

KUKA

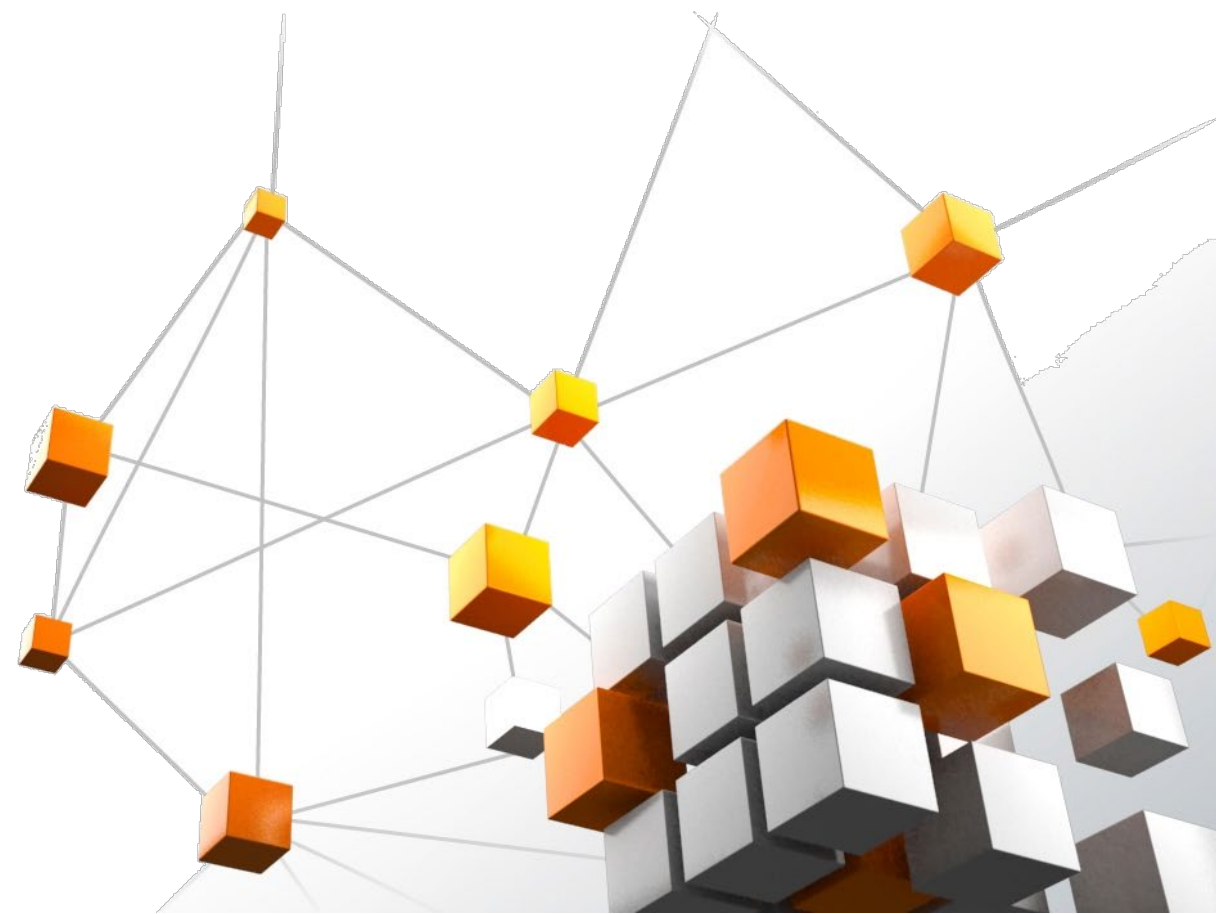
KUKA



KUKA new KR QUANTEC KUKA 新型 KR QUANTEC

The Robot.
机器人

flexible - economic – trustworthy
灵活 – 经济 – 值得信赖



KUKA



Agenda 议程



- **Overview**
 - Market Requirements
 - Advantages of the new Series
 - TCO – Total Cost of Ownership
 - Applications / References
 - Technical Data
 - Options
 - Outlook and Timeline
 - Appendix
- **概述**
 - 市场需求
 - 新系列的优势
 - TCO –总拥有成本
 - 应用/参考
 - 技术数据
 - 选配
 - 前景和时间轴
 - 附录

Overview

Allrounder of the Next Generation within the high Payload Class

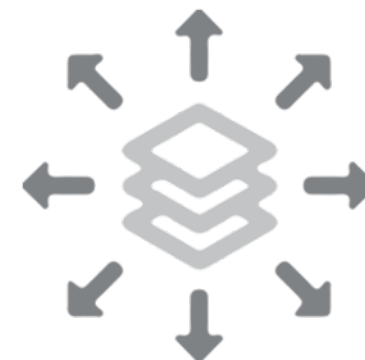
概述

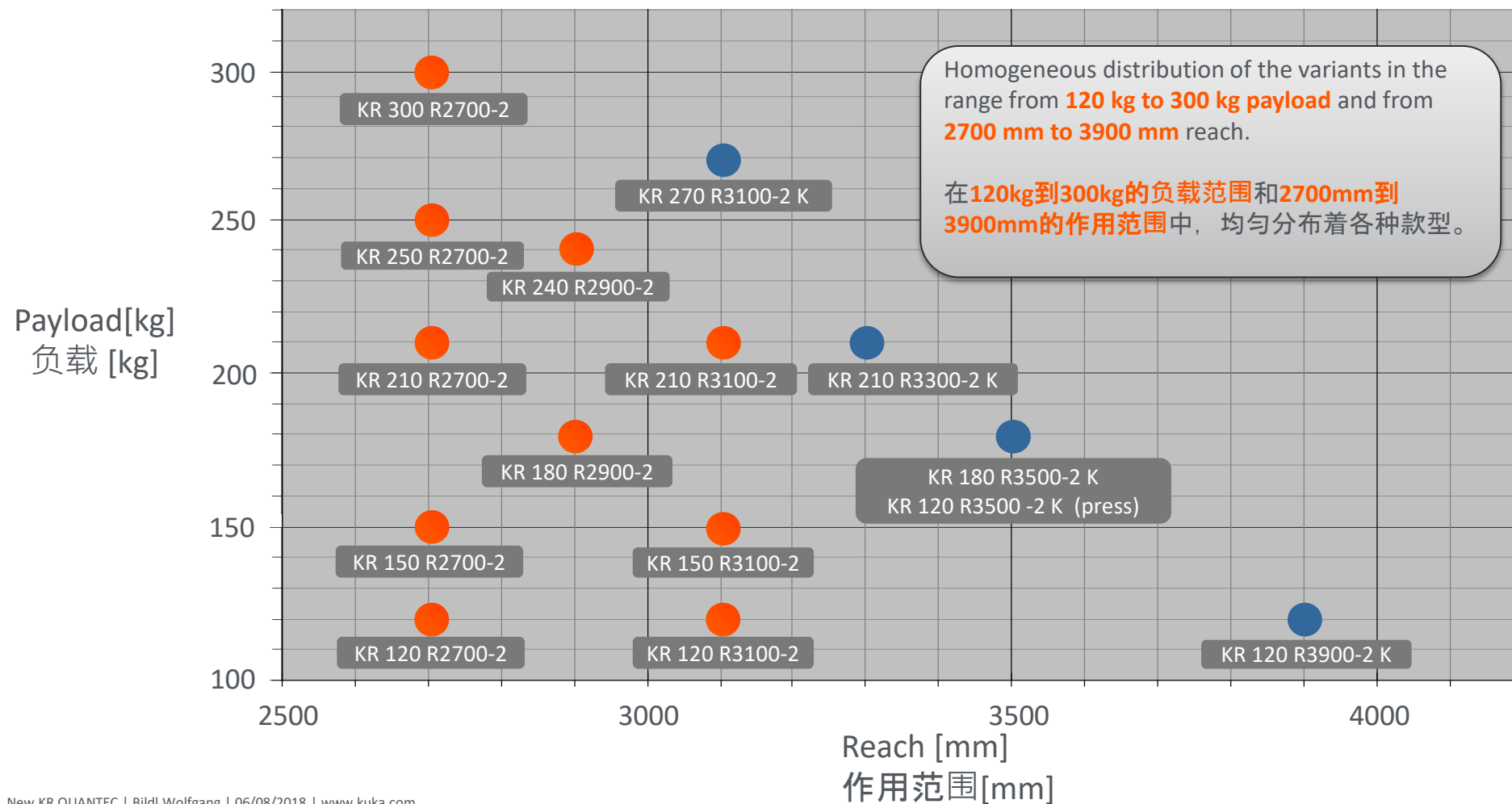
高负载级中的下一代多面手。

- ✓ The KR QUANTEC series is the **best-selling series** in the KUKA product family and has been delivered approx. **100,000 units** since 2010.
- ✓ KR QUANTEC系列是KUKA产品家族中**最畅销的产品系列**，自2010年以来，已经交付了大约**10万台**。
- ✓ This series is now being transferred to the **next generation**, based on the experience of the highly dynamic development of automation technology.
- ✓ 在自动化技术高度动态发展的经验基础上，这一系列正在向**下一代**转型。
- ✓ Even in the next generation, the KR QUANTEC series offers the **largest payload and reach portfolio** of the high payload class on the market
- ✓ 即使在**下一代**产品中，KR QUANTEC 系列提供了**最大荷载**，并实现了市场上的**高负荷级产品组合**。
- ✓ The new KR QUANTEC sets **standards in quality and reliability** for tomorrow's production landscape
- ✓ 新型KR QUANTEC 为将来的产品蓝图制定了**质量和可靠性标准**。



