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## CLEANROOM ROBOTS

PROVEN KUKA TECHNOLOGY FOR CLEANROOM REQUIREMENTS

- KR 3 CR
- KR 5 SIXX
- KR 15 SL CR
- KR 16 CR
- KR 16 L6 K-CR
- KR 30-3 CR
- KR 60-3 CR
- KR 180-2 CR
- KR 180 L130-2 CR
- KR 210 L150-2 CR
- KR 240 L180-2 CR
- KR 500-2 CR

THE SERIES ○ CLEANEST PERFORMANCE

Cleanrooms have extremely high requirements in terms of freedom from particles. KUKA cleanroom robots meet these requirements while maintaining maximum productivity levels. Based on state-of-the-art KUKA standards, the technology – tried, tested and optimized thousands of times around the world – is already well equipped to face the cleanroom requirements of the future.

# ULTRACLEAN

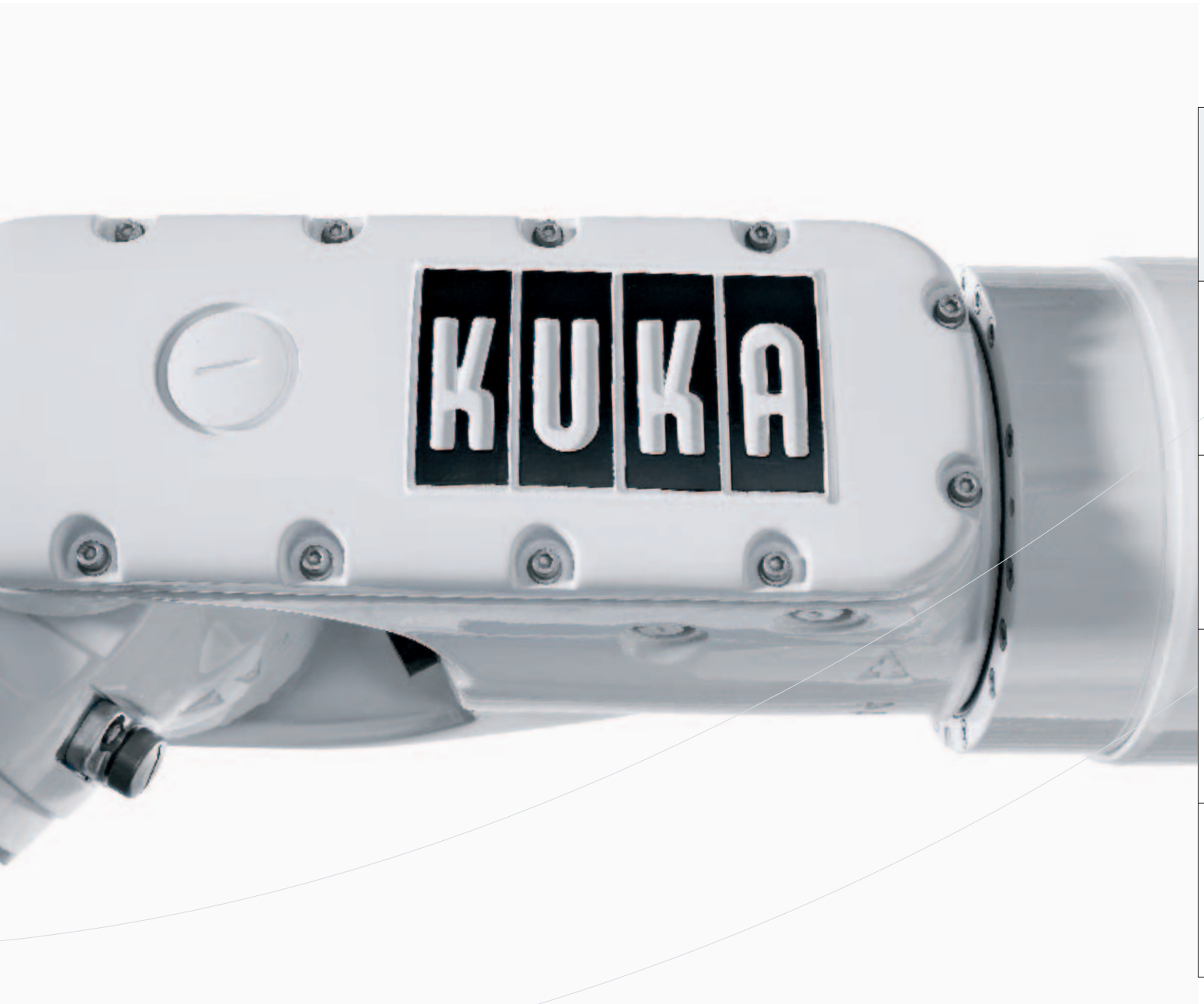


KR 500-2 CR



KR 16 CR





SERIES

KUKA PRINCIPLE

TECHNOLOGY

CONTROLLER

DATA



KR 5 SIXX

#### COMPLETE PRODUCT RANGE

KUKA is the only manufacturer in the world to offer a complete range of cleanroom robots for payloads from 3 to 500 kg. The availability of all robots is extremely high, so a 30% increase in productivity is not uncommon, depending on the specific application, while availability of 99.99% is taken for granted.

#### TESTED DEVICE

KUKA cleanroom robots are DIN EN ISO-certified by the Fraunhofer Institute and meet the highest requirements in operation under cleanroom conditions.





## THE KUKA PRINCIPLE ○ INNOVATION FROM TRADITION

KUKA robots have been automating the world. For more than three decades. With an innovative drive that has revolutionized industrial manufacturing. As a ground-breaking source of new ideas, setting the pace in the development of 6-axis robots or as a pioneer in PC-controlled programming – KUKA has always been ahead of its time. Then as now. And also in the future, with the goal of continuously consolidating our technological and market leadership and keeping our customers a step ahead of the competition.

