

KUKA



Seated in precision.

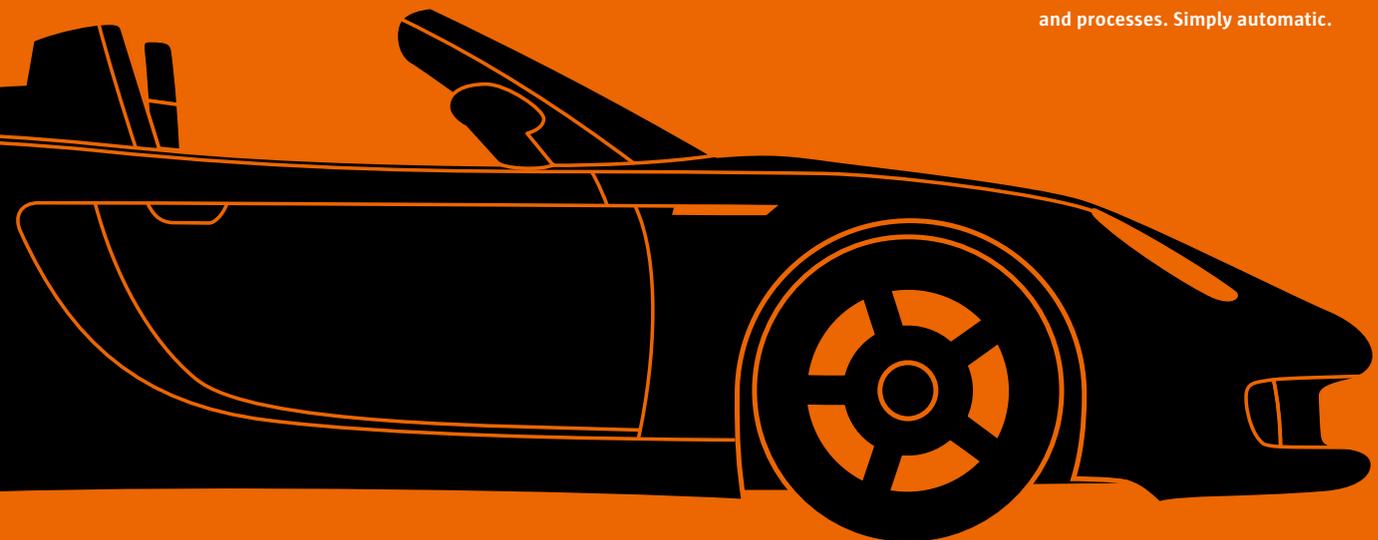
KUKA OccuBot.



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The flexible endurance test system
for the highest requirements.

Measurement of forces and torques in six dimensions as well as absolute precision during the endurance test. With the KUKA OccuBot, all data concerning the forces and torques that occur between the dummy and the seat are obtained. With the highest repeatability and absolute reproducibility of loads, motions and processes. Simply automatic.



Quality under rigorous testing.

Extremely precise, flexible and repeatable.

Whether for an airplane or car: with the OccuBot process, a KUKA six-axis robot checks whether seats and seat components are able to withstand the complex mechanical stress of daily use – while also providing precise and thorough documentation of this over their entire hypothetical service life. At the same time, the position-controlled test system is highly flexible in its programmability. For example, the overall system can be adapted to a different seat type simply by redefining the base coordinate system.

The method of the KUKA OccuBot – which works with force/torque sensors and dummies – precisely reproduces the motions and loads of a human body. The test stand thus allows for extremely realistic and practical simulations such as egress and ingress motions – even with expanded parameters such as pulsating operation, etc. In addition, there are jounce and squirm and rear fatigue tests. KUKA OccuBot can consolidate a wide range of costly, customized test devices in a single test stand.

Apart from the KUKA robot with its controller and control panel, the OccuBot VI system consists of the force/torque sensor system, the system software including the application, setup and configuration programs, and the dummies.



Utmost precision due to high measurement rates:

The measurement and robot position data are acquired, logged and processed in a 12 m/s cycle.



Precisely comparable test results:

Utmost user-friendliness thanks to an integrated user interface – and touch control via the KUKA smartPAD. Here, the test configurations for the seat test can be entered directly when programming.



