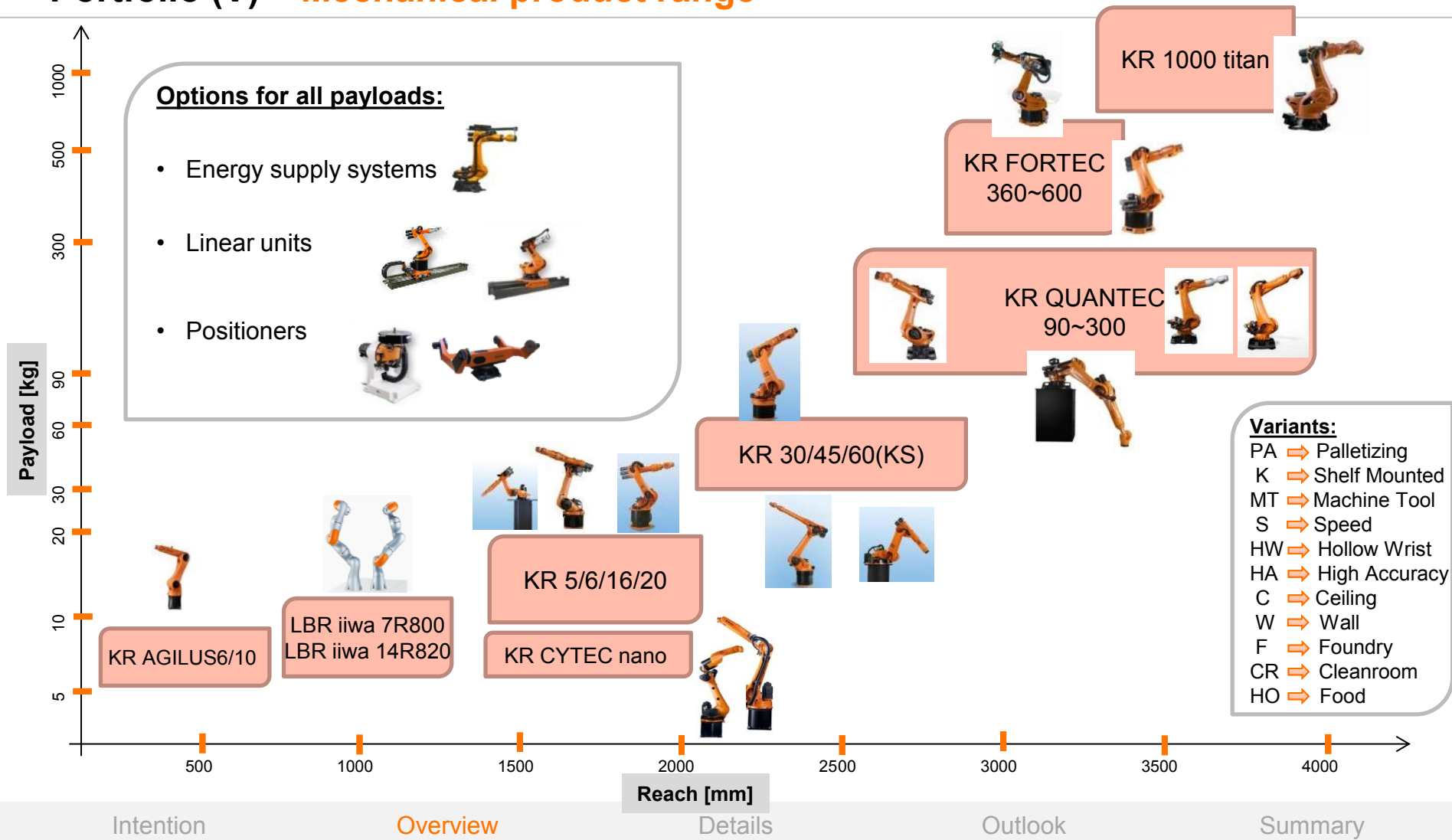


KUKA

Portfolio (V) – Mechanical product range



Connecting cable Robot- KRC4 (Grounding conductor)

SmartPAD Cable

7m (标配)

15m

25m

35m

50m

10m

15m
(10+5)

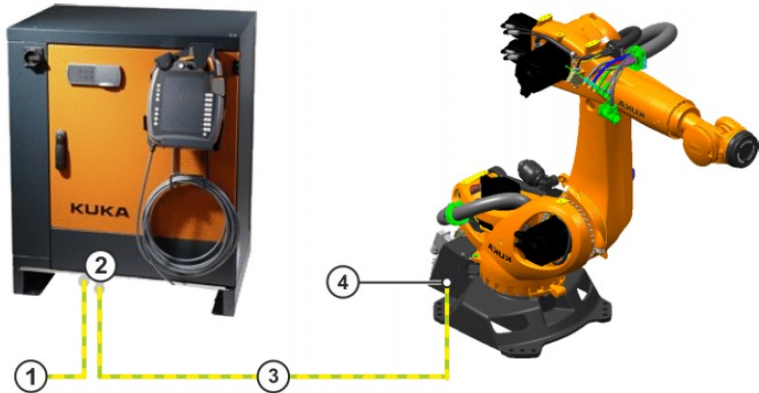
20m
(10+10)

35m
(10+25)

(标配10m)
可选延长电缆规格:
5、10、25



- 1 机械手
- 2 机器人控制器
- 3 手持式编程器
- 4 连接电缆



(Ground Cable可以客户自己配, 规格16mm²)

Energy supply

A1~A3

ES empty

ES handling Multibus

ES handling ProfiNet

ES welding Multibus

ES welding ProfiNet

plug sub package base
plug sub package arm

支持: I/O、Profibus、DeviceNet

支持: I/O、Profinet、EtherNet IP

支持: I/O、Profibus、DeviceNet

支持: I/O、Profibus、DeviceNet

A3~A6

ES empty

ES handling

ES handling

ES welding

ES welding

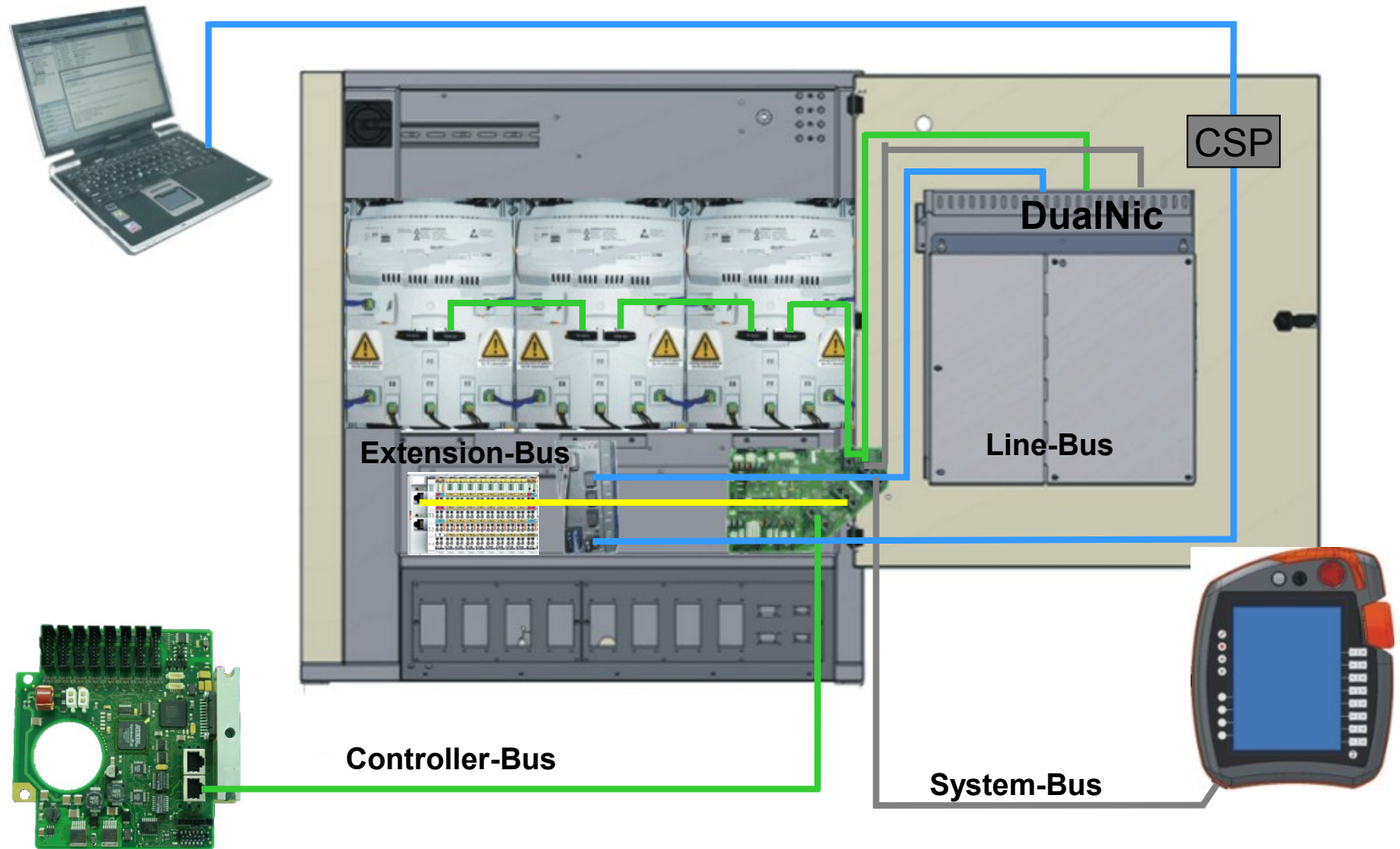
Multibus

ProfiNet

Multibus

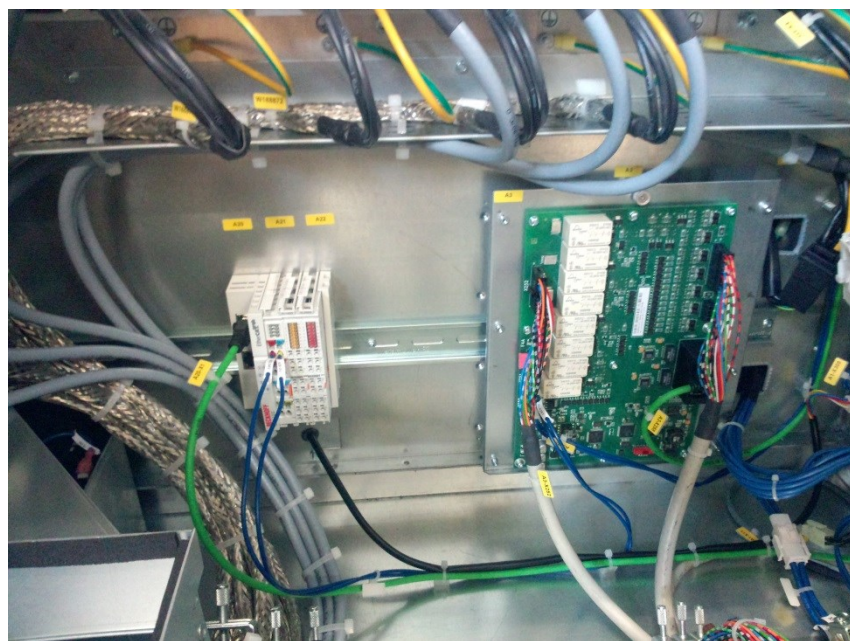
ProfiNet

Cover for K-Box (option)