1 TOOL MOUNT

2 MODULARITY

3 SUPPLEMENTARY LOADS

4 AC SERVOMOTOR

5 ENERGY SUPPLY SYSTEM

6 TYPE



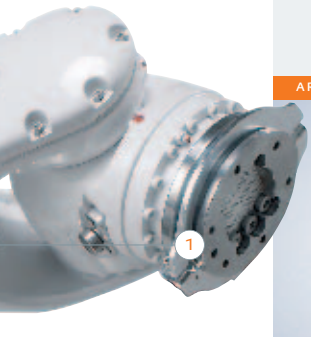
## ADVANTAGES OF THE KUKA PRINCIPLE

**UTMOST PRECISION:** Highly accurate link-and-gear combinations and optimized control loops in the kinematic chain provide unrivaled repeatability.

**OPTIMUM SPEED:** The low weight of the robots ensures optimum acceleration values and maximum working velocities. This allows minimized cycle times.

**HIGH-QUALITY MATERIALS:** Highly finished surfaces are easy to clean. The impact-resistant paintwork is also corrosion-resistant and heat-resistant.

**USER-FRIENDLY CONTROLLER:** Windows™-based KUKA control technology enables simple installation, start-up and programming of the robot.



### 1 TOOL MOUNT

The tools are mounted using a DIN ISO-certified standard flange that allows fast tool changes. Tools for the most varied of applications can be mounted.

### 2 MODULARITY

The modular structure (e.g. arm extension) ensures that the overall system can be adapted at any time to individual customer requirements.

### 3 SUPPLEMENTARY LOADS

KUKA robots can carry heavy supplementary loads on the arm and link arm. Diverse supply packages can be installed here.

### 4 AC SERVOMOTOR

Proven KUKA technology, such as maintenance-free AC servomotors, tried and tested thousands of times around the world, ensure maximized operating times and high cost-efficiency.