- ✓ Optimized Portfolio for **Best Delivery Time**; slim modular system and **Best-Fitting Robots**
- ✓ 是**最佳交付时间**、超薄模块系统和**最佳匹配机器人**的优化产品组合；
- ✓ A **Maximum of Flexibility** (performance, robot variants, environment, maintenance etc.)
- ✓ **最大限度的灵活性**（性能、机器人款型、环境、维护保养等）
- ✓ **Low TCO** for best investment
- ✓ **总拥有成本（TCO）低**，是最佳的投资选择
- ✓ New Motion Modes for **Adjustable Performance** and Motion Performance
- ✓ 具有用于**可调性能**和动作性能新型动作模式
- ✓ **Best in Class** due to sum of **Technical Features**
- ✓ 由于集合了非常多的**技术特征**，是**这一级别中的最佳选择**





- Standard 标准款型
- Shelf-Mounted 架装款型



Overview

New KR QUANTEC Portfolio – Special Variants

概述

新型KR QUANTEC产品组合-特殊款型

- Ceiling variants 天花板款型

- KR 300 R2700-2 C
- KR 240 R2900-2 C
- KR 250 R2700-2 C
- KR 210 R3100-2 C
- KR 180 R3500-2 K-C (120kg Press Linking)



(120kg 按压连接)

- HA variants (High Accuracy)

- Availability via software (see chapter „Motion Modes“)
- HA款型 (高精度)
 - 可通过软件获得 (见“动作模式”一章)

- Foundry variants

铸造厂款型

- KR 300 R2700-2
- KR 240 R2900-2
- KR 250 R2700-2
- KR 210 R3100-2
- KR 210 R2700-2
- KR 180 R2900-2
- KR 150 R2700-2
- KR 150 R3100-2
- KR 120 R2700-2
- KR 120 R3100-2
- KR 270 R3100-2 K
- KR 210 R3300-2 K
- KR 180 R3900-2 K
- KR 120 R3500-2 K





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The new KR QUANTEC – Productivity in its Purest Form

市场需求

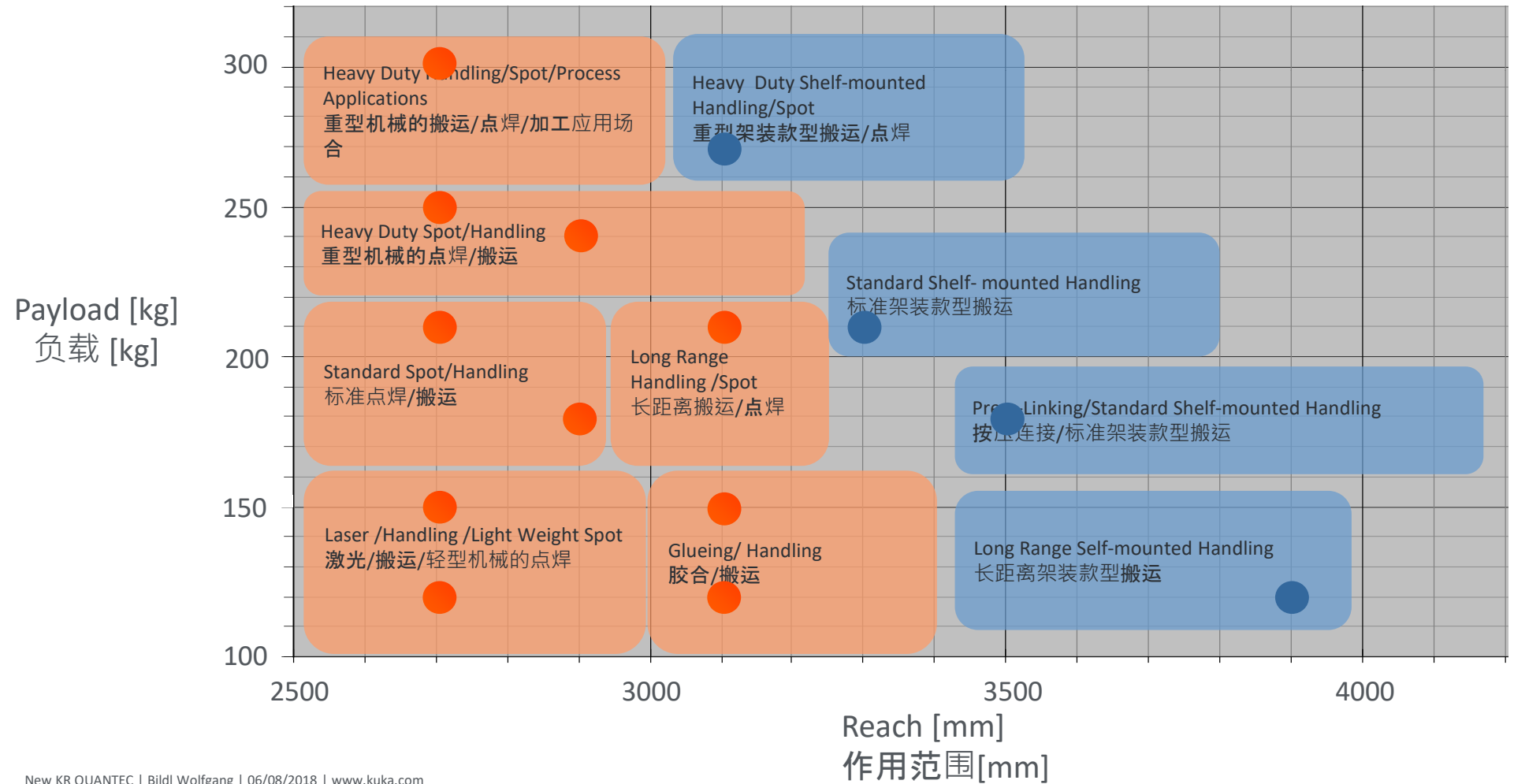
新型KR QUANTEC – 以其最纯粹的形式提高生产力

- ✓ Optimum **delivery time**, local and global
- ✓ 本地和全球**交付时间**最佳
- ✓ Low **TCO** for **economical production**
- ✓ **TCO**低, 适用于**经济生产**
- ✓ Highest system availability
- ✓ 系统可用性最高
- ✓ Flexibility in plant planning and implementation
- ✓ 在工厂计划与实施方面具有灵活性

- ✓ **Variable performance** for energy- or quantity-optimized production
- ✓ 具有**各种各样的性能**, 适用于能源优化和数量优化
- ✓ Use of **mature technology** with process-optimal accuracy
- ✓ 使用了**成熟的技术**, 具有最佳的工艺精度

The **new KR QUANTEC** adapts to tomorrow's market requirements already today
新型KR QUANTEC 如今已经能够适应将来的市场需求





- Standard 标准款型
- Shelf Mounted 架装款型





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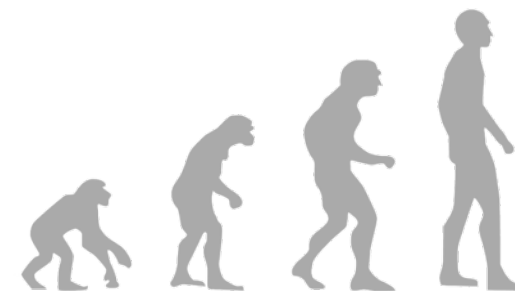
Advantages of the new Series

Evolution of Technology - Comparison to the previous Series

新系列的优势

与以前的系列相比，改进了技术

- ✓ Optimized **Portfolio extended up to 300kg payload with 2700mm reach**
 - Performance and flexibility
- ✓ 优化了产品组合 · **负载提高至300kg，作用范围延伸至2700mm**
 - 性能和灵活性增强
- ✓ **Extended permissible ambient conditions** (0° - 55° C // IP67 as standard on the wrist axes)
 - Flexibility in use
- ✓ **环境条件的允许范围扩大** (将0° - 55° C // IP67作为机械手腕轴的标准值)
 - 在使用过程中更具灵活性
- ✓ Consistently **enhanced transmission sealing technology**
 - Longer service life
- ✓ 一直在**加强传送装置的密封技术**
 - 使用寿命更长
- ✓ **Leaner interference contours** and reduced footprint (reduction of 10%)
 - More flexible cell and system planning
- ✓ **干扰轮廓更纤细**，占地面积更小 (降低了10%)
 - 生产单元和系统计划更灵活
- ✓ Consistently **further developed maintenance and service**
 - Best in class maintenance
- ✓ 一直在**进一步开发维护保养及服务**
 - 在该级别的维护保养中是最好的



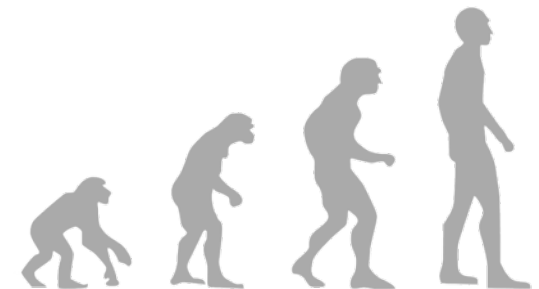
Advantages of the new Series

Evolution of Technology - Comparison to the previous Series

新系列的优势

与以前的系列相比，改进了技术

- ✓ **Optimized working area** in front of and behind the machine
 - Improved accessibility in various applications
- ✓ **优化了机器前后的工作区域**
 - 提高了在各种应用场合中的可达性
- ✓ **Improved stopping distances** of the robot axes in the case of a stop
 - More compact cell and system design
- ✓ 在停机情况下，**改进了**机器人轴线的**停止距离**
 - 使生产单元和系统设计更紧凑
- ✓ **Consistently improved TCO** (Total Cost of Ownership)
 - Lower running costs
- ✓ **一直在改进TCO** (总拥有成本)
 - 运行成本更低
- ✓ New **optional software Motion Modes** to convert standard machines into process machines
 - Maximum flexibility with low robot diversity
- ✓ 利用新型**可选软件动作模式**，使标准机器转变为工艺机器
 - 灵活性最大，机器人差异小
- ✓ New **Energy Supply concept**
 - Long service life and maximum availability
- ✓ 新的**供能理念**
 - 使用寿命长，可用性最高





Designed for **KRC4** und **KRC5**
专为**KRC4** 和**KRC5**设计

Optimized wrist (center of gravity, service life of energy supply system)
优化了机械手腕 (重心、供电系统的使用寿命)