控制柜通讯接口介绍

一，EtherCAT接口(标配)



KEB 总线结构

控制柜通讯接口

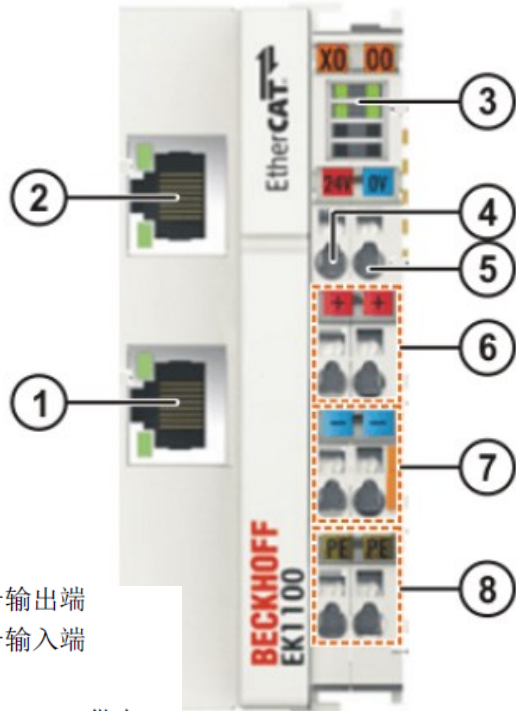
二，Peripheral interface EtherCAT

EtherCAT Bridge FSoE M/M (可选项)

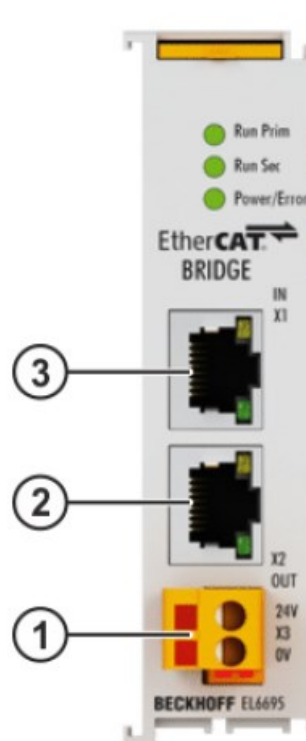
总线耦合器 EK1100

EtherCAT-Bridge EL6695

EL9011 总线末端端子模块



- 1 EtherCAT 信号输出端
- 2 EtherCAT 信号输入端
- 3 电源指示灯
- 4 总线耦合器的 +24 V 供电
- 5 总线耦合器的 0 V 供电
- 6 电源触点的 + 24 V (+) 供电
- 7 电源触点的 0 V (-) 供电
- 8 PE 供电



控制柜通讯接口

三, Peripheral interface Digital I/Os (可选项)

Digital I/Os 16/16 (EtherCAT Extension Bus) PNP

Digital I/Os 16/16/4 (EtherCAT Extension Bus) PNP

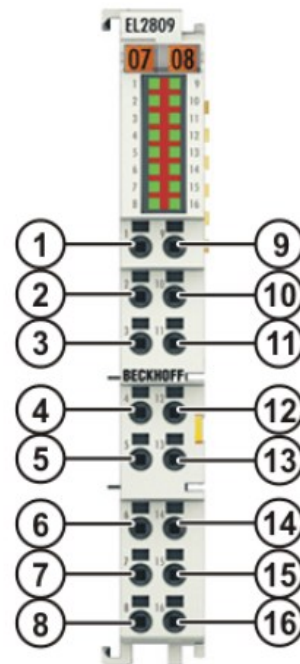
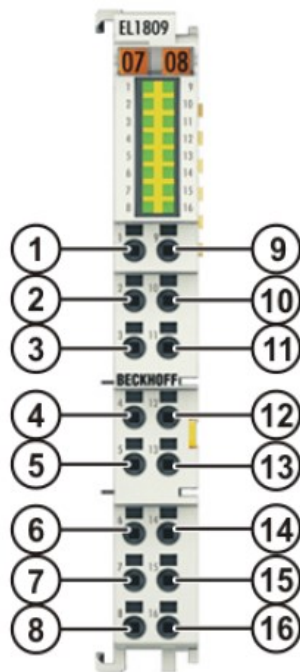
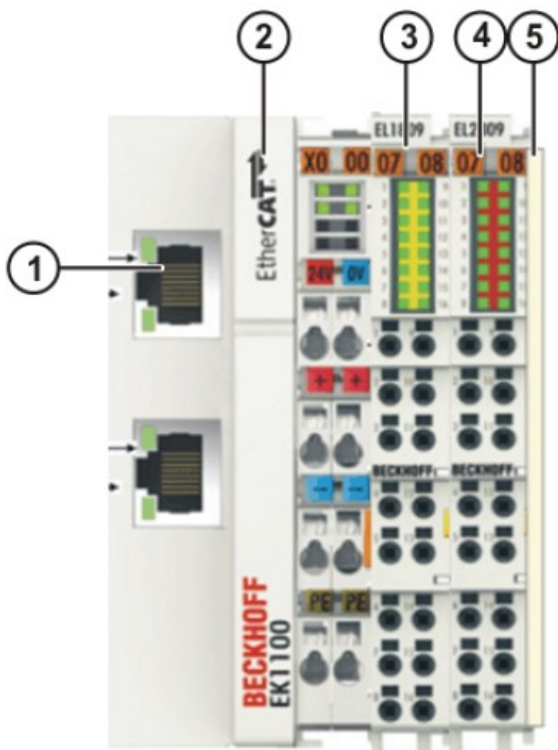
Digital I/Os 32/32/4 (EtherCAT Extension Bus) PNP

1, Digital I/Os 16/16 (EtherCAT Extension Bus)

- 1 KEI 接口 X1
- 2 EK1100 EtherCAT 总线耦合器 A20
- 3 EL1809 输入端子 A21
- 4 EL2809 输出端子 A22
- 5 EL9011 总线末端端子模块

EL1809 16 信道接口输入端

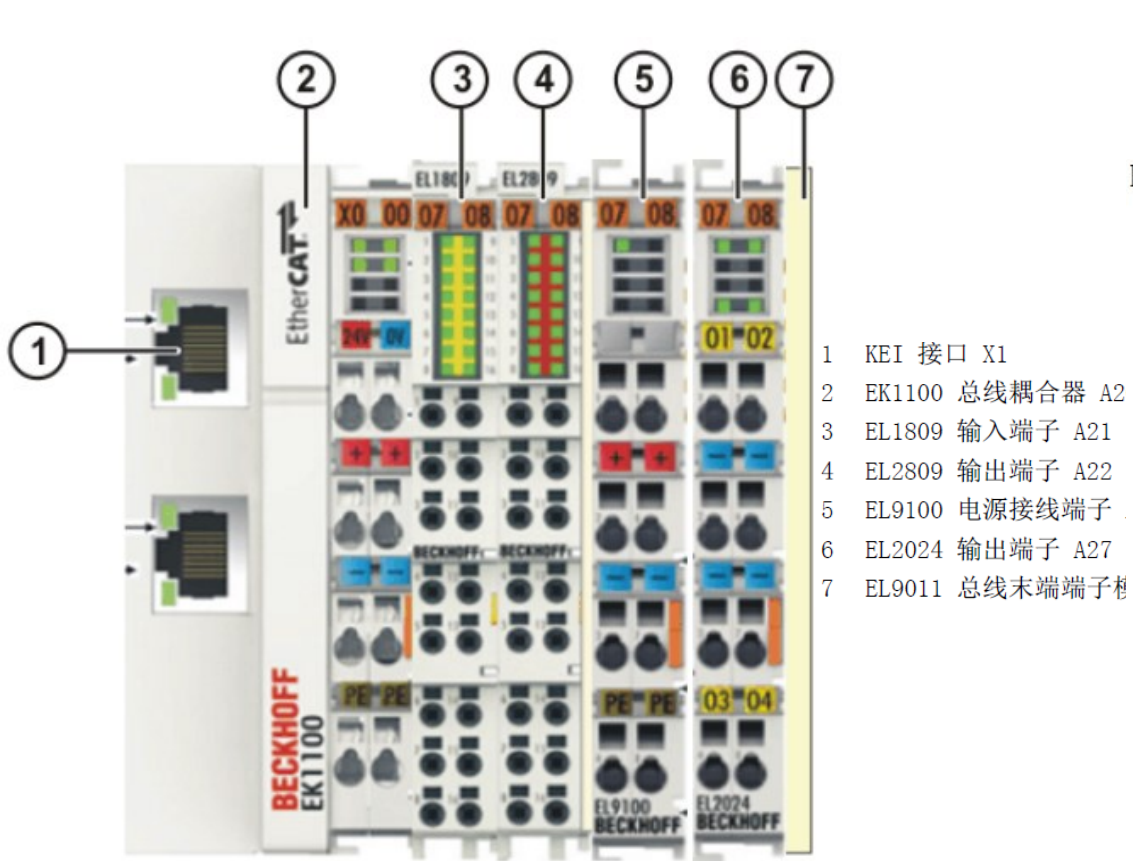
EL2809 16 信道接口输出端



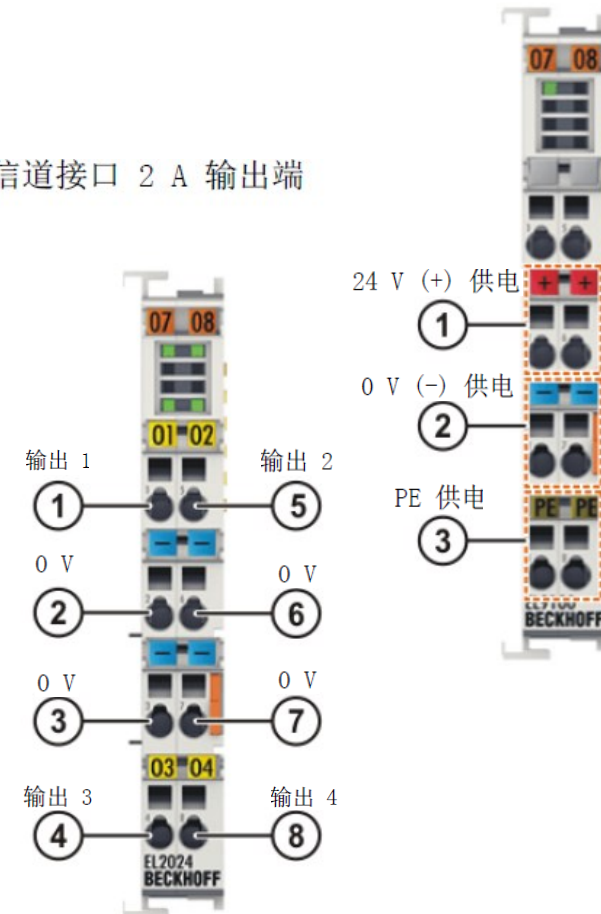
控制柜通讯接口

2, Digital I/Os 16/16/4 (EtherCAT Extension Bus)