### 5 ENERGY SUPPLY SYSTEM

All energy and fluid supply systems are routed in such a way as not to restrict the motion radii of the axes. Energy and fluid supply systems are available on request.

### 6 COMPACT DESIGN

KUKA robots are not only technically superior, but also better-looking. Their streamlined, compact design and the elimination of interference contours has earned them awards, including the IF Design Award. KUKA shelf-mounted robots, for example, with the "knee" moved forward, enable maximum downward reach in the workspace.

THE TECHNOLOGY ○ EFFICIENCY IN THE CLEANROOM

The KUKA cleanroom series provides future-oriented users with a robot series that offers maximum speed, even under the strictest of cleanroom conditions. The wide range of payload categories ensures that all necessary process steps can be covered by a single robot development environment. This allows significant time and cost savings, both during programming, operation and maintenance, and also during training of the operating personnel. All this in the standard KUKA look & feel.



HIGHEST CLEANLINESS CLASSES

KUKA cleanroom robots are equipped with the latest technology and have been specially optimized for the requirements of cleanroom operation. They thus meet not only the requirements of the highest cleanliness classes, but also the strict criteria of the Fraunhofer Institute.



REDUCING INVESTMENT COSTS

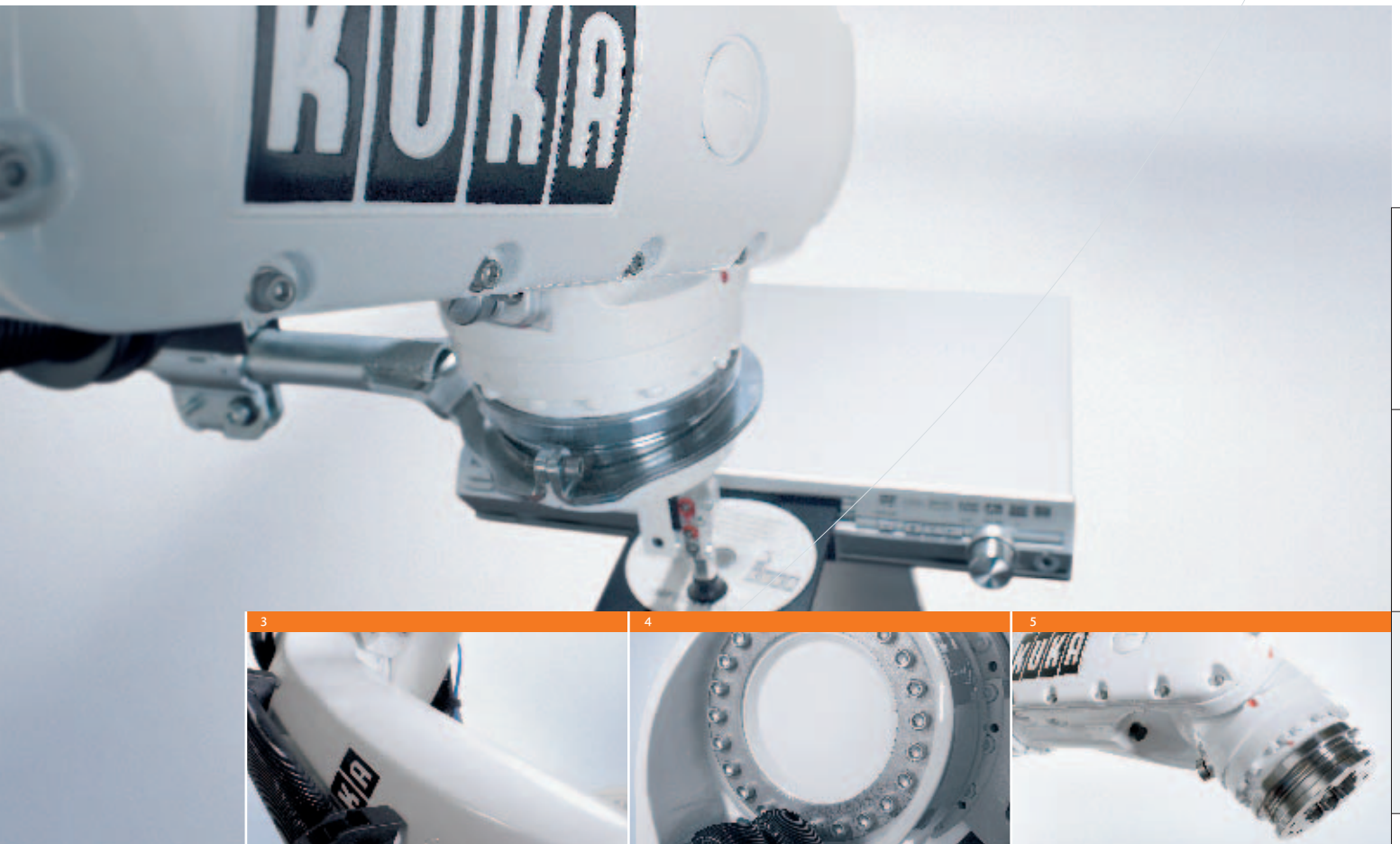
Complex operations and handling tasks can be solved much more flexibly and simply with a 6-axis robot than with customized handling systems. Our customers generally also benefit from significantly lower investment and maintenance costs.

