turning time (180°/360°)		3.9 s; 6.9 s		3.9 s; 6.9 s

Operating conditions

Data for the mechanical unit

Ambient temperature	+5 °C to +40 °C
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Controller

KR C4

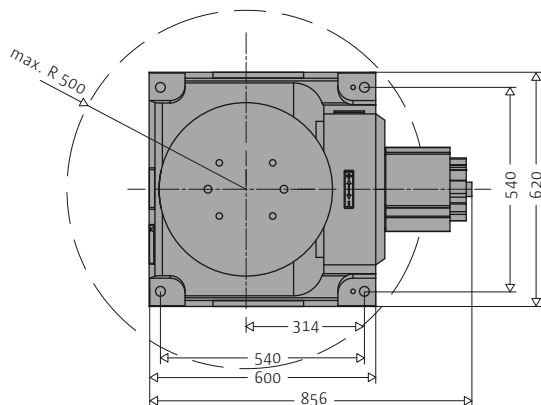
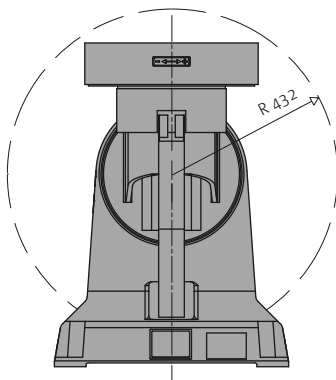
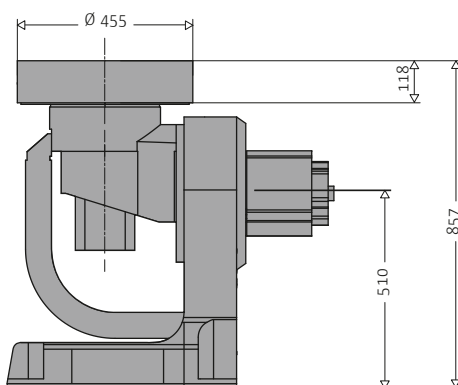


Teach pendant

KUKA smartPAD

2-axis positioner: DKP

Dimensions





DKP 400

Max. rated payload	400 kg
Number of axes	2
Loading height	857 mm
Pose repeatability	±0.01 mm
Mounting position	Floor
Weight	300 kg

Axis data

with 400 kg rated payload

Turning range	±90°
	Rotational axis – without ES – endless
	with ES – ±190°
Perm. load torque	Tilting axis – 1,900 Nm
	Rotational axis – 750 Nm
Perm. tilting torque	Tilting axis – 7,000 Nm
	Rotational axis – 3,550 Nm
Perm. mass moment of inertia	Rotational axis – 64 kg m ²
Max. rotational velocity	Tilting axis – 44.5°/s
	Rotational axis – 126°/s

Operating conditions

Data for the mechanical unit

Ambient temperature	+5 °C to +40 °C
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Controller