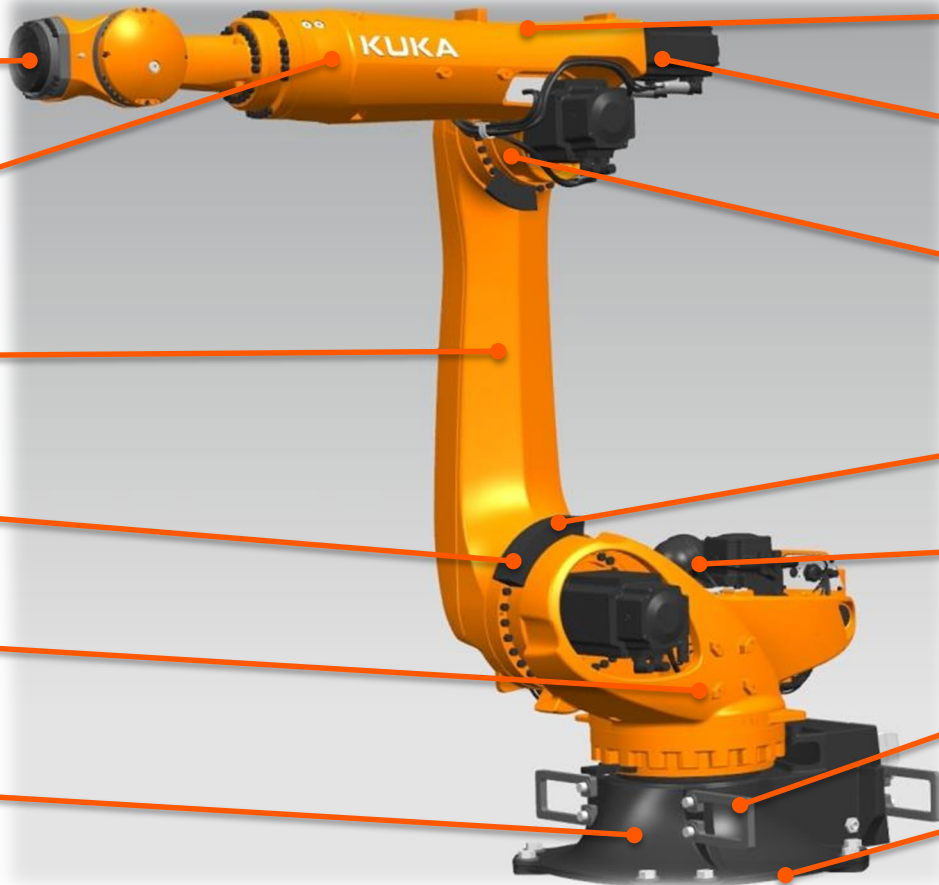
Integrated A6 motor with external connection
使A6电机与外部连接成为一个整体

Minimized number of structural components
将结构组件的数量降至最低

Minimized number of gear boxes and motors (within the new portfolio)
将齿轮箱和电机的数量降至最低 (属于新的产品组合)

Reduced maintenance of the hollow shaft A1
中空轴A1的维护保养次数减少

Compact basic axes for optimized interference contour
设置紧凑的基本轴, 以便用于经过优化的干扰轮廓



High additional loads A1, A2 and A3
较高的附加负载 A1、A2、A3

A4 and A5 motors horizontal arrangement and slim A3
→ optimized interfering contour
A4和A5电机水平布置, 并设置超薄的A3
→ 优化了干扰轮廓

Improved oil seals
改进了油封

Retrofittable additional hard stops A1, A2 and A3
设置可翻新的附加硬停止装置A1、A2、A3

Hydro-pneumatic Counterbalance system
液压气动平衡系统

Removable forklift pockets
可移动叉槽

New, smaller footprint
新型, 占地面积更小

KUKA KR QUANTEC new vs. Fanuc R2000-iC

KUKA KR QUANTEC新系列与Fanuc R2000-iC相比

- ✓ **Optimum working envelope**, even with long arm and ceiling versions
- ✓ **最佳工作包络面** · 即使采用长臂款型和天花板款型
- ✓ **Gear boxes easier to maintain** (oil instead of grease) or to replace
- ✓ **齿轮箱更容易维护保养** (用润滑油代替润滑脂) 或更换
- ✓ Up to **60% better positioning behavior** (positioning time, overshoot)
- ✓ **定位性能高出60%** (定位时间、超调量)
- ✓ **10% larger working envelope** (axis 1, working area behind the machine)
- ✓ **工作包络面大出10%** (轴1, 机器后面的工作区域)
- ✓ More **versatile portfolio** (variants, payload, reach)
- ✓ **产品组合更多** (款型、负载、作用范围)
- ✓ **Best in Class axis speeds**
- ✓ **在该级别中· 轴速最佳**
- ✓ **Better operating conditions** (0 to 55°C)
- ✓ **工作条件范围更大** (0至55°C)
- ✓ more than **10% shorter cycle times** possible
- ✓ **循环时间更短· 缩短的时间可达10%以上**
- ✓ more than **10% lower energy consumption**
- ✓ **能耗更低, 降低幅度达10%以上**



KUKA KR QUANTEC new vs. ABB IRB 6700

KUKA KR QUANTEC新系列与ABB IRB 6700相比

- ✓ Up to **50% better positioning behavior** (positioning time)
- ✓ **定位性能高出50%** (定位时间)
- ✓ **10% larger working envelope** (axis 1, working area behind the machine)
- ✓ **工作包络面大出10%** (轴1, 机器后面的工作区域)
- ✓ **More versatile portfolio** (console and ceiling variants, range)
- ✓ **产品组合更多** (控制台和天花板款型、范围)
- ✓ **Best in class axis speeds**
- ✓ **在该级别中·轴速最佳**
- ✓ **Better operating conditions** (0 - 55°C)
- ✓ **工作条件范围更大** (0至55°C)
- ✓ **Slimmer design** (20% less interference contour in the hand)
- ✓ **设计更纤细** (机械手部的干扰轮廓更小·减小幅度达20%)
- ✓ **Optional additional hard stops axis 1-3** (only A1 with ABB)
- ✓ **选配附加的硬停止轴1-3** (ABB仅仅设置A1)



Advantages of the new Series

Comparison to the Competition – Yaskawa

新系列的优势

与竞争产品 – Yaskawa的比较

KUKA KR QUANTEC new vs. Yaskawa GP225

KUKA KR QUANTEC新系列与Yaskawa GP225相比

- ✓ Up to **80% better positioning behavior** (positioning time)
- ✓ **定位性能高出80%** (定位时间)
- ✓ **Larger working envelope** (axis 1, working area below and behind the machine)
- ✓ **工作包络面更大** (轴1, 机器下方和后面的工作区域)
- ✓ **More versatile portfolio** (bracket and ceiling variants)
- ✓ **产品组合更多** (支架和天花板款型)
- ✓ **Best in Class axis speeds**
- ✓ **在该级别中·轴速最佳**
- ✓ **Better operating conditions** (0 - 55°C)
- ✓ **工作条件范围更大** (0至55°C)
- ✓ **Optional additional stops axis 1-3** (only A1 with Yaskawa)
- ✓ **工作条件范围更大** (0至55°C)





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TCO - Total Cost of Ownership

Spare Parts and Maintenance

TCO – 总拥有成本

备品备件和维护保养

- ✓ **Significantly improved MTBF** of the entire robot mechanics including energy supply system
- ✓ 整个机器人结构 (包括供能系统) 的**平均故障间隔时间 (MTBF) 大幅改进**
- ✓ **50% reduction in the number of main components** within the modular system KR QUANTEC
- ✓ 在KR QUANTEC模块化系统中, **主要元件的数量减少了50%**
- ✓ **Minimized maintenance** compared to the previous model
- ✓ 与以前的机型相比, 维护保养**降至最少**
 - Oil change every 20.000h (only one type of oil, no grease - see competition)
 - 每20.000h更换一次机油 (只能使用一种机油, 不能使用油脂——见竞争内容)
 - visual inspection
 - 外观检验
 - Cyclic lubrication CBA bearings
 - 循环润滑CBA轴承
 - No re-greasing of the cable set
 - 无需对成套电缆进行重复润滑
 - No mandatory replacement of the cable harness (see competition)
 - 无需强行更换电缆线束 (见竞争内容)
 - No battery replacement on the robot
 - 无需更换机器人的电池
- ✓ **Optimized MTTR times** through simplified component replacement (motors, gearboxes)
- ✓ 通过简化了的元件更换 (电机、齿轮箱) · **优化了修复前平均时间 (MTTR)**



Best in Class
是该级别中最好的产品





TCO - Total Cost of Ownership

Training, Installation, Energy Consumption

TCO - 总拥有成本

培训、安装、能耗

- ✓ **Low training requirement**, since comparable technology to the predecessor series
- ✓ 由于技术更胜之前的系列，**因此培训要求低**
- ✓ **Simplified installation** due to fast adjustment and improved Work Visual
- ✓ 由于可以进行快速调整，并采用了经过改进的Work Visual，**因此简化了安装**

- ✓ Measurements with **AIDA test programs** are still pending
- ✓ 是否用**AIDA测试程序**进行测量仍然待定
- ✓ Further significant energy savings are achieved together with the **KRC5** and **(V)KSS 8.7**
- ✓ **KRC5**和**(V)KSS 8.7**一起进一步节约了大量的能源



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Applications / References

Applications in General

应用/参考

一般应用

- ✓ **New energy supply concept** with improved accessibility for **simplified maintenance**
- ✓ 由于采用了**新的供能理念**，并改进了可达性，因此可用于**简化了的维护保养场合**
- ✓ Application-oriented, **freely adjustable drive modes (Motion Modes)** for different requirements for path accuracy, speed, energy consumption etc. (from (V)KSS8.6)
- ✓ 以应用为导向，**可自由调整的驱动模式（动作模式）**可用于不同的路径精度、速度、能耗等要求（自(V)KSS8.6 以来）
- ✓ Simple mounting of the tools due to **standardized mounting flanges**
- ✓ 由于采用了**标准化安装法兰**，因此可用于工具的简单安装
- ✓ **Extended mounting options** with screw-on surfaces for additional loads
- ✓ 由于采用了旋拧表面，因此用于附加负载的**安装选择范围更大**
- ✓ **Special versions for special requirements** due to ambient conditions
- ✓ 由于环境条件范围更大，因此**有许多特殊版本可用于特殊要求**



Applications / References

Applications in General

应用/参考

一般应用

- ✓ Broad field of application in all market segments - From medical technology to foundry technology, the new KR QUANTEC series offers the ideal portfolio for **economical**, **efficient** and **high-quality** production.
- ✓ 在所有的市场细分中，均具有较大的应用领域——从医学技术到铸造技术，新型KR QUANTEC系列为**经济、高效、优质**生产提供了理想的产品组合。



Medical
医疗



Handling
搬运



Machining
机械加工



Automotive
汽车制造



Foundry
铸造

...