MAXIMUM FLEXIBILITY

KUKA cleanroom robots are of modular design. Arm extensions can be used to maximize workspaces, e.g. to optimize operations when tending machines. They can be easily converted to carry out additional applications or new tasks.

KR 500-2 CR





SERIES

KUKA PRINCIPLE

TECHNOLOGY

CONTROLLER

DATA

- 1 **HIGHLY FINISHED SURFACES**  
The surfaces of all cast parts are polished and treated with primer. A special multilevel 2-component paint is used for the paintwork, which is highly resistant to even the most aggressive cleaning agents.
- 2 **HIGH-QUALITY MATERIALS**  
The body of a KUKA cleanroom robot is manufactured entirely from aluminum castings, with all screws and fixtures made of stainless steel.
- 3 **OPTIMIZED JOINTS**  
All joints are designed for maximum freedom of movement and optimized seals ensure minimum abrasion. This ensures that KUKA cleanroom robots achieve the highest cleanliness classes under even the toughest of conditions.

### ADVANTAGES OF KUKA CLEANROOM ROBOTS

**RELIABILITY FOR ALL PROCESS STEPS:** Pioneering KUKA technologies ensure perfection and productivity under cleanroom conditions.

**TRIED-AND-TESTED TECHNOLOGY:** KUKA robots have proven their worth in the automation of manufacturing processes thousands of times over. Wherever smooth work processes are required, KUKA robots are the number 1 choice.

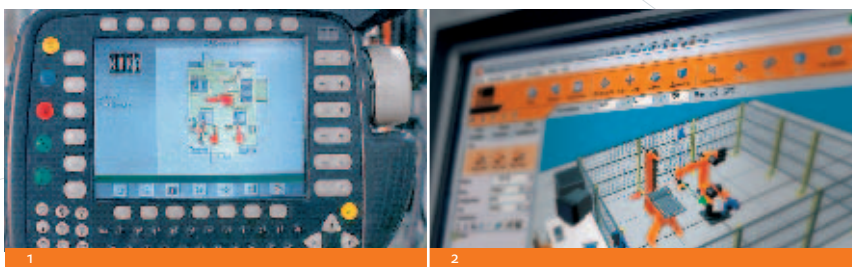
**PRECISION & SPEED:** KUKA robots work with absolute precision, even at very high speeds, e.g. non-contact handling of wafers in the semiconductor industry.

**FOR THE HIGHEST CLEANLINESS CLASSES:** KUKA cleanroom robots are designed to meet the most demanding requirements. Special materials and optimized seals ensure that the cleanroom remains clean.