Maximum flexibility:

Maximum flexibility through a 6-axis manipulator that can move freely in space. The KUKA robot arm is ideal for maximum accessibility of all sitting positions and designed for the harsh conditions of endurance tests.



Features and advantages

CONTINUOUS ADAPTATION OF THE FORCES AND TORQUES (in every cycle) according to the degree of wear on the test object.

SIMPLE PARAMETERIZATION via special interfaces for endurance testing of all kinds.

ETHERNET INTERFACE TO AN EXTERNAL DATA ACQUISITION SYSTEM for saving all relevant test data required for advanced analysis and test logging (optional).

MANY OTHER PROCESS-SPECIFIC FEATURES, such as an editor for simple definition of the base coordinate system, "Search and Hold" function for constant forces, static load compensation, programmable test stops, and processing of multiple test objects, etc.



System components



Robot



Controller



KUKA SmartPad



Dummy



Software



Sensor



KR 210 R2700 prime

Max. reach	2,696 mm
Rated payload	210 kg
Rated supplementary load, arm/link arm/rotating column	50 kg/-/-
Rated total load	260 kg
Pose repeatability	±0.06 mm
Number of axes	6
Installation position	Floor, ceiling
Variant	
Robot footprint	830 mm x 830 mm
Weight (excluding controller), approx.	1,111 kg

Axis data /

Range of motion	Speed with 210 kg rated payload
Axis 1 (A1) ——— +/-185°	105°/s
Axis 2 (A2) ——— +70°/-120°	107°/s
Axis 3 (A3) ——— +155°/-120°	114°/s
Axis 4 (A4) ——— +/-350°	136°/s
Axis 5 (A5) ——— +125°/-122,5°	129°/s
Axis 6 (A6) ——— +/-350°	206°/s

Operating conditions

Ambient temperature	+10 °C to +55 °C
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Protection rating

Protection rating of robot	IP 65
Protection rating of in-line wrist	IP 65
Protection rating of Foundry in-line wrist	IP 67

Cleanroom-suitable Foundry version



KR C4 midsize

Dimensions (H x W x D)	1,160 x 792 x 558 mm
Processor	Multi-core technology
Hard drive	SDD
Interface	USB3, Gigabit Ethernet
Number of axes (max.)	6
Mains frequency	49–61 Hz
Rated supply voltage	3 x 208 to 3 x 575 V AC
Rated supply voltage, transformers	3 x 380/400/440/480 V AC
Protection rating	IP54
Ambient temperature	+5 ° to +45 °C
Weight	160 kg



Control panel

	KUKA smartPAD
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KUKA „OccuForm“

	Realistic simulation dummy
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KUKA OccuBot Software

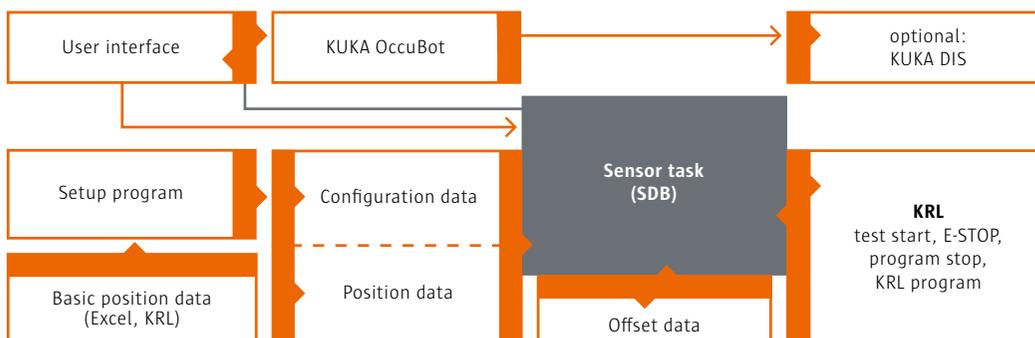
	System and application software for all Occubot tests
	StripChart, ToolBase editor for parameterization
	Windows®-specific features for easier operation



Force / torque sensor

	including Net box
	Measurement of forces (Fx, Fy, Fz) and three torques (Mx, My, Mz)
	Range: 2,500 N; 400 Nm
	Mounted on the robot flange

Software architecture





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.



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