KR C4

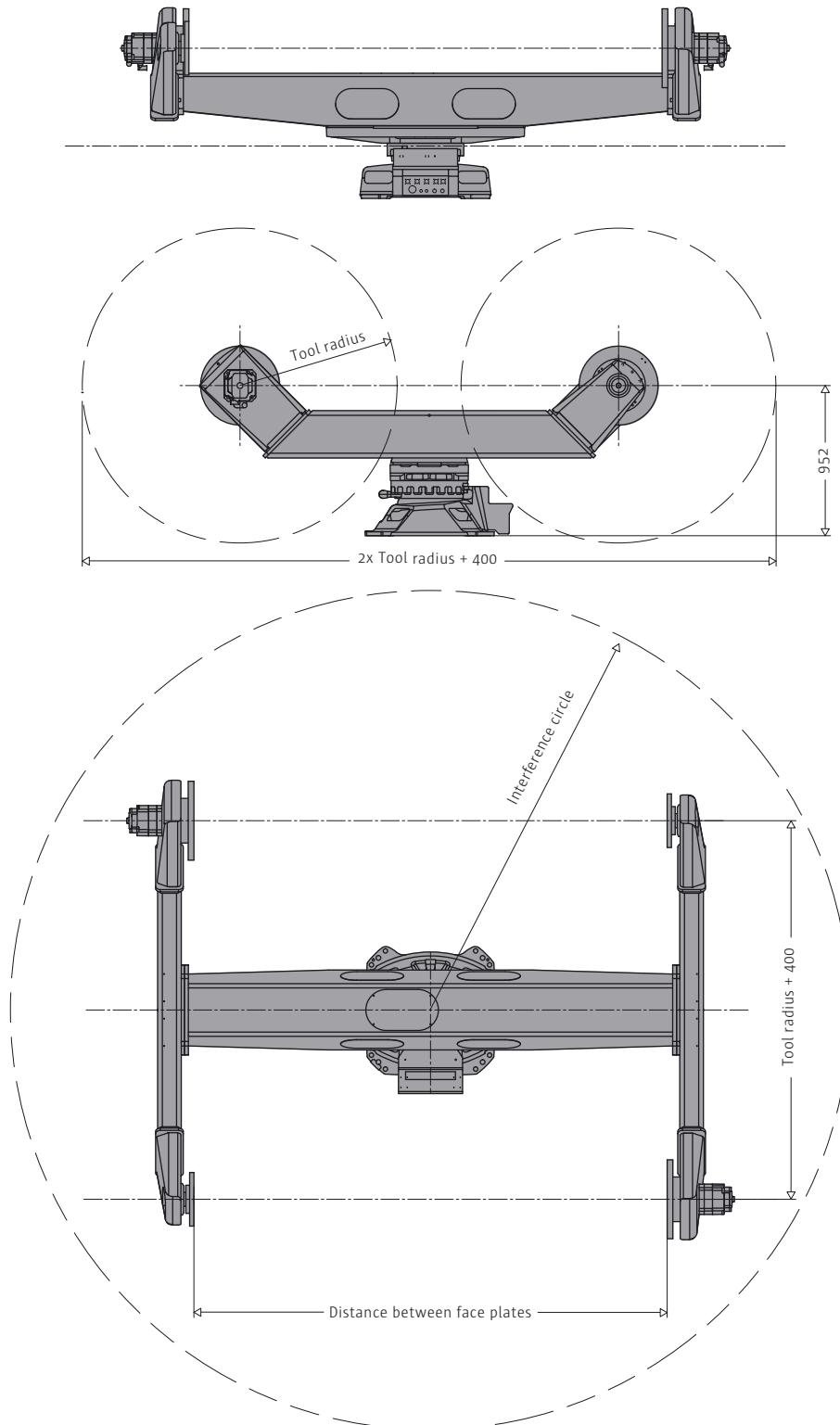


Teach pendant

KUKA smartPAD

3-axis positioner: KP3-V2H

Dimensions





	KP3-V2H 250	KP3-V2H 500	KP3-V2H 750	KP3-V2H 1000
Max. rated payload	250 kg	500 kg	750 kg	1,000 kg
Number of axes	3	3	3	3
Loading height	952 mm	952 mm	952 mm	952 mm
Tool radius (increments of 100 mm)	500 - 1,000 mm	500 - 1,000 mm	500 - 1,000 mm	500 - 1,000 mm
Distance between face plates (increments of 200 mm)	1,600 - 3,000 mm	1,600 - 3,000 mm	1,600 - 3,000 mm	1,600 - 3,000 mm
Load ratio	100:80	100:80	100:80	100:80
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm
Mounting position	Floor	Floor	Floor	Floor
Interference circle	1,880 - 2,670 mm	1,880 - 2,670 mm	1,880 - 2,670 mm	1,880 - 2,670 mm
Weight	1,331 kg	1,389 kg	1,491 kg	1,619 kg

Axis data	with 250 kg rated payload	with 500 kg rated payload	with 750 kg rated payload	with 1,000 kg rated payload
Main rotational axis				
Turning range	±185°	±185°	±185°	±185°
Turning time (180°)	3.7 s	3.8 s	3.3 s	3.7 s
Planetary axes				
Turning range	without ES: infinite with ES: ±180°	infinite ±180°	infinite ±180°	infinite ±180°
Perm. load torque	368 Nm	736 Nm	736 Nm	1,472 Nm
Perm. mass moment of inertia	180 kg m ²	359 kg m ²	530 kg m ²	719 kg m ²
Turning time (180°; 360°)	2.2 s; 3.5 s	2.7 s; 4.6 s	2.9 s; 4.9 s	2.3 s; 4.0 s