EL9100 供电

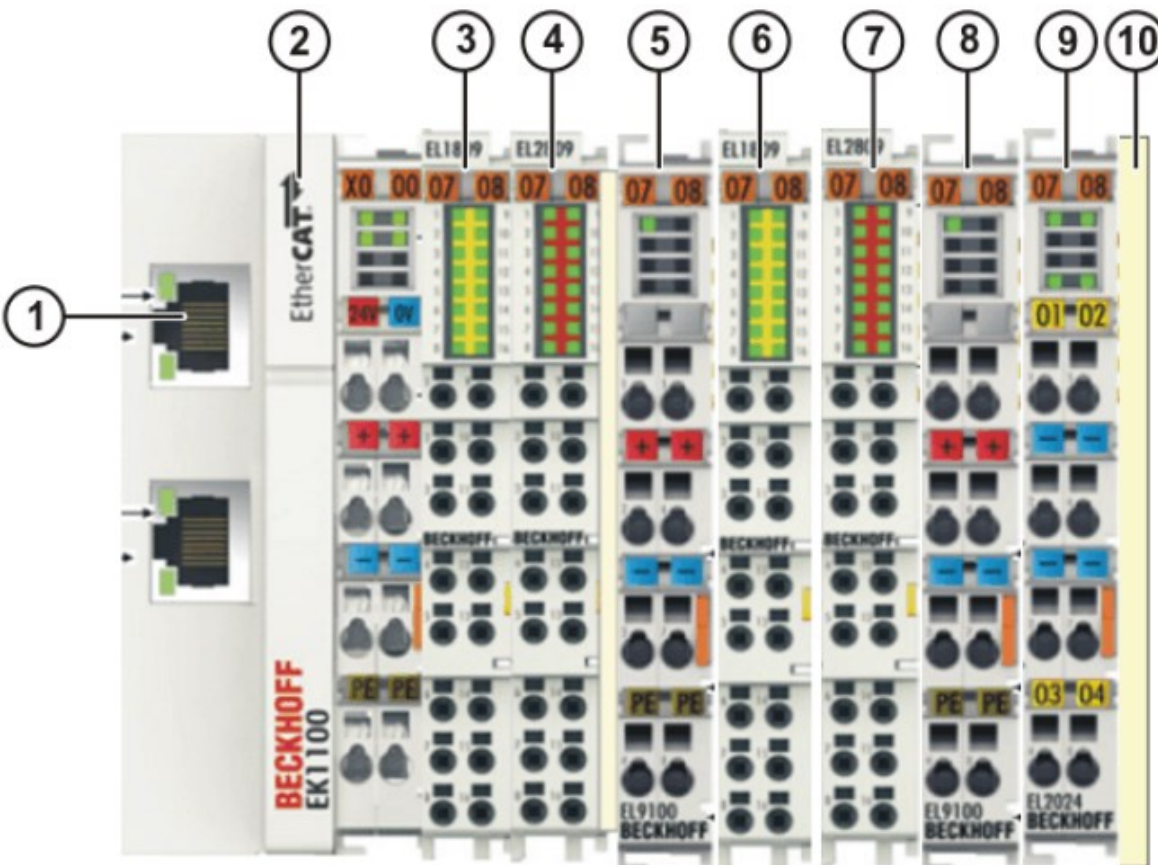


EL2024 4 信道接口 2 A 输出端



控制柜通讯接口

3, Digital I/Os 32/32/4 (EtherCAT Extension Bus)



- 1 KEI 接口 X1
- 2 EK1100 EtherCAT 总线耦合器 A20
- 3 EL1809 输入端子 A21
- 4 EL2809 输出端子 A22
- 5 EL9100 电源接线端子 A23
- 6 EL1809 输入端子 A24
- 7 EL2809 输出端子 A25
- 8 EL 9100 电源接线端子 A26
- 9 EL2024 输出端子 A27
- 10 EL9011 总线末端端子模块

控制柜通讯接口

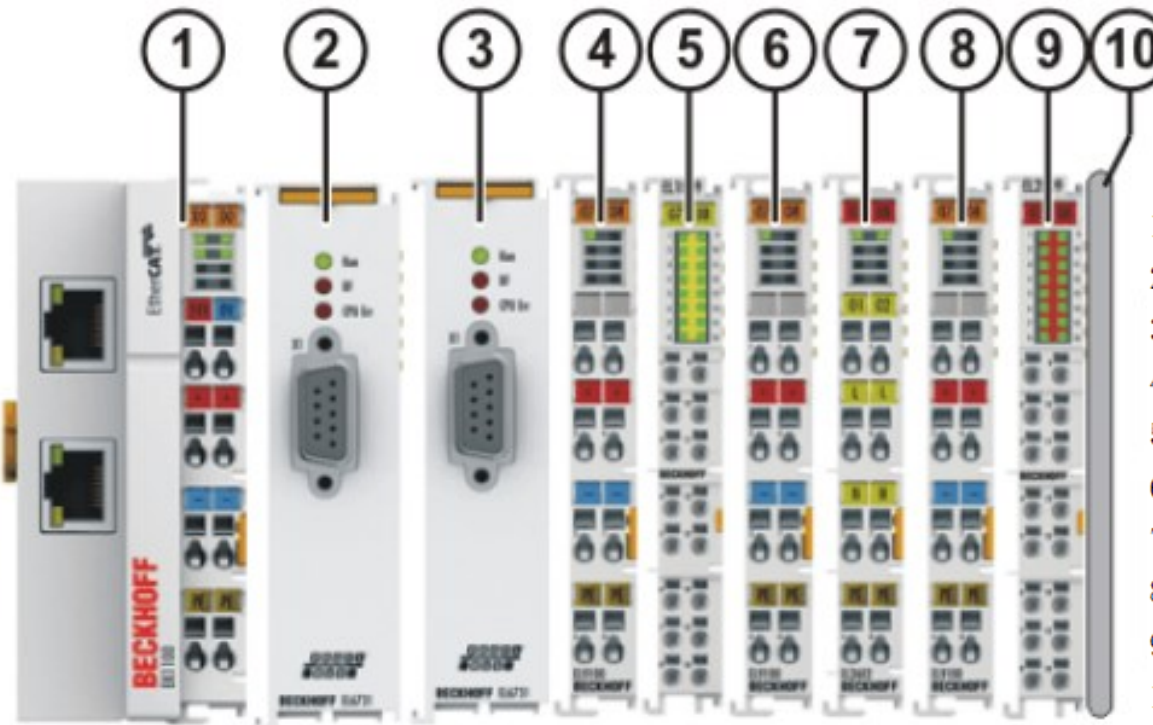
四，Peripheral interface Profibus（可选项）

Profibus Master/Slave - EtherCAT

Profibus Master - EtherCAT

Profibus Slave - EtherCAT

Expansion of digital I/Os 16/16



- 1 EK1100 EtherCAT 总线耦合器 A30
- 2 EL6731 PROFIBUS 主站（选项）A31
- 3 EL6731-0010 PROFIBUS 从站（选项）A32
- 4 EL9100 电源接线端子 A33
- 5 EL 1809 输入端子 A34
- 6 EL9100 电源接线端子 A35
- 7 EL2622 继电器输出端子 A36
- 8 EL9100 电源接线端子 A37
- 9 EL2809 输出端子 A38
- 10 EL9011 总线末端端子模块

控制柜通讯接口

五, Peripheral interface DeviceNet (可选项)

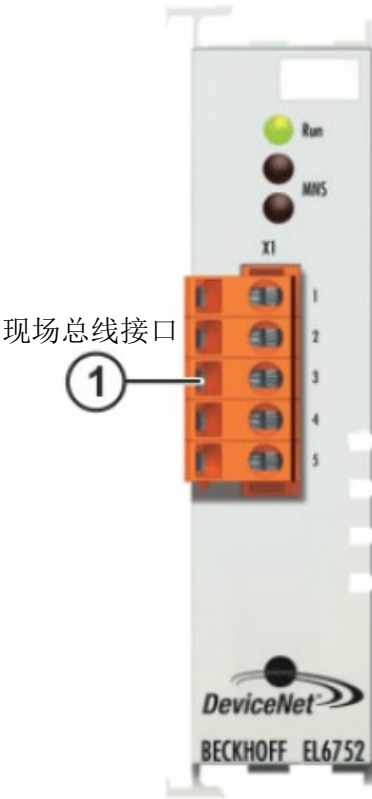
- DeviceNet Master/Slave - EtherCAT
- DeviceNet Master - EtherCAT
- DeviceNet Slave - EtherCAT
- Expansion of digital I/Os 16/16

DeviceNet 主站 / 从站 EL6752 (0010)



DeviceNet 主站/从站端子模块

技术参数	EL6752	EL6752-0010
技术	DeviceNet 主站端子模块	DeviceNet 从站端子模块
数据传输率	125, 250, 500 kbaud	
接口	5 针开放式连接器, 符合 DeviceNet 规范, 接口电流隔离 (带连接器)	



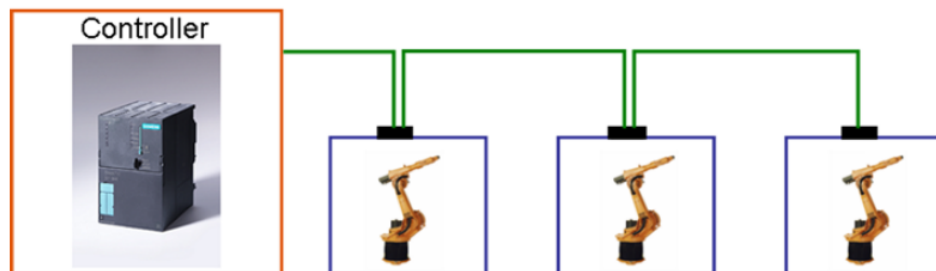
控制柜通讯接口

六，Peripheral interface Profinet （可选项） ■ 作为从属装置：接受一个控制器的操作和监控（例如：可编程控制器）。

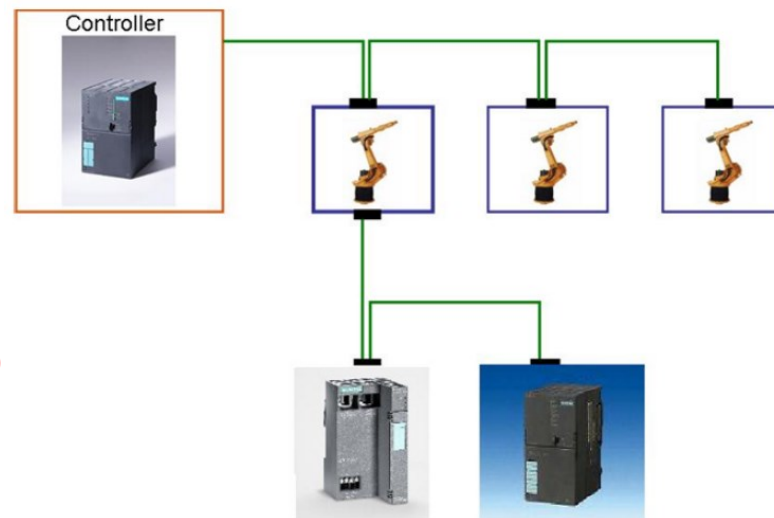
KUKA.ProfiNet Controller/Device
KUKA.ProfiNet Device