Applications / References

Application Resistance Spot Welding

应用/参考

电阻点焊应用场合

- ✓ Perfectly matched **mechanical design** to the core technology of resistance spot welding thanks to the experience of over 50,000 spot welding robots
- ✓ 由于具有5万多台点焊机器人的经验，具有与电阻点焊的核心技术完美匹配的**机械设计**
- ✓ Support of all common **energy supply concepts** (electrical, pneumatic)
- ✓ 支持所有常见的供能**理念**（电气、气动）
- ✓ **Simplified engineering** even in complex situations due to leaner **interference contour**
- ✓ 即使在复杂情况中，由于**干扰轮廓**更纤细，因此**简化了工程设计**

Ready2 Packages are available as complete solutions:

Ready2 包 可作为完整的解决方案使用：

- ✓ ready2_spot
- ✓ ready2_rivet



Applications / References

Application Handling / Loading and Unloading

应用/参考

搬运/装卸应用场合

- ✓ **Simple installation** and maintenance of flexible gripper technology due to simplified EZ assembly and screw-on surfaces for all types of additional loads
- ✓ 由于简化了所有附加负载类型的EZ组件和螺旋表面，从而使抓爪更灵活，**安装**和维护**保养更简单**
- ✓ **Switchability** between maximum speed in the empty run and maximum load at the load limit
- ✓ 可在空行程的最大速度与负载极限时的最大负载之间进行**切换**
- ✓ **Clear and slim structure** for ideal accessibility
- ✓ 由于采用了**清晰且超薄**的结构，因此具有理想的可达性。
- ✓ Best **positioning accuracy** in its class with optimum **cycle time** (more than **10% shorter cycle times** are possible, im comparison to todays series)
- ✓ 在该级别中，其**定位精度**最高，**循环时间**最佳（与如今的产品系列相比，循环时间更短，**缩短时间可达10%以上**）



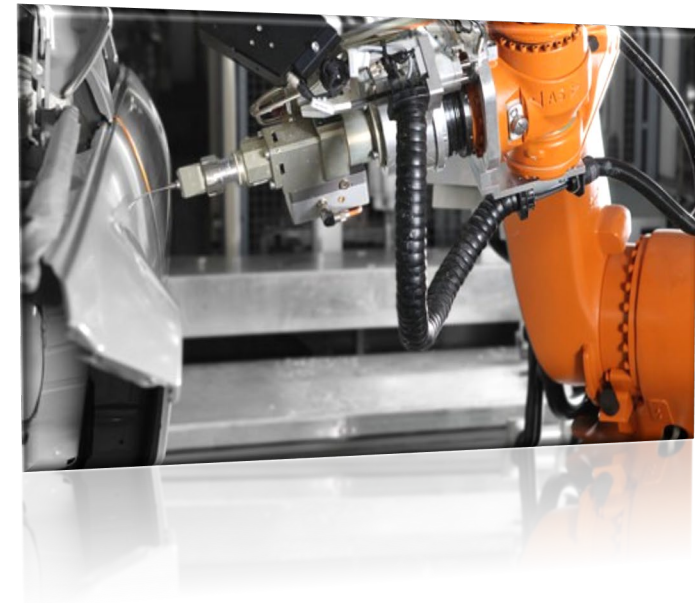
Applications / References

Example Path Application: Industrial Glueing

应用/参考

应用途径示例：工业胶合

- ✓ **Ideal product portfolio** for adhesive application thanks to models with **long ranges**
- ✓ 由于采用了**长距离**的机型，因此成为粘合剂应用的**理想产品组合**
- ✓ **Simple installation and maintenance** of the energy and material supply systems thanks to the new robot and EZ concept (high permissible additional loads, best accessibility, flexible screw-on surfaces)
- ✓ 由于采用了新的机器人和EZ理念（可容许的高附加负载、最佳可达性、灵活的螺旋表面），从而使能源和材料供应系统的**安装和维护保养更简单**
- ✓ Highest **process speeds** at maximum **path accuracy** achieved by Path Mode
- ✓ 通过路径模式，在最高**路径精度**中实现**最大工艺速度**



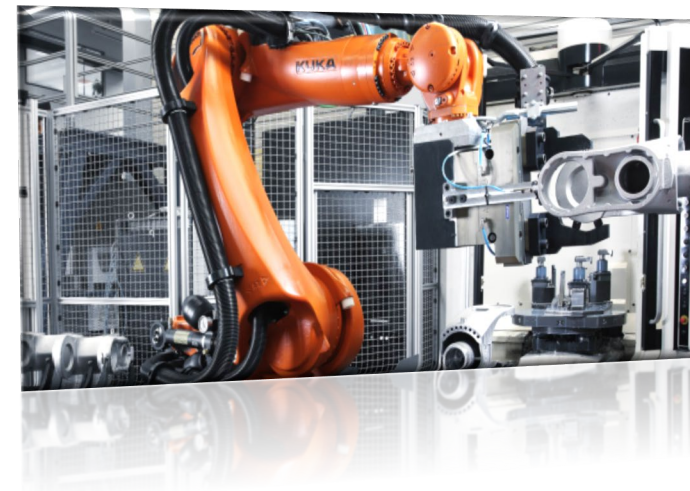
Applications / References

Other Joining Applications

应用/参考

其他连接应用场合

- ✓ The models of the new KR QUANTEC series represent a **new reference** for all other relevant **handling and joining applications** in the medium to high S.W.L. range, e.g.
- ✓ 新型KR QUANTEC系列的机型代表了如下中高档S.W.L范围介质中所有其他相关**搬运及连接应用场合的新参考**
 - Stud Welding
 - 螺柱焊接
 - Flow Drilling Screwing
 - 流钻螺丝接合
 - Handling
 - 搬运
 - Riveting
 - 铆接
 - Clinching
 - 无铆钉连接
 - Hemming
 - 卷边
- ✓ Optimum Motion Modes can be selected for all applications to achieve **maximum cycle time** with **ideal process quality**
- ✓ 为了实现**最大循环时间**和**理想的工艺质量**，可以为所有的应用场合选择最佳动作模式