Operating conditions

Data for the mechanical unit

Ambient temperature +5 °C to +40 °C



Controller

KR C4

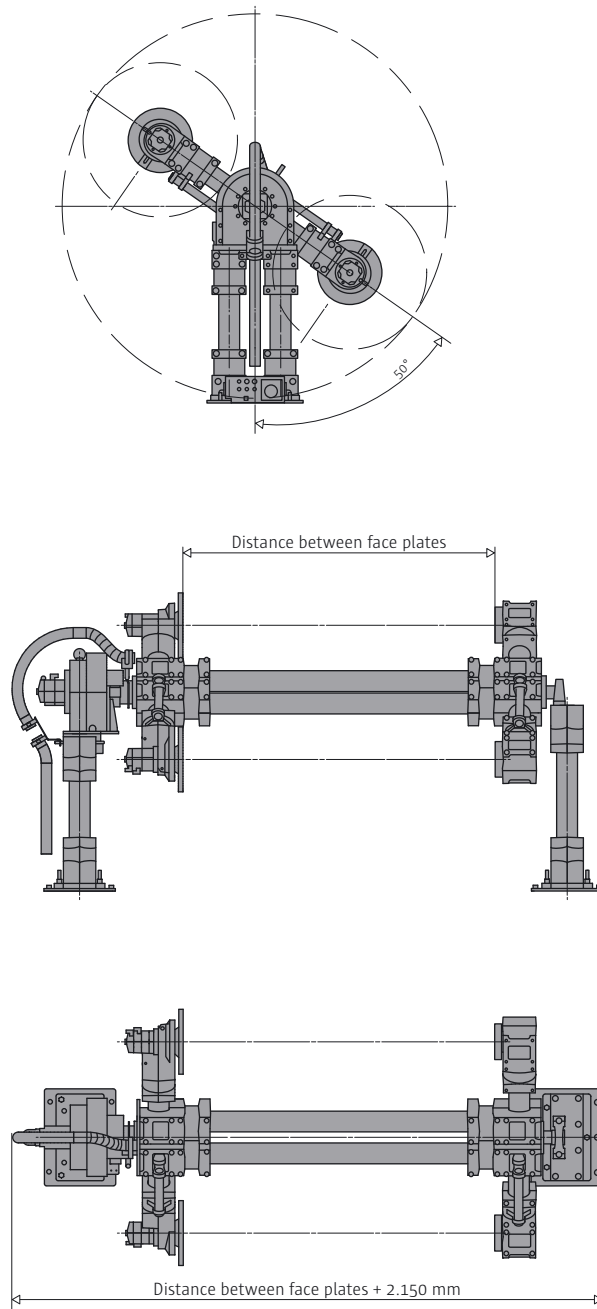


Teach pendant

KUKA smartPAD

3-axis positioner: KPF3-H2H

Dimensions (example in drawing KPF3-H2H 500/750)





	KPF3-H2H 250	KPF3-H2H 500	KPF3-H2H 750	KPF3-H2H 1000
Max. rated payload	250 kg	500 kg	750 kg	1,000 kg
Number of axes	3	3	3	3
Loading height	dependent on turning radius	dependent on turning radius	dependent on turning radius	dependent on turning radius
Tool radius (increments of 100 mm)	400 - 600 mm	500 - 800 mm	500 - 800 mm	500 - 800 mm
Distance between face plates (increments of 100 mm)	800 - 3,000 mm	800 - 4,500 mm	800 - 4,500 mm	800 - 4,500 mm
Load ratio	100:80	100:80	100:80	100:80
Pose repeatability	±0.08 mm	±0.08 mm	±0.08 mm	±0.08 mm
Mounting position	Floor	Floor	Floor	Floor

Axis data	with 250 kg Rated payload	with 500 kg Rated payload	with 750 kg Rated payload	with 1,000 kg Rated payload
Main rotational axis				
Turning range	-185°/+5°	-185°/+5°	-185°/+5°	-180°/+5°
Turning time (180°; 360°)	-	-	-	-
Rotational velocity	126°/s	81°/s	75°/s	60°/s
Planetary axes				
Turning range	without ES ±190° with ES ±190°	±190°	±190°	infinite ±190°
Perm. load torque	370 Nm	580 Nm	610 Nm	1,000 Nm
Perm. mass moment of inertia	70 kg m ²	110 kg m ²	210 kg m ²	600 kg m ²
Rotational velocity	132°/s	132°/s	114°/s	108°/s