KR C4 控制柜可作如下用途：

- 作为控制器：用于控制一套设备的所有组件。



- 作为控制器及从属装置：用于控制现场装备，且同时与一个上级可编程控制器连接。

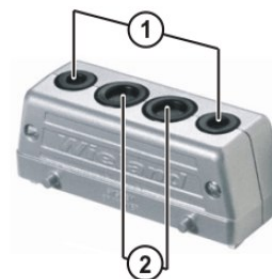
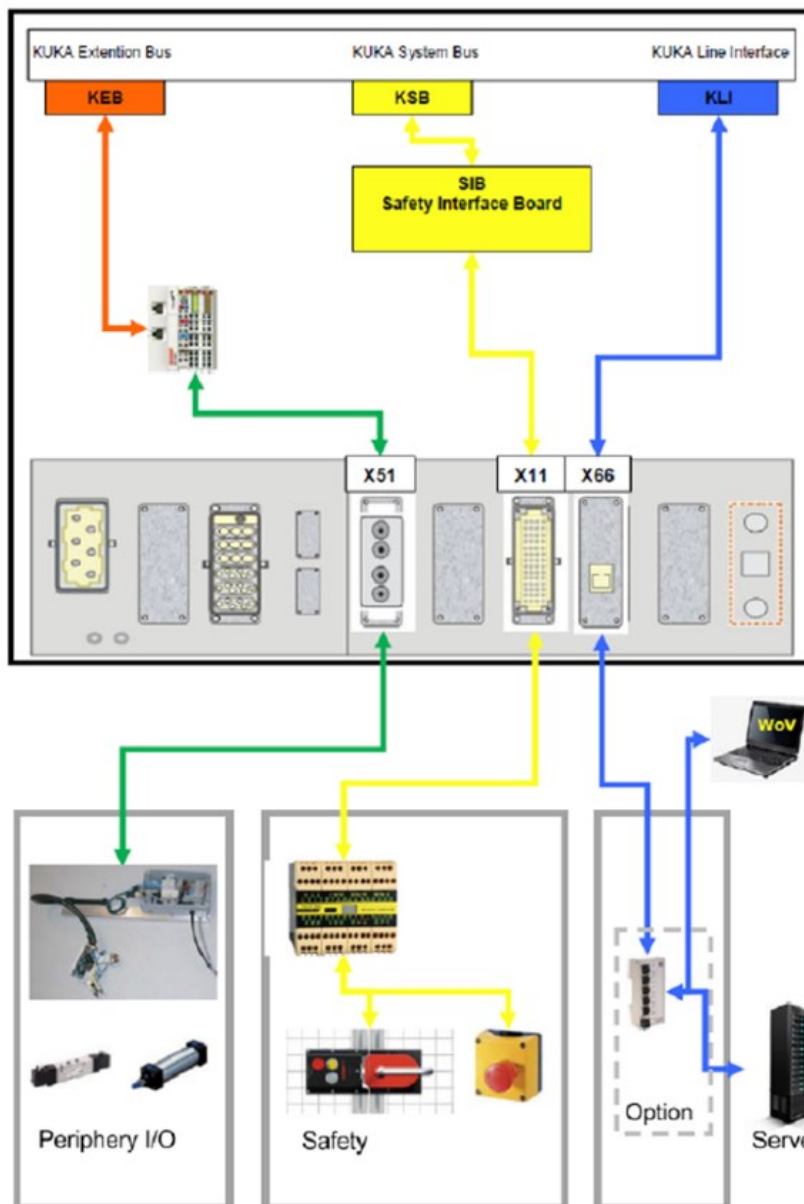


七，Peripheral interface EtherNet IP （可选项） 针对Allen-Bradley PLC

KUKA.EtherNet IP 2.0 Scanner / Adapter

Safety Configuration(Digital I/Os and interface X11)

Digital I/Os and interface X11

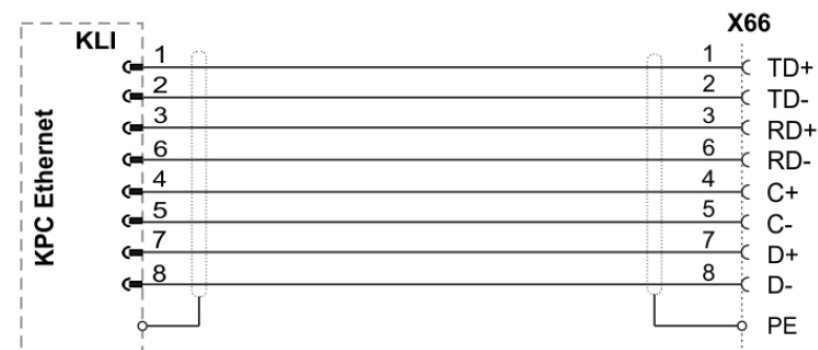


Interface Cable Feedthrough X51

- 1 引线口电缆端子范围 4.5 ... 10 mm
- 2 引线口电缆端子范围 9 ... 15 mm

以太网接口 (1xRJ45) X66

接线面板上的插头 X66 是为了连接外部计算机而设计的，以进行安装、编程、调试以及诊断。



- 推荐的连接线：符合以太网要求，类别至少 CAT 5。
- 最大导线横截面：AWG22

The diagram illustrates the KUKA I/O architecture, showing the connection between the KUKA Extension Bus, KUKA System Bus, and KUKA Line Interface to various I/O modules and external devices.

Top Level: The KUKA Extension Bus (KEB), KUKA System Bus (KSB), and KUKA Line Interface (KLI) are shown at the top. The KSB is connected to the SIB (Safety Interface Board).

Central Level: The SIB (Safety Interface Board) is connected to the KSB. Below the SIB, the KUKA I/O modules are shown, including X51, X15 A/B, X11, and X66. The KLI is also connected to the X66 module.

Bottom Level: The KUKA I/O modules are connected to various external devices and systems:

- Periphery I/O:** The X51 module is connected to a KUKA I/O module, which is then connected to a KUKA I/O module and a KUKA I/O module.
- Safety:** The X15 A/B module is connected to a KUKA I/O module, which is then connected to a KUKA I/O module and a KUKA I/O module.
- Option:** The X11 module is connected to a KUKA I/O module, which is then connected to a KUKA I/O module and a KUKA I/O module.
- Server:** The X66 module is connected to a KUKA I/O module, which is then connected to a KUKA I/O module and a KUKA I/O module.

KR C4 interface ProfiBus Slave X15A/B

Safety Configuration (ProfiNet and interface X11)