THE CONTROLLER ○ **COMMUNICATION THROUGH INTEGRATION**

KUKA robots open up enormous potential. Intelligent control systems and software solutions from KUKA help to exploit this potential to the full. KUKA robot controllers are based on user-friendly Windows™-compliant user interfaces offering maximum functionality which can be mastered with a minimum of training. In this way, even the most complex systems can be started up quickly and easily and adapted at any time to new requirements or tasks.



- 1 **SPS CONTROLLER (KUKA.PLC)**  
Integration of a KUKA Soft PLC allows the KUKA robot controller to assume control of the entire manufacturing cell. This saves high hardware costs and also makes the system significantly more flexible.
- 2 **SIMULATION (KUKA.SIM)**  
KUKA.SIM makes it possible to simulate the planned application. This enables processes to be visualized and optimized before commissioning.

**PERFORMANCE FEATURES OF THE KUKA CONTROL PANEL (KCP):**

- Ergonomic KUKA Control Panel for easy operation
- Predefined forms for quicker entry of commands
- Efficient operator guidance
- Fast teaching with the 6D mouse
- Familiar Windows™-style operation

**KUKA CONTROL PANEL (KCP)**

The KCP teach pendant is fitted with an 8" color display, 6D mouse and customer-specific softkeys and hardkeys to make handling the controller even easier.

**PERFORMANCE FEATURES OF THE KUKA KR C2 ROBOT CONTROLLER:**

- Open, network-capable PC technology
- Integrated control and drive concept for the entire robot range
- Easy exchange of components, without the need for tools
- DeviceNet (master) and Ethernet (in Windows™ system) as standard  
Additional bus systems and real-time Ethernet optionally available
- Room for installation of up to 2 external axes
- Proven drive systems in conjunction with PC technology for industrial environments
- Remote diagnosis options via modem or network
- Compact control cabinet, small footprint (approx. 0.3 m<sup>2</sup>)

**KUKA KR C2 ROBOT CONTROLLER**

The KR C2 is highly versatile and can be expanded at any time and integrated into networks via bus. A wide range of software expansions is optionally available.

**3 HUMAN MACHINE INTERFACE (HMI STUDIO)**  
 HMI studio provides components for quick and easy creation of extensive production screens and cell visualization. This means that even the most complex sequences can be clearly visualized in a way that is readily comprehensible to the operating personnel.

**4 SAFE OPTION**  
 Safe option is a software-based machine protection and operator safety package that monitors the entire axis range and thus ensures maximum safety in the workspace.

... and many more

**KUKA SOFTWARE SOLUTIONS**  
 KUKA robots stand for maximum dynamism and innovative drive. Their intelligence is derived from a wide range of software options from the field of system integration and also from industry-specific software solutions.



SERIES  
 KUKA PRINCIPLE  
 TECHNOLOGY  
 CONTROLLER  
 DATA

THE DATA ○ TECHNICAL DATA

TECHNICAL DATA

Payload
Suppl. load, arm / link arm / rotating column
Air cleanliness class according to DIN EN ISO 14644-1
Repeatability
Controller
Weight (excluding controller) approx.



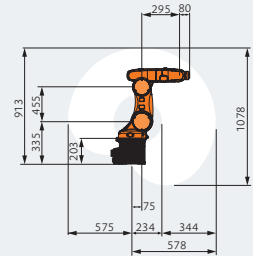
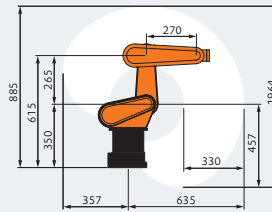
KR 3 CR



KR 5 SIXX R650

3 kg	5 kg
-	-
5	4
± 0.05 mm	± 0.02 mm
KR C3	KR C2 SR
53 kg	28 kg

SPECIFICATION WORK ENVELOPE



TECHNICAL DATA

Payload
Suppl. load, arm / link arm / rotating column
Air cleanliness class according to DIN EN ISO 14644-1
Repeatability
Controller
Weight (excluding controller) approx.