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Technical Data

KR210 R2700-2

技术数据

KR210 R2700-2



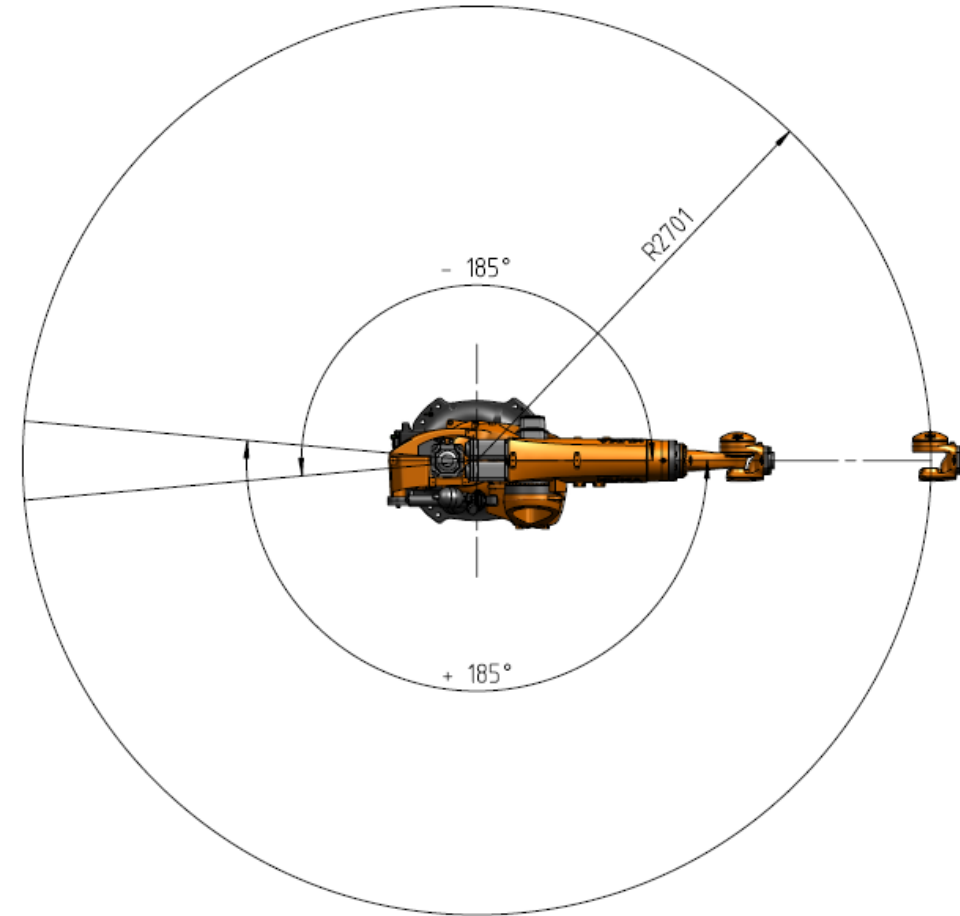
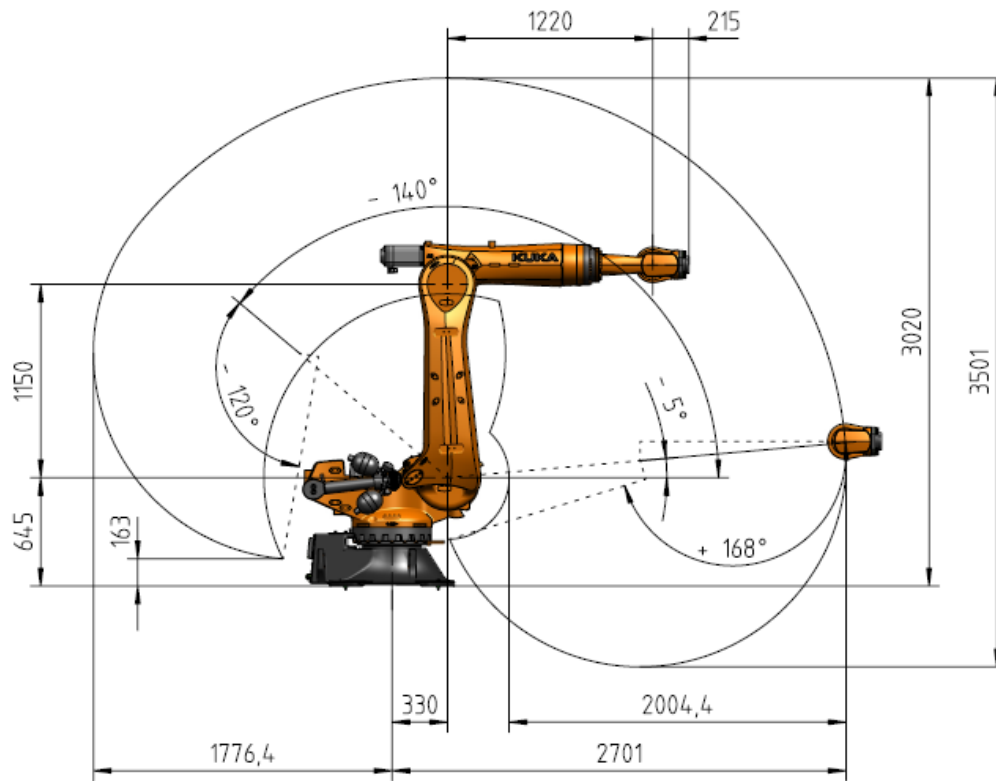
Technical Data 技术数据	
Payload 负载	210 kg
Reach 作用范围	2701 mm
Additional Load A3 附加负载A3	50 – 150 kg
Nominal Payload 标称负载	260 kg
Position Accuracy 定位精度	0,05 mm
Installation 安装	Floor / Ceiling 地面/天花板
Footprint 占地面积	742x742mm
Number of Axes 轴数	6
Weight 重量	1100 kg
MTBF 平均故障间隔时间	t.d.b. 待定
Temperature Range 温度范围	0°C – 55°C
Protection Class 防护等级	Base Axes IP65 基座轴 IP65 Wrist Axes IP67 机械手腕轴 IP67
Options 选配	Hard Stops A1 - A3 硬停止装置 A1 - A3
Control Panel 控制面板	SmartPad 2.0
Control Unit 控制单元	KRC4 // KRC5* *自2020年起

Technical Data

Working Envelope – KR210 R2700-2

技术数据

工作包络面 – KR210 R2700-2



Technical Data

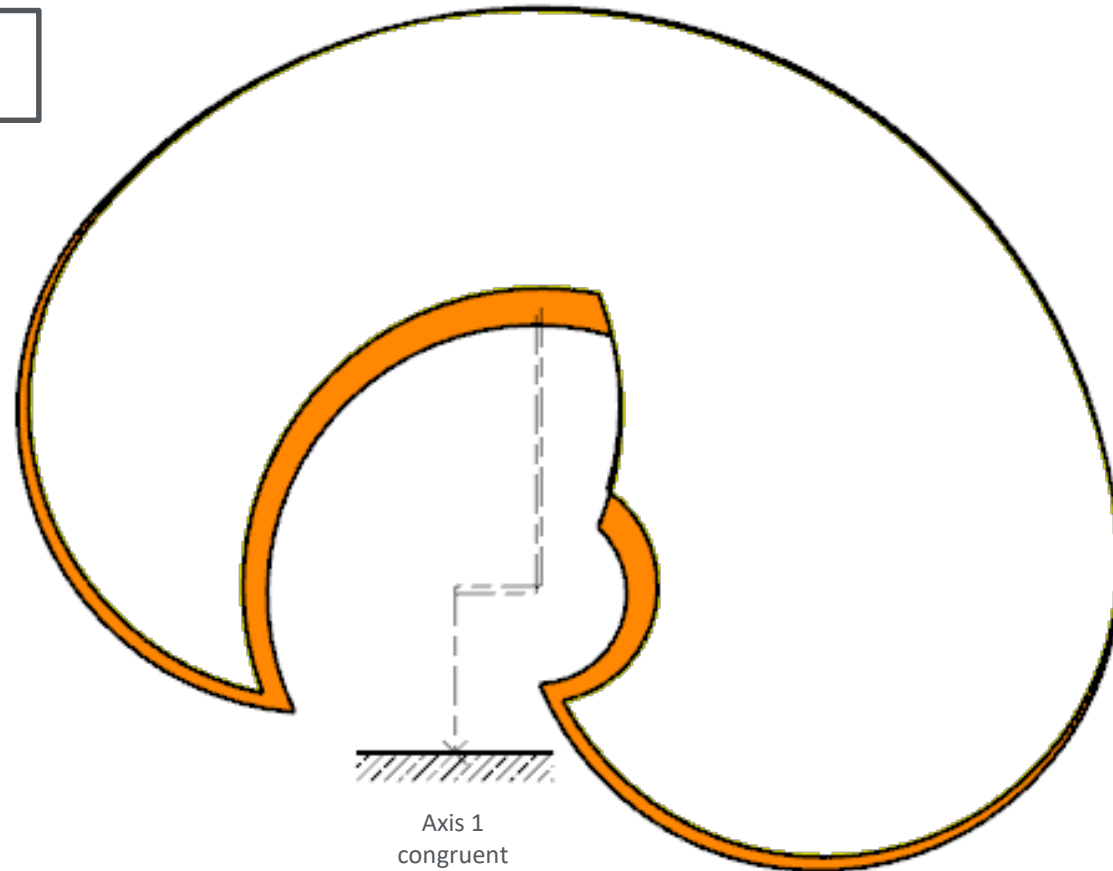
Working Envelope – compared to the Predecessor

技术数据

工作包络面- 与先前的机型相比

KR 210 R2700 prime (today's version)
KR 210 R2700 prime (当前版本)

KR 210 R2700-2 (new)
KR 210 R2700-2 (新版本)