PROFINET
(controller/
device) and
interface X11

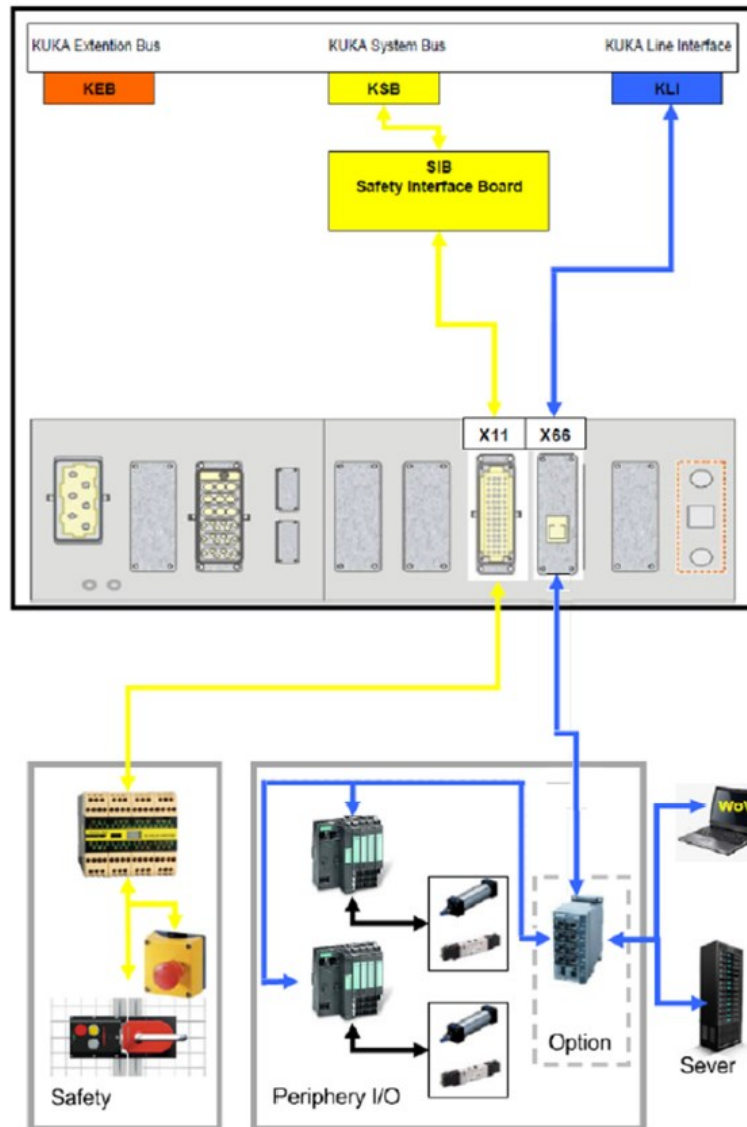
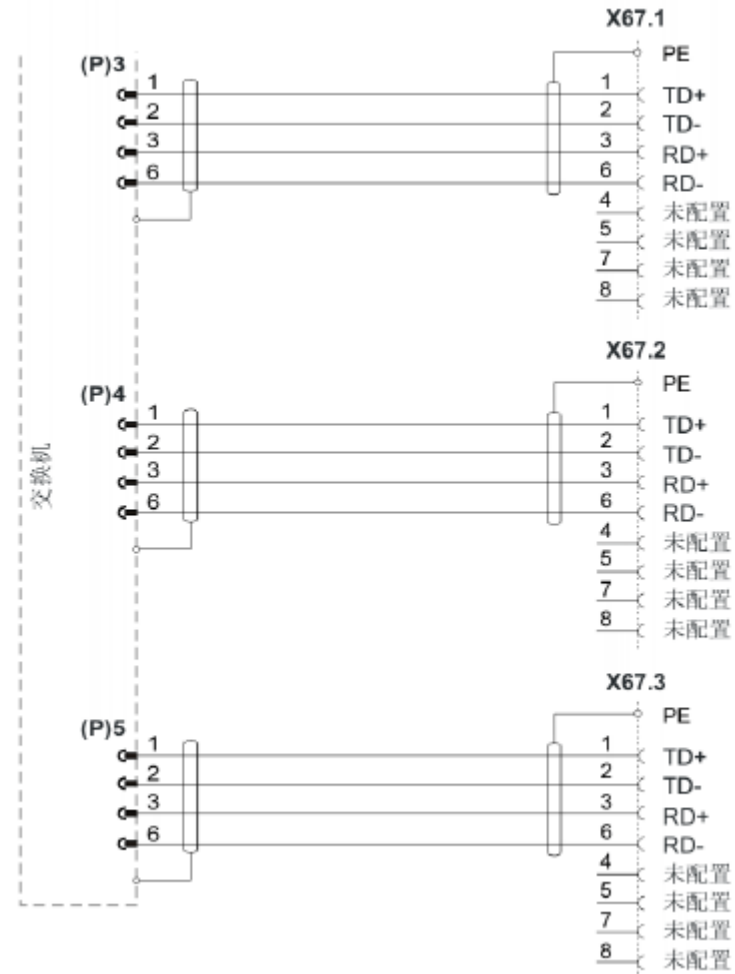
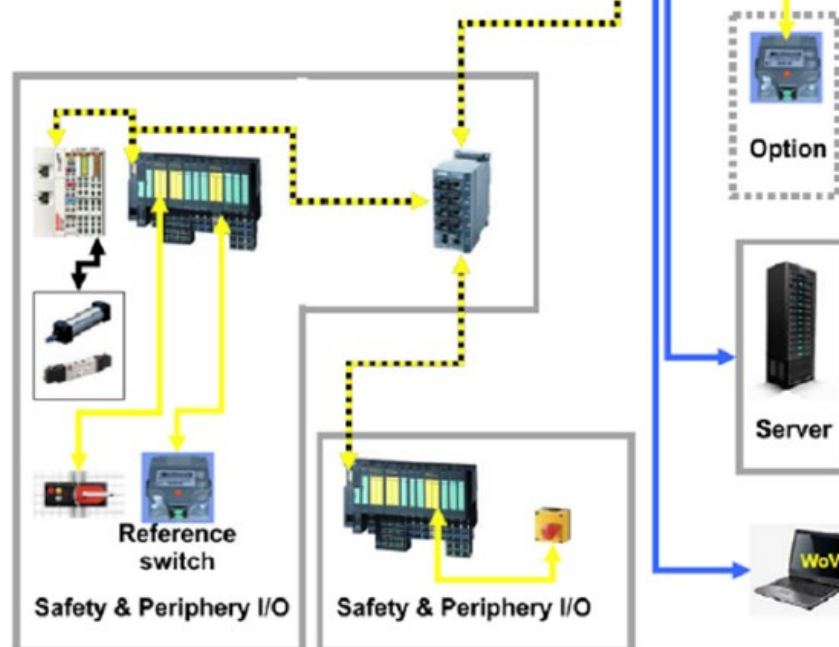


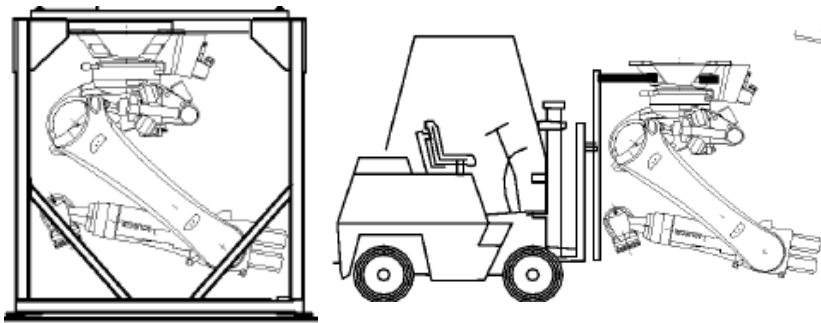
Fig. 9-31: Cabinet configuration of KR C4 with PROFINET (controller/device) and interface X11



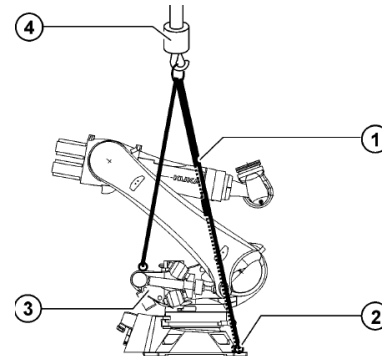
KR C4 interface, reference switch X42
*Connection for reference switch X42 in
 combination with SafeOperation or
 SafeRangeMonitoring.*

Accessories transport

transport unit for ceiling assembly



Robot-lifting tackle

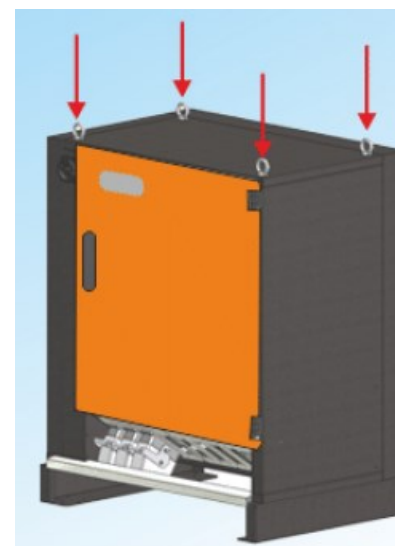


1 防翻倒架
KR C4 connector panel cover

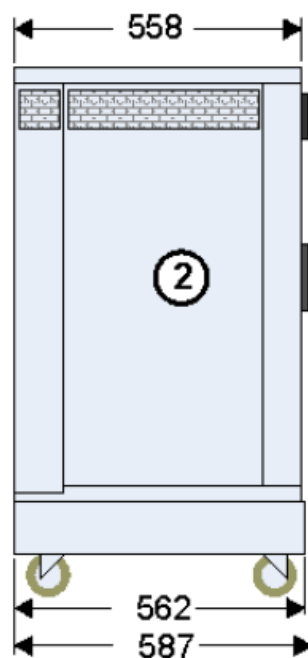
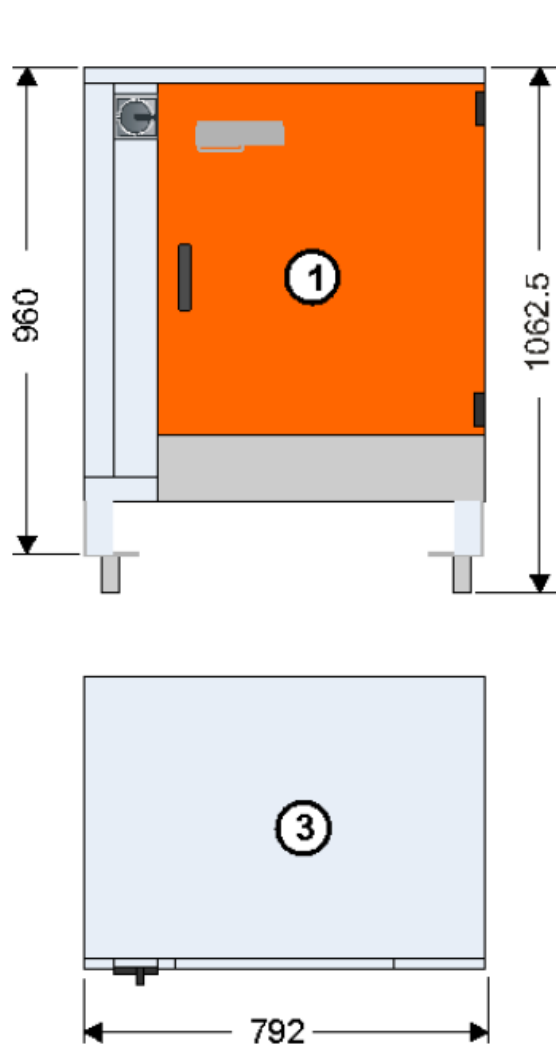