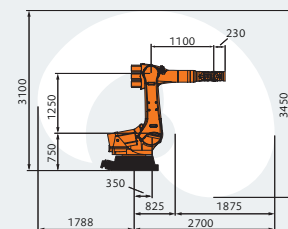
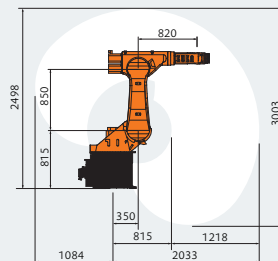
KR 30-3 CR  
KR 60-3 CR







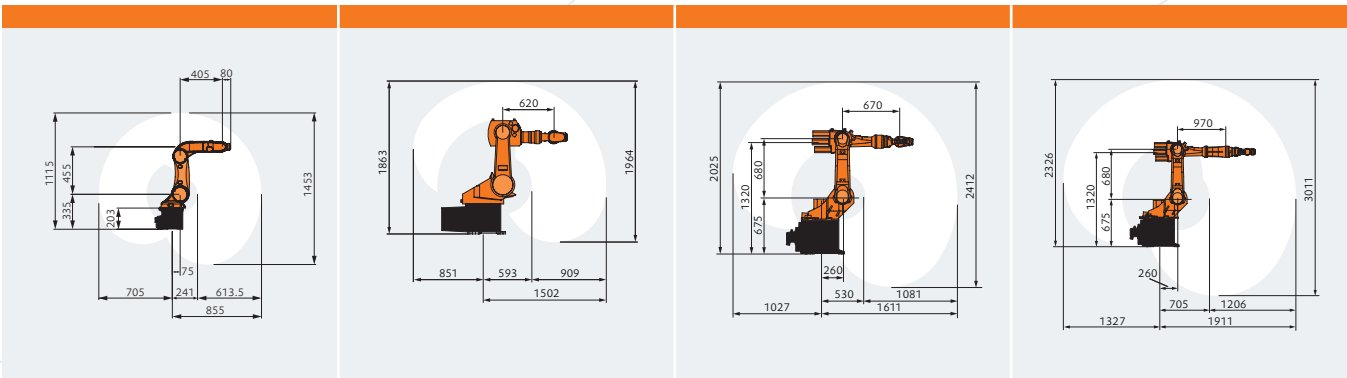
KR 180-2 CR





30 kg / 60 kg	180 kg
35 kg / 35 kg	50/100/300 kg
5 / 5	5
± 0.10 mm / ± 0.15 mm	± 0.12 mm
KR C2 / KR C2	KR C2
635 kg / 635 kg	1267 kg

SPECIFICATION WORK ENVELOPE



	<b>KR 5 SIXX R850</b>		<b>KR 15 SL CR</b>		<b>KR 16 CR</b>		<b>KR 16 L6 K-CR</b>
5 kg		15 kg		16 kg		6 kg	
-		10 kg		10/variabel/20 kg		10/variabel/20 kg	
4		4		5		5	
± 0.03 mm		± 0.1 mm		± 0.1 mm		± 0.1 mm	
KR C2 SR		KR C2		KR C2		KR C2	
29 kg		315 kg		235 kg		240 kg	



	<b>KR 180 L130-2 CR</b>		<b>KR 210 L150-2 CR</b>		<b>KR 240 L180-2 CR</b>		<b>KR 500-2 CR</b>
130 kg		150 kg		180 kg		500 kg	
50/100/300 kg		50/100/300 kg		50/100/300 kg		50/100/400 kg	
5		5		5		6	
± 0.12 mm		± 0.12 mm		± 0.12 mm		± 0.15 mm	
KR C2		KR C2		KR C2		KR C2	
1285 kg		1285 kg		1285 kg		2350 kg	

In cooperation with Manx Automation.