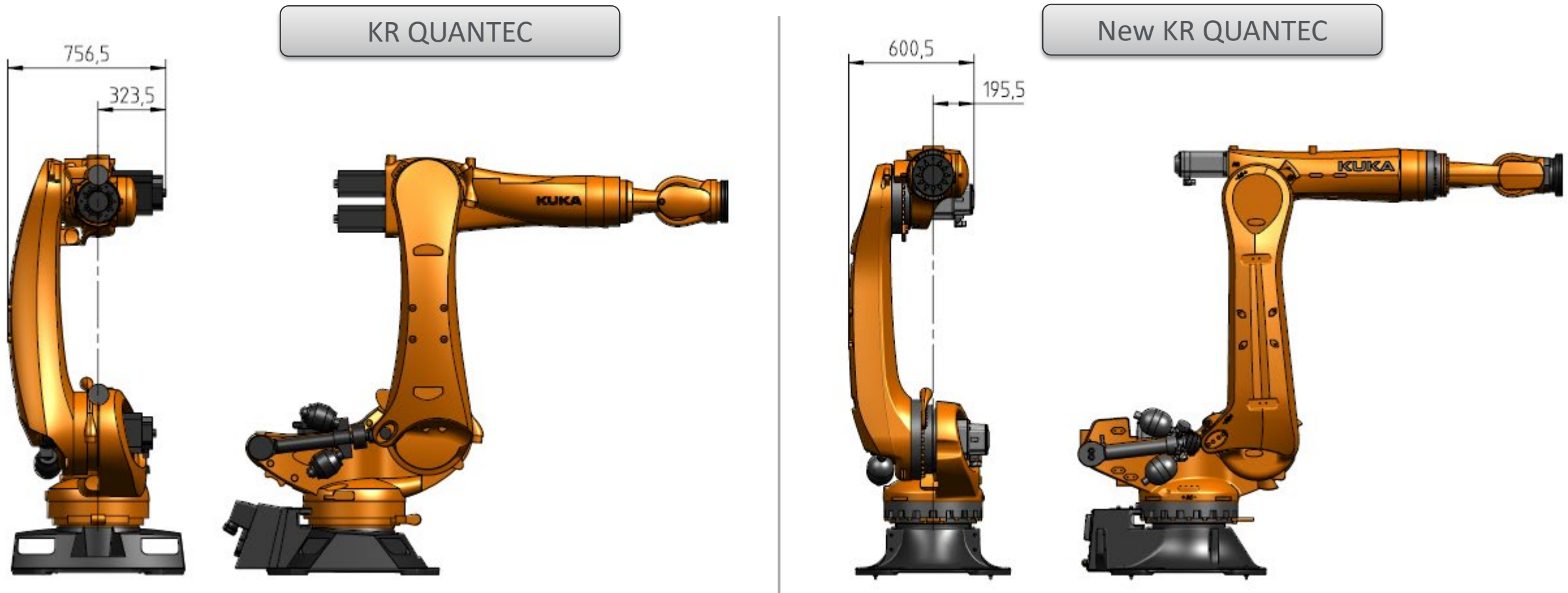


Technical Data

Interference Contour A3 - compared to its Predecessor

技术数据

干扰轮廓A3 – 与先前的机型相比

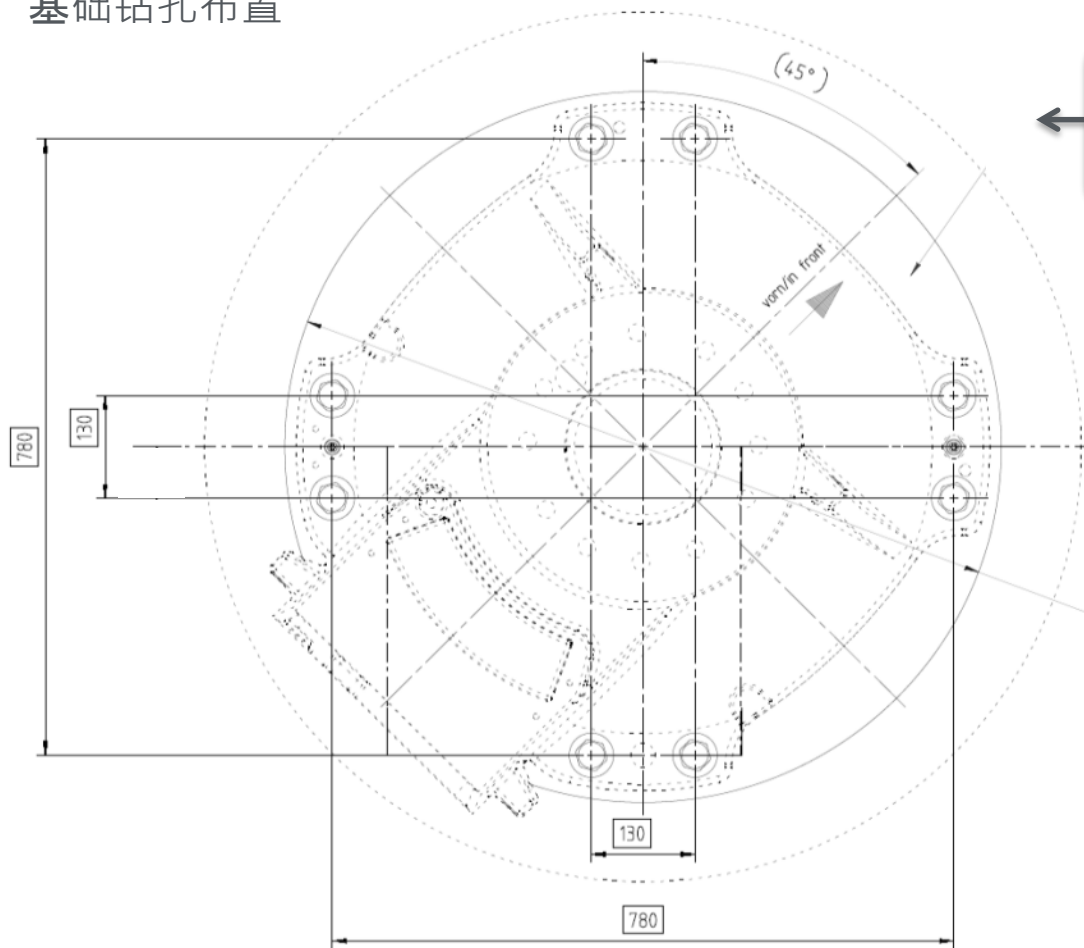


Technical Data

Foundation Drilling Pattern

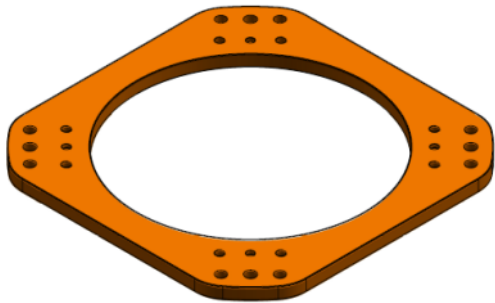
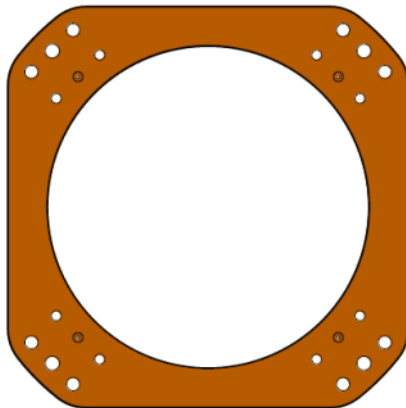
技术数据

基础钻孔布置



External dimensions 742x742mm (previously 830x830mm)
Foundation drilling pattern corner dimension 780mm (previously 934mm)
外部尺寸 742x742mm (之前为 830x830mm)
基础钻孔布置 拐角尺寸 780mm (之前为 934mm)

Adapter plate (optional) KR QUANTEC (today's version) on KR QUANTEC new
转接板 (选配) KR QUANTEC 新版本上的KR QUANTEC (当前版本)





Technical Data

Wrist Types











技术数据

机械手腕类型



Reach
作用范围

Payload
负载

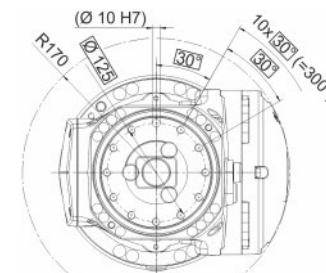
	2700 mm	2900 mm	3100 mm
	 300kg ①		
	 250kg ①		
		 240kg ①	
	 210kg ②		 210kg ①
		 180kg ①	
	 150kg ②		 150kg ②
	 120kg ②		 120kg ②

① big Wrist “ZH300”
pitch circle \varnothing 160mm,
11 screws,
internal \varnothing 100mm

① 大机械手腕“ZH300”
节距圆直径160mm,
11颗螺丝·
内部直径100mm

② small Wrist “ZH210”
pitch circle Teilkreis \varnothing 125mm
11 screws,
Internal \varnothing 80mm

② 小机械手腕“ZH210”
节距圆直径125mm,
11颗螺丝·
内部直径80mm



example small wrist



Technical Data
Complete System
技术数据
完整系统



New KR QUANTEC

+

KRC4 ed15



oder



KRC5
(from 01.04.2020)
(自2020年4月1日起)

+

KSS 8.3/8.5
KUKA

KSS 8.6
KUKA
Incl. Motion Modes
(from 01.10.2019)
包括动作模式
(自2019年10月1日起)

oder

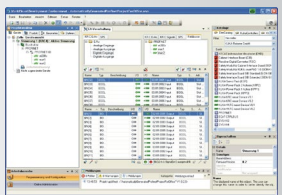
KSS 8.7
KUKA
(from 01.04.2020)
(自2020年4月1日起)

+



Smartpad-2
(from 01.04.2019)
(自2019年4月1日起)

+



Work Visual
&
Tech Packages
技术包

Separate information on all these products is available from KUKA.
所有关于这些产品的单独信息，均可从KUKA公司获得。



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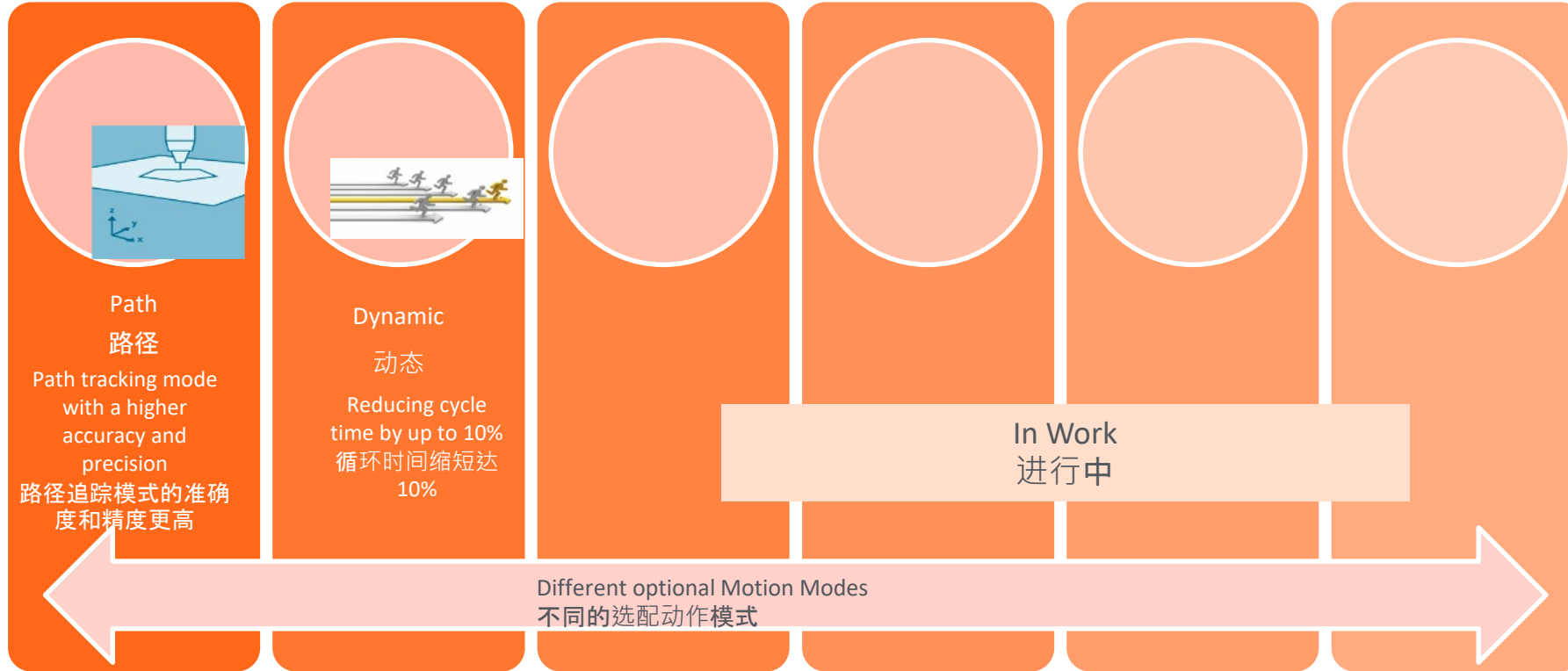