1 控制箱支座标准型
2 防翻倒架

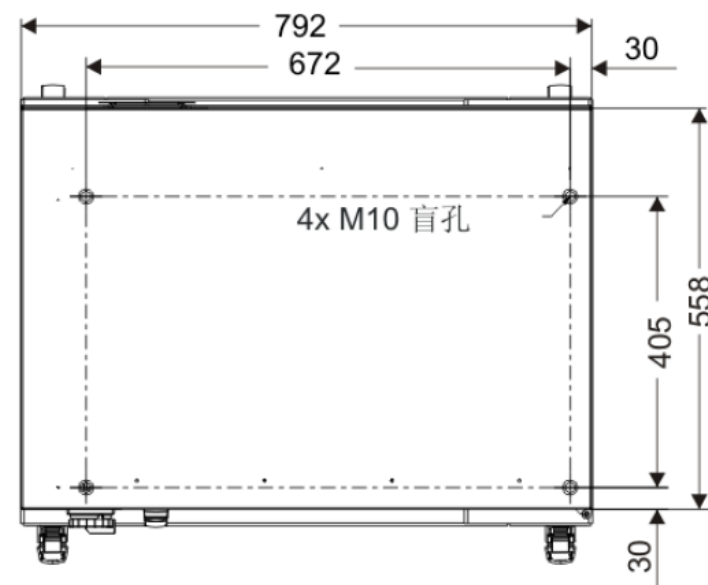
1 叉车袋



≥ 1600 mm



单位：毫米



Standard SEMD Mastering Set

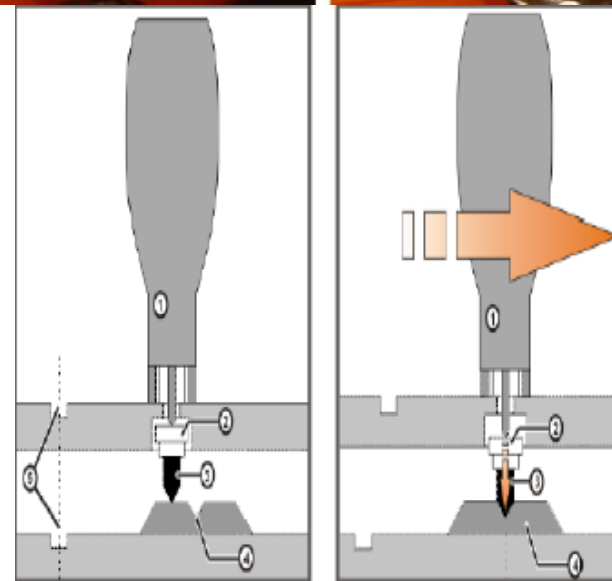
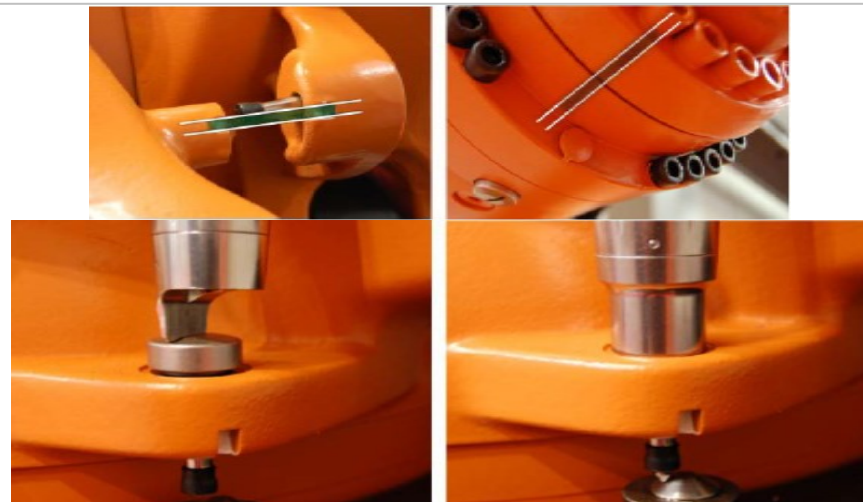
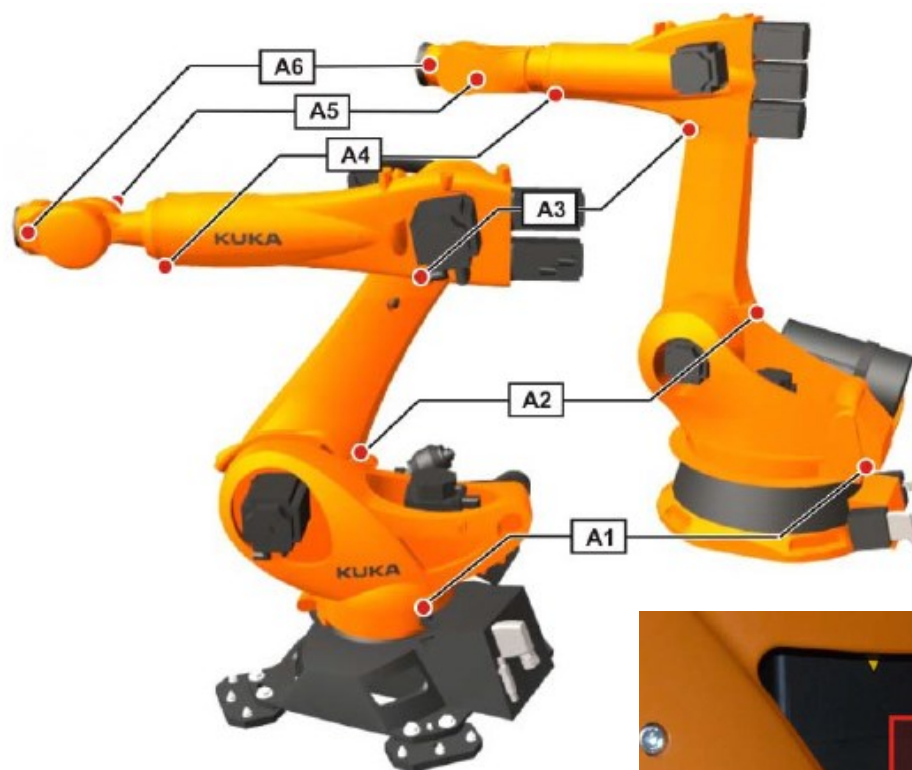
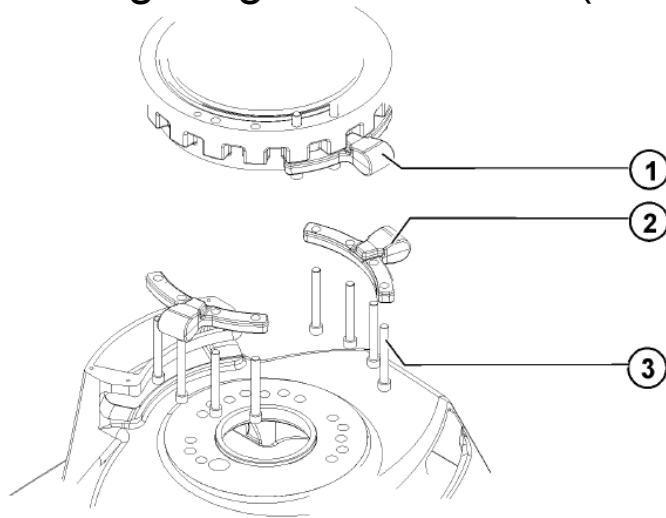


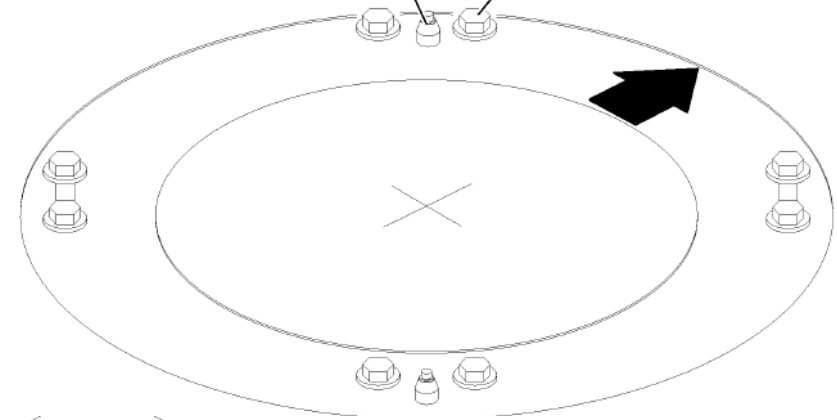
图 3-1: 零点标定套筒的位置

Accessories

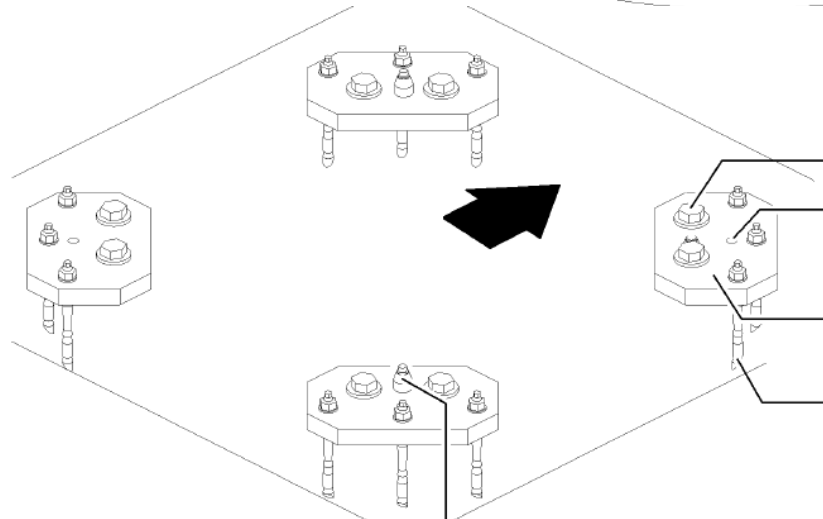
Working range limitation A1 (hard stop) 20°(two parts)



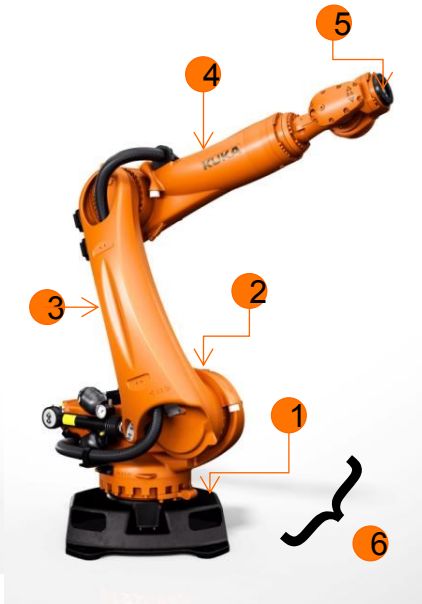
machine frame mounting



mounting base large



Overview: Load data of KUKA mechanics



	New designation	Example 1	Example 2
1	Rated supplementary load, base frame (usually value 0) Max. supplementary load, base frame	- ● -	0 kg 6 kg
2	Rated supplementary load, rotating column (Value 0) Max. supplementary load, rotating column	0 kg ● Possible >210 kg	0 kg 6 kg
3	Rated supplementary load, link arm (Value 0) Max. supplementary load, link arm	0 kg ● Possible <100 kg	0 kg 6 kg
4	Rated supplementary load, arm Max. supplementary load, arm	50 kg ● 80 kg	0 kg 6 kg
5	Rated payload Max. payload (until yet, only at KR AGILUS)	210 kg ● -	3 kg 6 kg
6	Rated total load (= Sum of the values marked with the red point – not true for KR AGILUS)	260 kg	6 kg

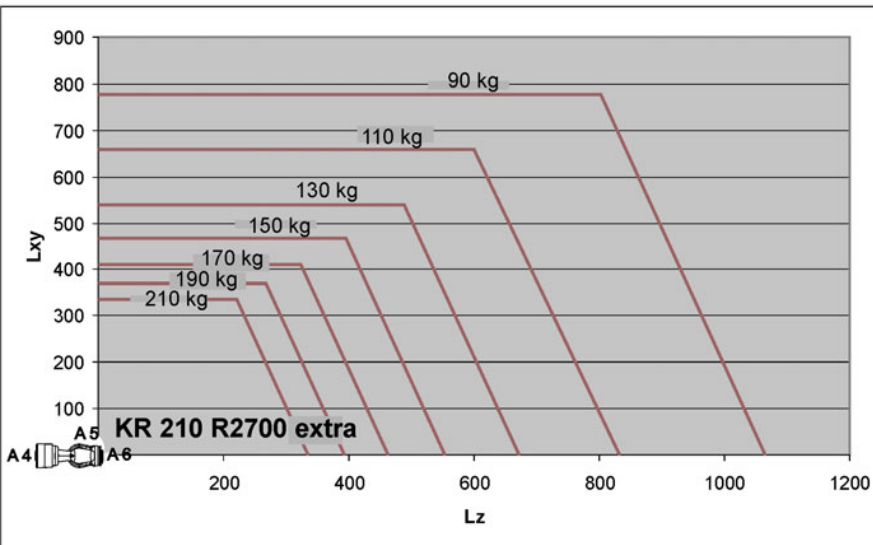
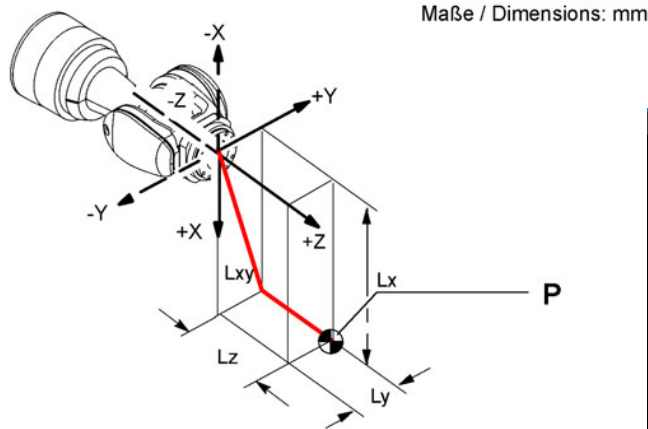
The **rated value** is the mass considered in KUKA.Load for diagnostic.
The **maximum value** is the upper limit in KUKA.Load.