Operating conditions

Data for the mechanical unit

Ambient temperature +5 °C to +40 °C



Controller

KR C4



Teach pendant

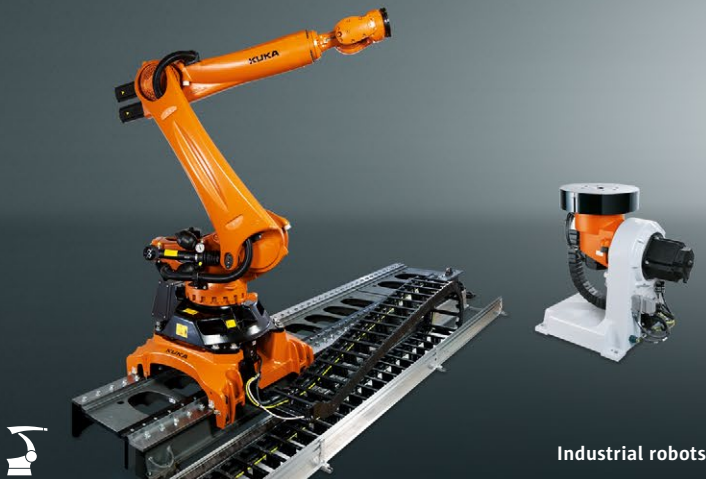
KUKA smartPAD

An unbeatable team.

Product overview

[+] FASTER AS A TEAM

[+] SAFER AS A TEAM



Industrial robots

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.



System controller: KR C4

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.

99.9995 %

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

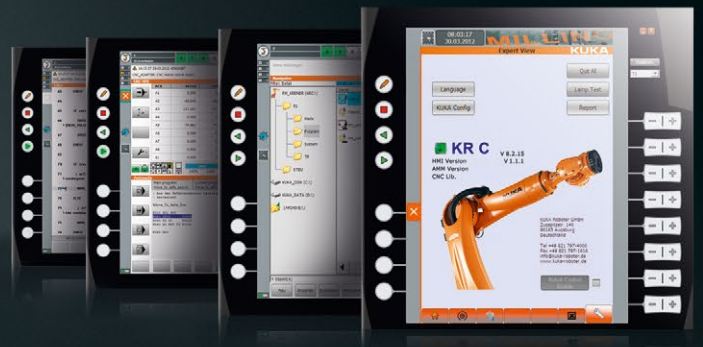
[+] SIMPLER AS A TEAM



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 [+]

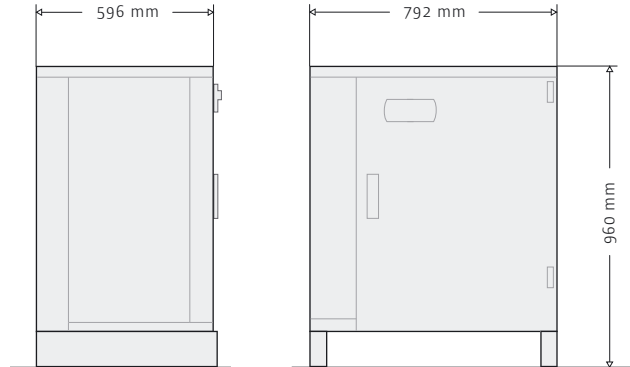




1



2



3

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

2 The passive heat exchange system, with separate air circulation in the inner and outer zones of the controller, allows low-maintenance operation even in dusty environments. Entirely without filter mats.

3 Dimensions of the KR C4

Features and advantages

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

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

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

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

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

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

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

* in standby mode and Ecomode.



KR C4 controller

Type	_____	KR C4
Processor	_____	Multi-core technology
Hard drive	_____	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

[+] UNIVERSAL APPLICATION

ANTIREFLECTION TOUCH DISPLAY [+]

ERGONOMICALLY OPTIMIZED [+]



[+] HOT-PLUGGABLE

[+] HAPTIC JOG KEYS



1

2

1 Simple, intuitive operator control via touch screen

2 Ergonomic 6D mouse

Features and advantages

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

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

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

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

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

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



Teach pendant: KUKA smartPAD

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

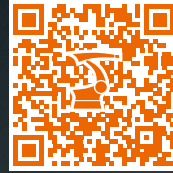
KUKA.WorkVisual	Engineering environment for all KUKA robots for system configuration, programming, data backup, diagnosis, and more.
KUKA.Load	Supports the evaluation of the load on a KUKA robot or the selection of a suitable robot for a given load.
KUKA.UserTech	Fast programming of motion and program 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 KRC4. 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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