Options

Motion Modes – Hardware becomes Software

选配

动作模式——硬件编程软件



The new KR QUANTEC runs in **Standard Mode without** Motion Modes, **with** Motion Modes the standard machine becomes a **Process Machine**.
新型KR QUANTEC在无动作模式的 **标准模式** 中运行， 如果没有动作模式， 标准机器即变成**工艺机器**。



Options

Energy Supply Systems

选配

供能系统



- ✓ **Simple replacement** or **simple retrofitting** of the basic and portable roof axis EZ
- ✓ 基础和便携式顶部轴EZ的**更换或改装非常简单**
- ✓ **Savings on cable length** for economical installation
- ✓ **节省了线缆长度**，适用于经济安装
- ✓ Less wear for **longer service life**
- ✓ 磨损更少，**使用寿命更长**
- ✓ **Better interference contour** for improved simulation and more economical cell planning
- ✓ **干扰轮廓更适用于**经过改进的模拟情况和更经济的工作单元规划
- ✓ Improved **wear and jam protection** on axis 5
- ✓ **耐磨损性能提高**，设置了轴5的**防卡保护**

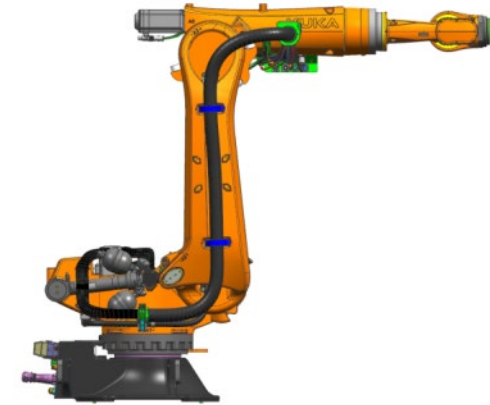


Options

Energy Supply Systems Axis 1 - Axis 3

选配

供能系统轴 1 - 轴 3

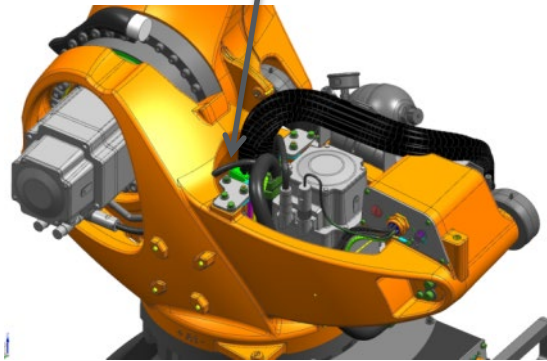


Brackets are bolted from above

→ **Simplification of assembly**

支架从上述轴柱接

→ 简化了组装

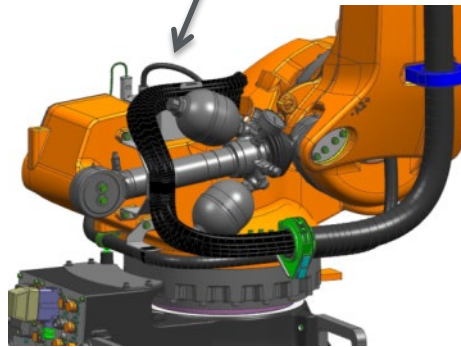


Shorter cable way through the course about the CBS

→ **Less material input**

通过CBS周围路线的线缆更短

→ 物料投入更少

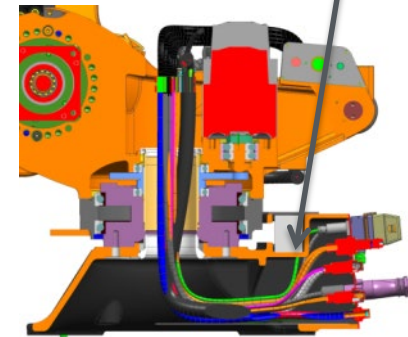


no more jam pieces behind the interface A1

→ **Simplification of Assembly**

接口A1后面没有更多的卡件

→ 简化了组装

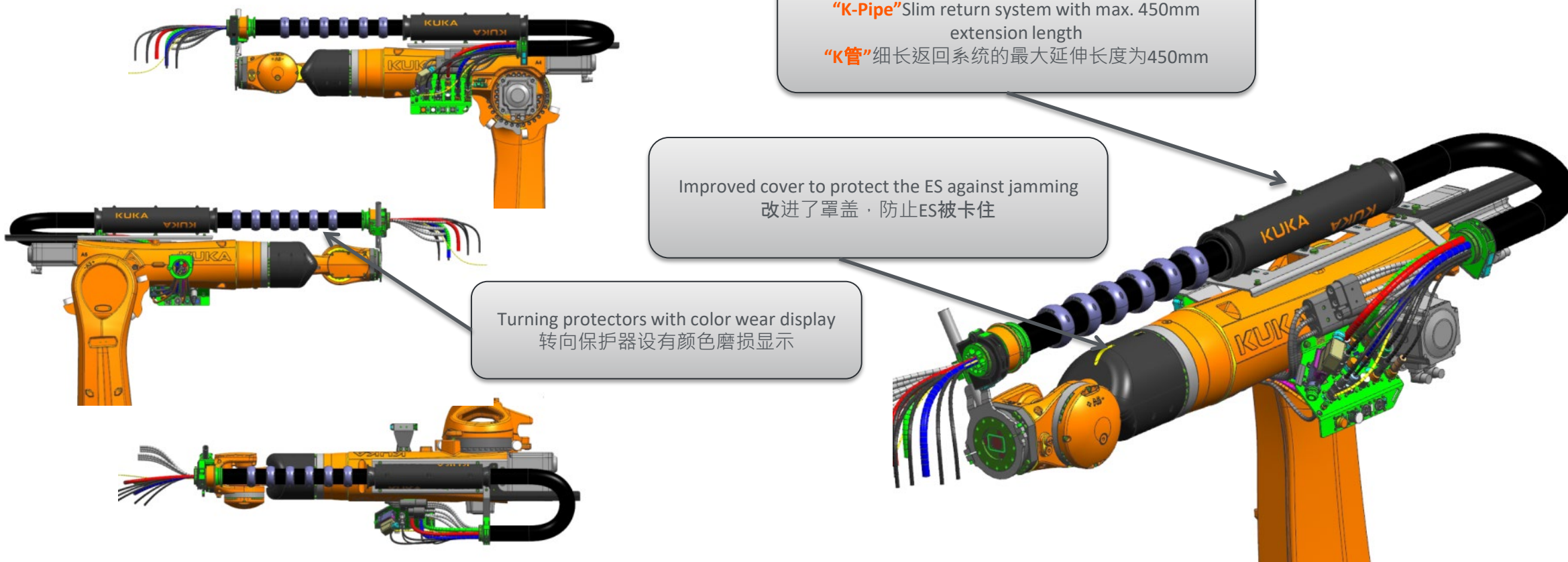


Options

Energy Supply Systems Axis 3 - Axis 6

选配

供能系统轴3 - 轴6



"K-Pipe" Slim return system with max. 450mm extension length
"K管"细长返回系统的最大延伸长度为450mm

Improved cover to protect the ES against jamming
改进了罩盖，防止ES被卡住

Turning protectors with color wear display
转向保护器设有颜色磨损显示



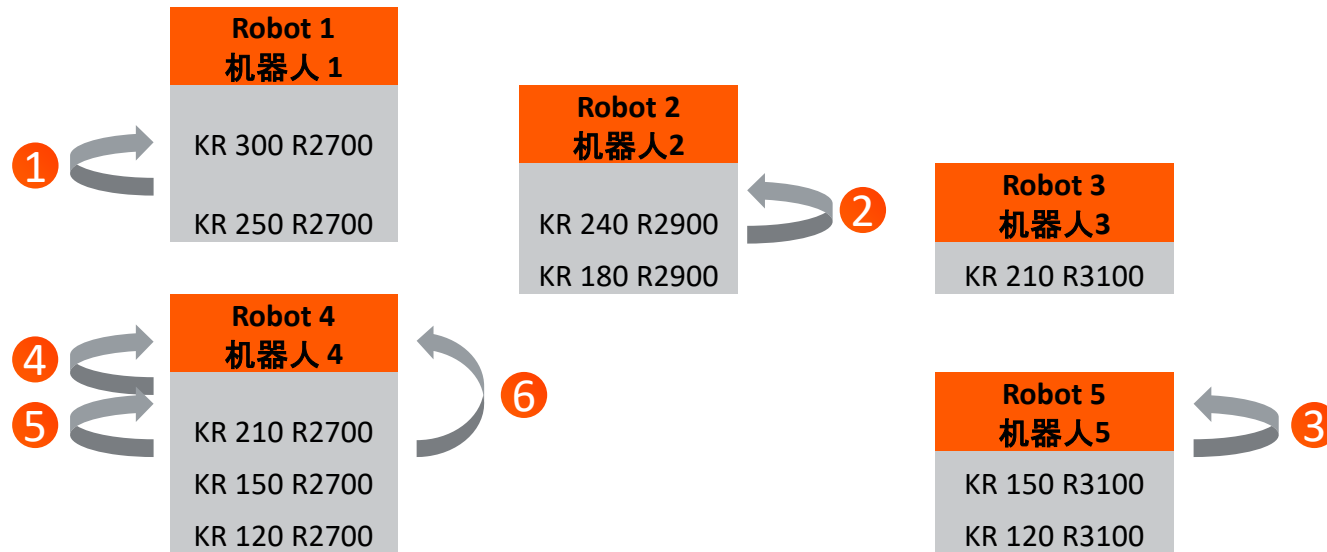
Options

Payload Upgrade in the Field

选配

该领域中的负载升级

- ✓ **KUKA Customer Service** offers the **payload upgrade*** of various KR QUANTEC types in the field
- ✓ **KUKA客户服务**在该领域中提供了各种KR QUANTEC类型的**负载升级***
- ✓ There are **six different upgrade options** available
- ✓ 有**六种不同的升级选项**可供选择