Example 1: Quantec KR 210 R2700 prime

Example 2: Agilus KR 6 R900 sixx

Payload diagram

KUKA load software



KukaLoadGUI

Datei Projekt Erweitert Roboter Info

Vorauswahl

Bauform

- Standard
- Jet
- Konsole
- Palettierer
- Pressen verketter

Reichweite [mm] 0 bis 4500

Robotertyp

- KR 180 R2500 extra
- KR 180 R2900 prime
- KR 180 R3100 K prime
- KR 180 R3200 PA
- KR 180 R3500 K ultra
- KR2000-2 KR 180-2
- KR2000-2 KR 180-2 K
- KR2000-2 KR 180-2 PA
- KR2000-2 KR 210 L180-2
- KR2000-2 KR 210 L180-2 K
- KR2000-2 KR 240 L180-2
- KR 210 R2700 extra
- KR 210 R2700 prime
- KR 210 R2900 K prime
- KR 210 R3100 ultra

Belastungsanalyse

Ergebnis

Freigabe des Robotertyps

Statikauswertung

A1	A2	A3	A4	A5	A6
92.19%	83.17%	79.86%	83.97%	40.08%	

Robotersuche

Belastungsanalyse

Robotervergleich

Lastdaten

alle Nennwerte Tooldaten hinzurechnen

Flansch Masse [kg]: 180

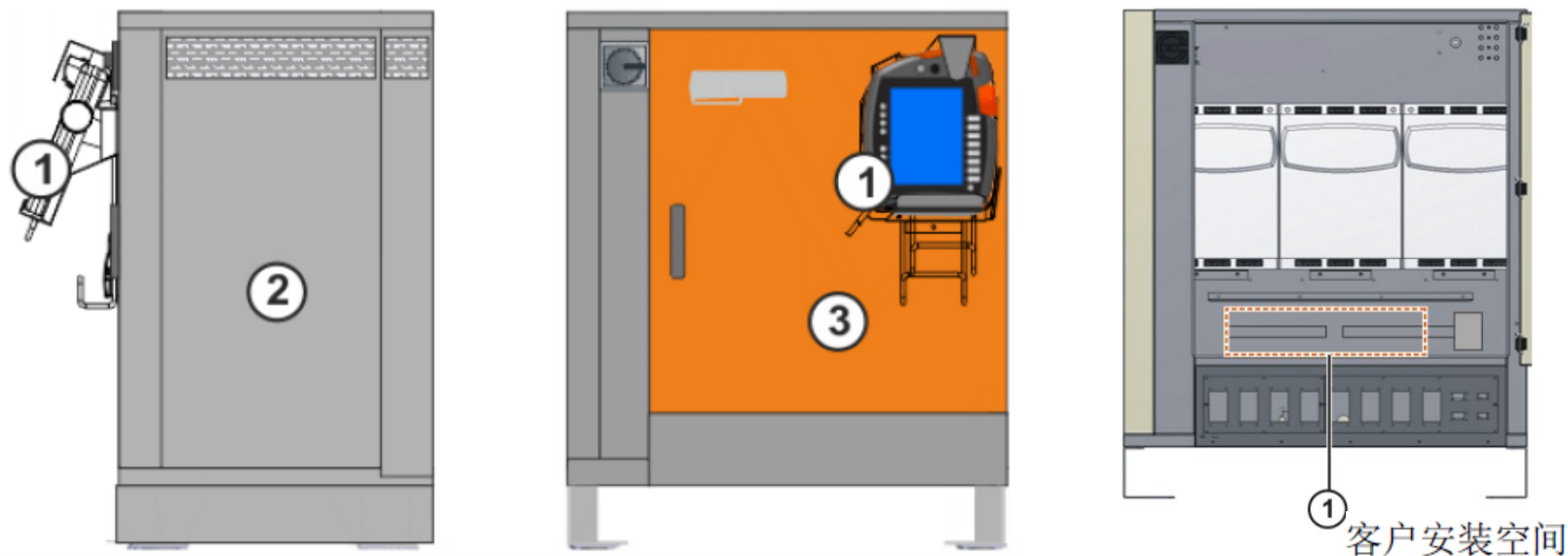
Lx [mm]: 120 Lx [kgm²]: 2

Ly [mm]: 100 Ly [kgm²]: 3

Lz [mm]: 300 Lz [kgm²]: 0.36

Flansch	Zusatzlast A3	Zusatzlast A2	Zusatzlast A1
Masse [kg]	10	0	0
Lx [mm]	-220	260	0
Ly [mm]	9	-300	200
Lz [mm]	-876	1000	500
Lx [kgm²]	0.3	0	0
Ly [kgm²]	0.3	0	0
Lz [kgm²]	0.3	0	0

Traglastdiagramm Koordinatensysteme Statik Dynamik Info



① 客户安装空间

控制柜型号	KR C4
轴数	最多 9 根
重量（不含变压器）	150 kg
防护等级	IP 54
DIN 45635-1 声平	平均值 67 dB (A)
带和不带冷却装置时的排列布局	侧面，50 毫米间距
均匀分配时的屋顶承重	1500 N

视机器参数而定的可选额定输入电压：	AC 3x380 V、AC 3x400 V、 AC 3x440 V 或 AC 3x480 V
额定输入电压允许偏差	额定连接电压 $\pm 10\%$
电源频率	49 ... 61 Hz

