The robot that moves people. The 4-axis kinematic system of the KR 700 R2510 passenger performs versatile and sophisticated circular motions while ensuring safe operation, irrespective of whether it forms part of a stationary, robot-based simulator or is mounted on a ride vehicle in dark rides.

_Maximum flexibility

_Payload up to 800 kg [1]

_Can be integrated into stationary applications or ride vehicle in amusement rides


KR 700 R2510 passenger

+


KR C4 passenger

+


passenger gondola [2]

= your solution

[1] with reduced payload distance
[2] available from KUKA system partners

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KUKA

Entertainment robots
_KR 700 R2510 passenger

KR 700 R2510 passenger and KR C4 passenger
Flexibility. Intelligence. Precision.

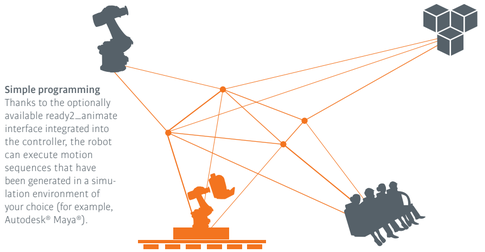
The KR 700 R2510 passenger and its KR C4 passenger controller impress with their extremely high precision that turns every simulation into a headline-grabbing attraction. No matter where it is in action – in theme parks, family entertainment centers (FECs) or large amusement parks –, the KR 700 R2510 passenger uses multi-flexible motion sequences to deliver a breathtaking and thrilling amusement ride experience at the push of a button.

One robot, endless application possibilities
Thanks to its four freely programmable axes, the KR 700 R2510 passenger simulates each motion sequence with absolute precision. Another plus point: up to four people can experience the hair-raising ride at the same time thanks to the overall payload capacity of 800 kg *.

The technology integrated into each axis is outstanding: AC servomotors, built-in coordinate converters with electromechanical brakes and fixed stops in A1 to A3. Each axis also has an additional brake module on the drive side as well as an optional supplementary encoder on the driven side.

The ISO mounting flange with its 20 mm hollow shaft for internal energy supply (axes 3–4) enables various passenger cells to be installed. Also available: a dress package on the robot for the external energy supply to customer applications.

* with reduced payload distance



Simple programming
Thanks to the optionally available ready2_animate interface integrated into the controller, the robot can execute motion sequences that have been generated in a simulation environment of your choice (for example, Autodesk® Maya®).

Other options
In addition to the robot and the controller, it is also possible to integrate a modular passenger gondola (in accordance with EN 13814 and the GB Code) for one to four passengers as well as individual, virtual simulations using VR glasses or a projection dome. These are available from our system partners.

Multiple integration options
The robot can be integrated into an amusement ride either in a stationary position (autonomous or arranged in groups) or on a ride vehicle as part of a circuit.

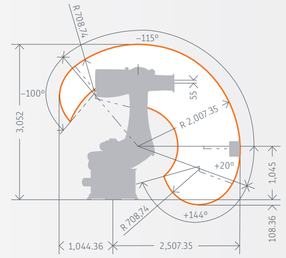
Exceedingly high payload
700 kg with nominal payload distance, 800 kg with reduced payload distance from the flange

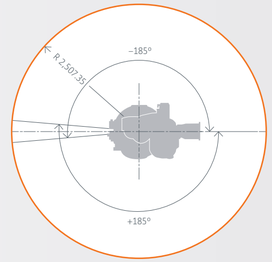
A control system for the future
There would be no thrill of the ride without a suitable controller. The KR C4 passenger is a customer-specific system controller with a stable installation frame and therefore ideally suited to mounting on a mobile carriage. This system controller has been geared specifically towards the motion sequences of 4-axis robots. The KR C4 passenger is operated using the KUKA smartPAD touch display with a hot-pluggable connecting cable together with a holder, EtherNet IP communication integrated ready2_animate interface.

Every single system is TÜV-certified.
Safety is of paramount importance at KUKA – especially when it comes to transporting people. This is evident in the fact that the KUKA passenger is licensed to carry passengers, being certified by the German technical inspectorate TÜV as conforming to EN 13814. Each and every robot system leaves our factory with TÜV-certified type and individual acceptance. In addition to mechanical stops, permanent electronic monitoring ensures maximum safety.

Absolutely safe and thrilling ride thanks to KUKA.SafeOperation
The safety configuration of the robot can be checked by way of a password-based authorization system. It is possible to monitor up to 16 configurable cells and fixed cell areas (PLd). The velocity of the robot is also permanently monitored. Up to 16 outputs (PLd) can be checked by a signal function. The KUKA passenger also features a safe operational stop for the individual axes and axis groups as well as an automatic brake test (PLd). Moreover, there is a Stop 0 interface and an additional encoder mounted on each of the four axes for integration into a PLe control circuit (optional).

KR 700 R2510 passenger
Technical data





Dimensions in mm

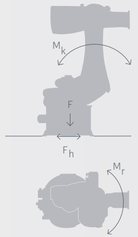
Work envelope	Volume
KR 700 R2510 passenger	approx. 68 m³

KR 700 R2510 passenger	
4-axis manipulator	✓
Operates with a gondola for up to 4 passengers	✓
Max. reach	2,510 mm
Rated payload	700 kg
Payload with reduced payload distance	800 kg
Pose repeatability (ISO 9283), approx.	±0.08 mm
Number of axes	4
Robot footprint	1,050 mm x 1,050 mm
Weight (excluding controller), approx.	2,650 kg
Ambient temperature (operation)	+10 °C to +55 °C
Ambient temperature (transportation)	−40 °C to 60 °C
Protection rating	IP 65

Axis data / range of motion	
Axis 1 (A1)	+ / −185°
Axis 2 (A2)	+20° / −115°
Axis 3 (A3)	+144° / −100°
Axis 4 (A4)	+ / −350°

Vertical force F(v)	F(v normal)	F(v max)
	36,588 N	38,359 N
Horizontal force F(h)	F(h normal)	F(h max)
	13,455 N	16,284 N
Tilting torque M(k)	M(k normal)	M(k max)
	50,739 Nm	59,638 Nm
Torque about axis 1 M(r)	M(r normal)	M(r max)
	17,115 Nm	20,553 Nm

Controller	
Cabinet type	KR C4 passenger
Protection rating	IP 54
Number of axes	4
Side-by-side installation	with / without cooling unit
Rated supply voltage	AC 3 x 380 V
Permissible tolerance (rated supply voltage)	±10 %
Mains frequency	49 to 61 Hz
Ambient temperature (operation without cooling unit)	+5 to 45 °C (278 to 318 K)
Max. temperature change	1.1 K / min
Humidity class	3k3 acc. to DIN EN 60721-3-3; 1995
Color	RAL 9005



Other features
Additional brake for each axis with time-delayed brake application (for solutions without obstacles within the clearance)
Additional brake for each axis with simultaneous brake application (for solutions with obstacles within the clearance)
Output-side additional encoder (CIP Safety / PL=e, PROFIsafe)
CSEI-compliant design
EN 13814-compliant
TÜV certification (PTU) / TÜV-certified individual acceptance for every robot