- is only available to a limited extent for robots that are measured with absolute accuracy
- * 只可用于用绝对准确度测量的机器人范围

Optionen

New KR QUANTEC Ready Packs

选配

新型KR QUANTEC Packs

Priority delivery

优先交付

- ✓ Target: 4 weeks delivery time (EX Works)
- ✓ 目标：4周的交付时间（工厂交货）
- ✓ Delivery time for larger quantities on request
- ✓ 如果数量较大，则根据需要确定交付时间
- ✓ Predefined robots for key applications
- ✓ 对于关键应用场合，可使用预先定义的机器人



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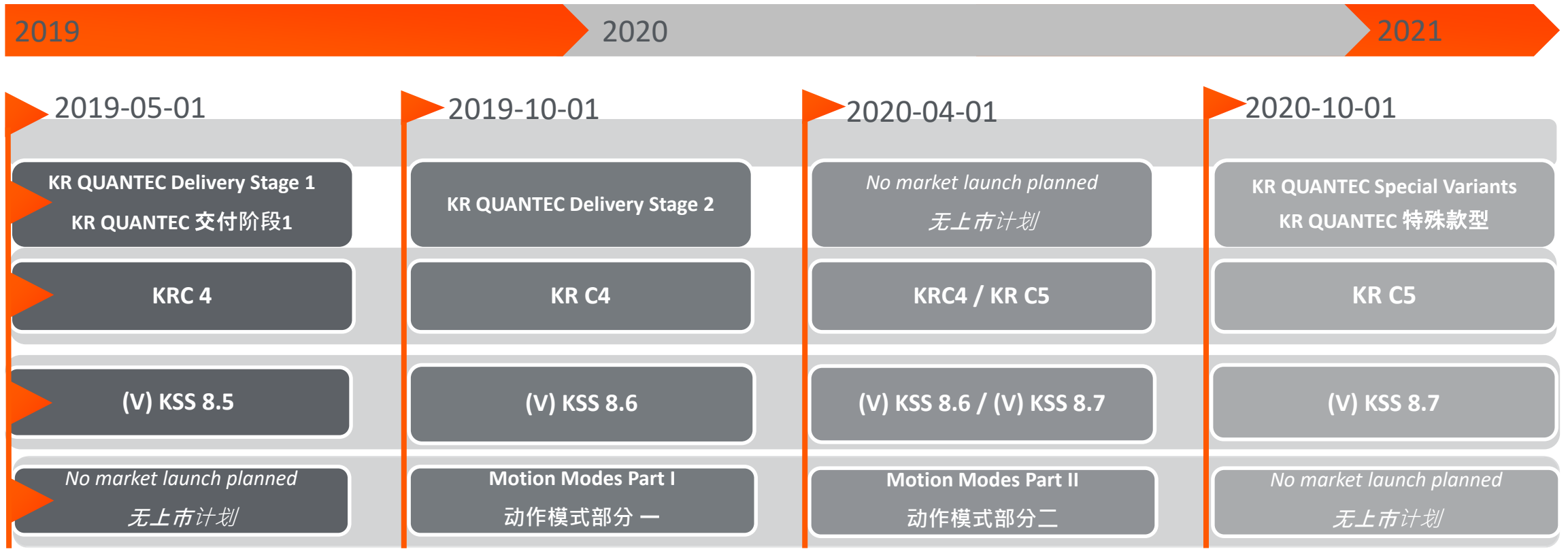
Timeline

Roadmap: Start of Delivery

时间轴

路线图：开始交付

Delivery Stage 1 交付阶段1	Delivery Stage 2 交付阶段2
KR 120 R2700-2	KR 180 R2900-2
KR 150 R2700-2	KR 210 R3100-2
KR 210 R2700-2	KR 240 R2900-2
KR 120 R3100-2	KR 250 R2700-2
KR 150 R3100-2	KR 300 R2700-2





Contact 联系人



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www.kuka.com



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Feature 特征	Advantage 优势	Benefit 益处
<ul style="list-style-type: none"> Optimized portfolio (custom-fit variants) 优化产品组合 (定制款型) 	<ul style="list-style-type: none"> Less variety of parts (spare parts) 零件种类更少 (备品备件) 	<ul style="list-style-type: none"> Shorter delivery time 交付时间更短
<ul style="list-style-type: none"> Best in Class Maintenance 在该级别中具有最佳维护保养性能 Reduced energy consumption (KRC5) 降低了能耗 (KRC5) Proven KR QUANTEC basic technology 经过验证的KR QUANTEC 基础技术 Best in Class MTBF 在该级别中具有最佳平均故障间隔时间 improved gearbox seals 改进了齿轮箱密封件 	<ul style="list-style-type: none"> Hardly any maintenance effort 几乎无需进行维护保养工作 Lower power costs 功率成本更低 Reduced training and education requirements 培训和教育要求降低 Fewer defective parts in operation 运行过程中出现的不良品更少 	<ul style="list-style-type: none"> Lower TCO TCO更低 Less downtimes 停机时间更短
<ul style="list-style-type: none"> KUKA as a valuable brand KUKA 是非常有价值的品牌 	<ul style="list-style-type: none"> Good price/performance ratio 性价比高 	<ul style="list-style-type: none"> Secure investment 投资非常安全
<ul style="list-style-type: none"> Reduced overtravel 减少了超行程 Improved driving characteristics (Motion Modes) 提高了驱动特性 (动作模式) <ul style="list-style-type: none"> Dynamic Mode 动态模式 Path Mode 路径模式 Further Modes in planning 计划过程中的进一步模式 High additional loads possible due to adapted robot structure 由于采用了适应性机器人结构 · 附加负载可能会非常高 Large portfolio (Best in Class) 产品组合范围大 (在该级别中是最好的) 	<ul style="list-style-type: none"> Efficient cell layout 工作单元的布局非常高效 Shorter cycle times possible 循环时间可能会更短 More precise path planning possible 路径规划可能更精确 Even heavy process equipment can be mounted flexibly 即使是重型工艺设备也能灵活安装 Precisely fitting payload and reach 负载和工作范围的匹配程度非常精确 Identical technology from 120 to 300 kg payload 120到300kg负载的技术相同 	<ul style="list-style-type: none"> More flexible system planning 系统规划更灵活



Feature 特征	Advantage 优势	Benefit 益处
<ul style="list-style-type: none"> Large portfolio 产品组合范围大 Precisely ranges 范围非常精确 Many mounting points 安装点非常多 Restrictable working areas 工作区域可限制 Enlarged working area 工作区域扩大 "Customized" Energy Supply System “定制”供能系统 Slim robot with reduced interference contour 减少了干扰轮廓的纤细机器人 Reduced footprint 占地面积更小 	<ul style="list-style-type: none"> Suitable robot (ceiling, shelf, foundry) 合适的机器人（天花板、架子、铸造厂） Flexible cell planning 工作单元规划非常灵活 Flexible mounting options (add-on parts) 安装选择非常灵活（扩展零件） Efficient cell layout 工作单元的布局非常高效 Better accessibility 可达性更高 Everything from a single source (no extra service provider for energy supply systems) 一切均来自单一来源（无额外的供能系统服务供应商） Efficient cell layout 工作单元的布局非常高效 	<ul style="list-style-type: none"> Flexibility 灵活性
<ul style="list-style-type: none"> Optimized, lean portfolio 经过优化的精益产品组合 	<ul style="list-style-type: none"> Optimized delivery time 优化了交付时间 	<ul style="list-style-type: none"> On-schedule asset completion 按时完成资产投资
<ul style="list-style-type: none"> Optimized drive components(gearboxes & motors) 经过优化的驱动元件（齿轮箱&电机） Dynamic Mode (option) 动态模式（选配） Enlarged working area 工作区域扩大 	<ul style="list-style-type: none"> Improved performance 提高了性能 Acceleration & final speed 加速度&最终速度 Higher acceleration ramps 速度爬升更快 Better accessibility 可达性更高 	<ul style="list-style-type: none"> Low cycle time 循环时间端



Appendix Sales Arguments 附录

销售参数	Feature 特征	Advantage 优势	Benefit 益处
<ul style="list-style-type: none"> New sealing technology on the gearboxes 齿轮箱上采用了新的密封技术 Use of proven QUANTEC technology → additional improvements 使用了经过验证的QUANTEC 技术 → 额外改进 Extended hand shaft 扩大了手动轴的范围 Improved Hydro-GWA 改进了Hydro-GWA Significantly improved MTBF values components 明显改进了平均故障间隔时间值 → 经过改进的元件 	<ul style="list-style-type: none"> → no EZ jamming → 无EZ卡住 → improved 	<ul style="list-style-type: none"> Minimized oil leaks 将漏油降至最低 100,000 robots in the field 用于这一领域中的10万台机器人 Less EZ-wear EZ磨损更少 Optimized service life of the GWA 优化了GWA的使用寿命 Higher MTBF 平均故障间隔时间更长 	<ul style="list-style-type: none"> Less failures 故障更少
<ul style="list-style-type: none"> Path Mode (option) 路径模式 (选配) Optimized hardware 优化了硬件 Consistent improvement to QUANTEC-1 → experience, error evaluation 不断改进了QUANTEC-1 Improved sealing technology on gear boxes 齿轮箱上改进了密封技术 	<ul style="list-style-type: none"> → 经验 · 错误评估 	<ul style="list-style-type: none"> Increased accuracy 准确度更高 100,000 systems in the field 用于这一领域中的10万个系统 Reliable system 可靠系统 Reduced oil leakages 减少了漏油情况 	<ul style="list-style-type: none"> Quality (accuracy, failure, maintenance) 质量 (准确度、故障、维护保养)



Thank you for your attention.
谢谢关注！