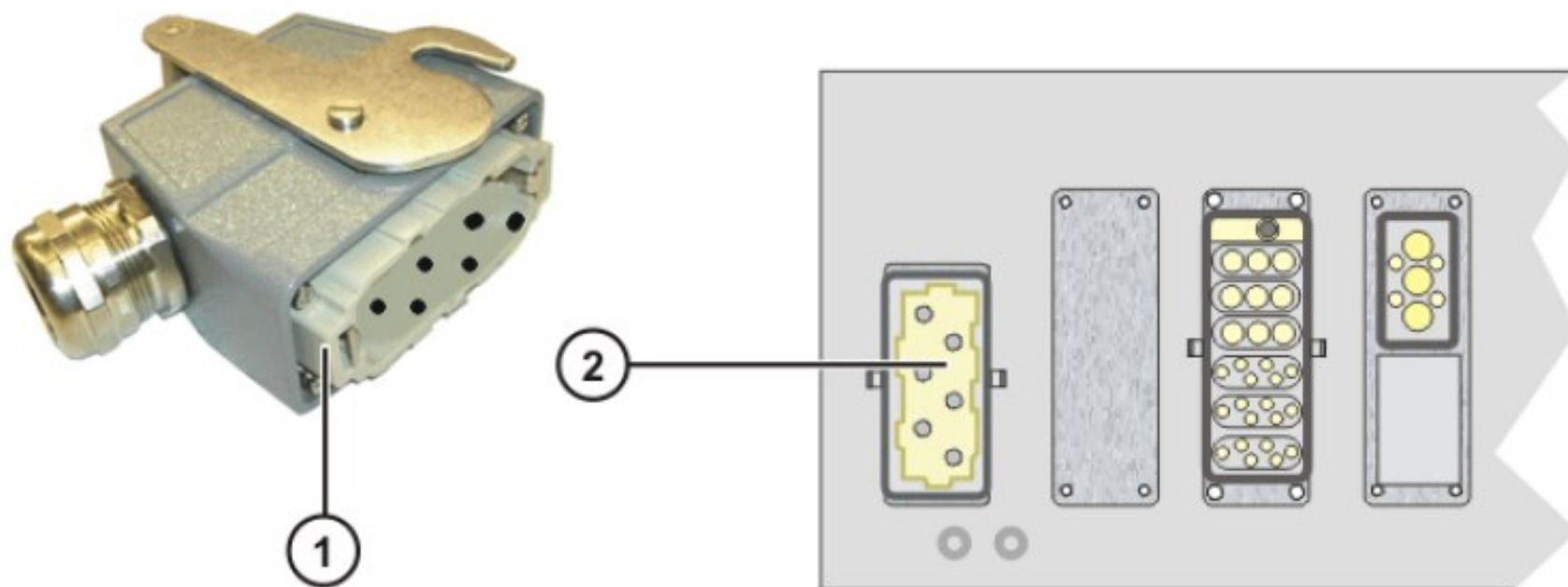


图 6-6: 电源接口 X1

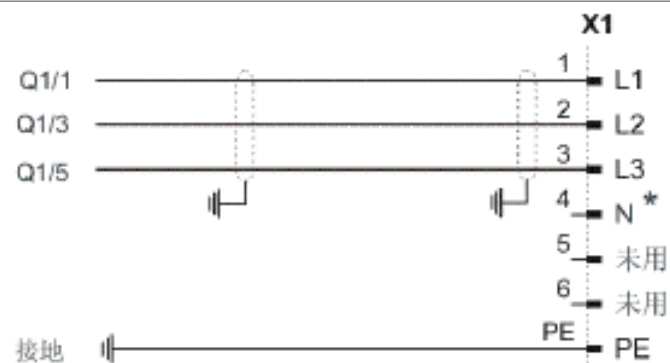
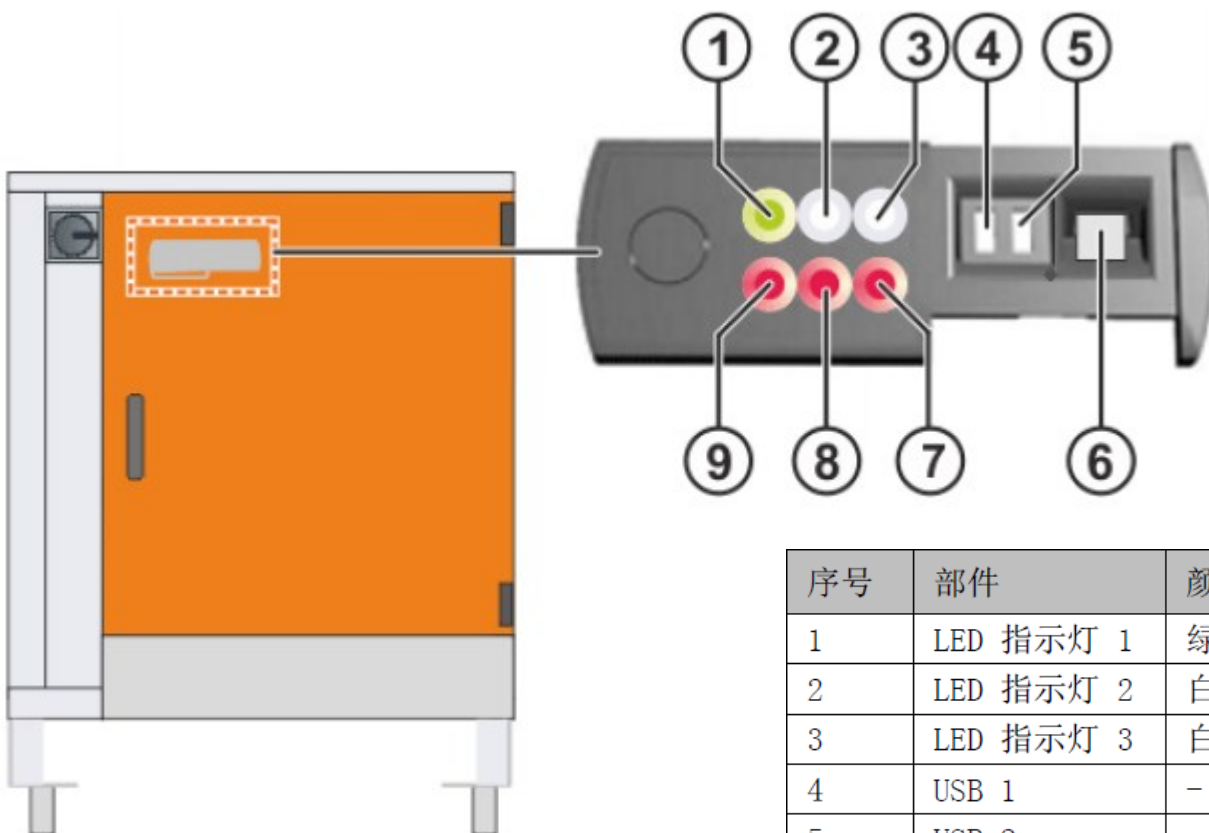


图 8-4: 插头占用情况 X1

CSP 的 LED 和插头排布



序号	部件	颜色	含义
1	LED 指示灯 1	绿色	运行 LED 指示灯
2	LED 指示灯 2	白色	休眠模式 LED 指示灯
3	LED 指示灯 3	白色	自动模式 LED 指示灯
4	USB 1	—	—
5	USB 2	—	—
6	RJ45	—	KLI ; KSI
7	LED 指示灯 6	红色	故障 LED 指示灯 3
8	LED 指示灯 5	红色	故障 LED 指示灯 2
9	LED 指示灯 4	红色	故障 LED 指示灯 1

Energy supply



管线包明细

	Multibus搬运	Multibus 气动点焊	Multibus 伺服点焊	Profinet 搬运	Profinet 气动点焊	Profinet 伺服点焊
气管（蓝色）【hose ½”】	1	1	1	1	1	1
气管（黑色）【hose ½”】		1			1	
进水管（绿色）【hose ½”】		1	1		1	1
出水管（红色）【hose ½”】		1	1		1	1
控制电缆【23x 1 mm ² + 2x 1 mm ² 】	1	1	1	1	1	1
焊接电缆 【1x 35 mm ² , GNYE 2x 35 mm ² , BK】		1	1		1	1
Multibus总线电缆	1	1	1			
XPN电缆【2x (2x AWG22) V14 RJ45】				1	1	1
XPP电缆【5x 1.5 mm ² 】				1	1	1
模拟量信号电缆X109 【2x 0.34 mm ² , shielded 3x (2x 0.5 mm ²), shielded】					1	1
焊枪马达动力电缆 【4x 2.5 mm ² + 2x 1 mm ² , overall shield】			1			1
焊枪马达信号电缆【4x (2x 0.25 mm ²)】			1			1

水气管规格

- **Air line**

- Hose 1/2", blue
- Connection at interface A3 with sealing head, straight, M22x1.5
- Connection at interface A6 with sealing head, straight, M22x1.5
- Pressure_{max.} 1.6 MPa (16 bar)

- **Water supply**

- Hose 1/2", green
- Connection at interface A3 with sealing head, straight, M22x1.5
- Connection at interface A6 with sealing head, straight, M22x1.5
- Pressure_{max.} 1.6 MPa (16 bar)

- **Water return**

- Hose 1/2", red
- Connection at interface A3 with sealing head, straight, M22x1.5
- Connection at interface A6 with sealing head, straight, M22x1.5
- Pressure_{max.} 1.6 MPa (16 bar)

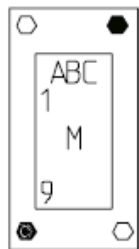
控制电缆 【23x 1 mm² + 2x 1 mm²】

Wiring diagram

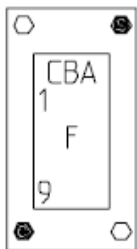
Connector	Pin	Wire	Strip	Wire	Connector	Pin	Signal name
X96	PE	GNYE		GNYE	X106	PE	Grd. conductor PE
	A1	1	()	()		A1	Control signal
	C1	2	()	()		C1	
	A2		└─┘	└─┘		A2	
	B2	3				B2	
	C2	4				C2	
	A3	5				A3	
	B3	6				B3	
	C3	7				C3	
	A4	8				A4	
	B4	9				B4	
	C4	10				C4	
	A5	11				A5	
	B5	12				B5	
	C5	13				C5	
	A6	14				A6	
	B6	15				B6	
	C6	16				C6	
	A7	17				A7	
	B7	18				B7	
	C7	19				C7	
	A8	20				A8	
	B8	21				B8	
	C8	22				C8	
	A9	23				A9	
	C9	24				C9	

• Guide pin

◦ Guide bush



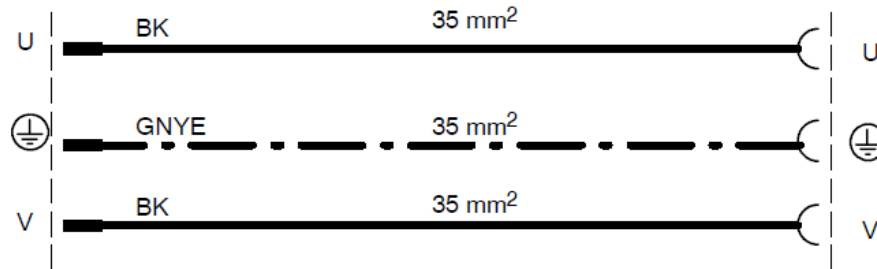
X96



X106

Robot
A3
X93

Robot
A6
X103



Wiring diagram:

Plug	Pin	Wire	Strip	Wire	Plug	Pin	Signal name
X91					X101		
	7	0.25 mm ²	0	YE 0		7	IBS D0
	8	0.25 mm ²	0	GN 0		8	IBS D0
	9	0.25 mm ²	0	GY 0		9	IBS D1
	10	0.25 mm ²	0	PK 0		10	IBS D1
	11	0.34 mm ²	0	GN 0		11	Profi A
	6	0.34 mm ²	0	RD 0		6	Profi B
	17	0.34 mm ²	0	RD 0		17	CAN
	12	0.34 mm ²	0	BU 0		12	CAN
	13	0.34 mm ²	0	WH 0		13	CAN high
	14	0.34 mm ²	0	BU 0		14	CAN low
	2	1 mm ²	0	BU 0		2	US2 0V
	3	1 mm ²	0	BN 0		3	US2 24V
	1	1 mm ²	0	BK 0		1	US1 0V
	4	1 mm ²	0	RD 0		4	US1 24V
	5	1 mm ²		GNYE		5	PE
	15					15	free
	16					16	free
		Housing	Shields			Housing	

焊接电缆

Multibus总线电缆

XPN电缆

XPP电缆

Wiring diagram

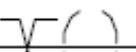
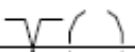
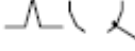
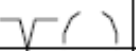
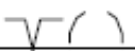
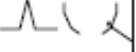
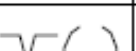
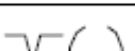
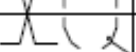
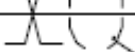
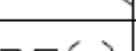
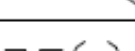
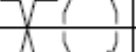
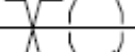
Connector	Pin	Wire	Strip	Wire	Connector	Pin	Signal name
XPN3					XPN6		
	1	AWG 22		YE		1	TD+
	2	AWG 22		OG		2	TD-
	3	AWG 22		WH		3	RD+
	6	AWG 22		BU		6	RD-
Housing							Housing

Wiring diagram

Connector	Pin	Wire	Strip	Wire	Connector	Pin	Signal name
XPP3	1		1.5 mm ²	1	XPP6	1	L1
	2		1.5 mm ²	2		2	N1
	3		1.5 mm ²	3		3	L2
	4		1.5 mm ²	4		4	N2
	5		1.5 mm ²	YE		5	PE

模拟量信号电缆

Wiring diagram

Connector					Signal name				
X99	Pin	Wire	Strip	Wire	X109	Pin	Welding	Bonding	S-clinching
	1	0.5 mm ²		BU		1	U- (analog)	US1 vltg +	US1 vltg +
	2	0.5 mm ²		YE		2	U+ (analog)	US1 vltg -	US1 vltg -
	3					3	n.c.	n.c.	n.c.
	4	0.34 mm ²		BU		4	-	CAN +	-
	5	0.34 mm ²		WH		5	-	CAN -	-
	6	0.5 mm ²		BU		6	-	-	DNS
	7	0.5 mm ²		RD		7	-	-	DNS
	8	0.5 mm ²		GN		8	I- (analog)	US2 vltg+	DNS
	9	0.5 mm ²		RD		9	I+ (analog)	US2 vltg-	DNS
	10	0.5 mm ²		GNYE		10	PE	PE	PE
Housing							Housing		

Wiring diagram

Connector	Pin	Wire	Strip	Wire	Connector	Pin	Signal name
XP7.2	9		0.25 mm ²	BN	XP7	9	Temp.
	8		0.25 mm ²	WH		8	Temp.
	4						Shield
	7		0.25 mm ²	YE		7	R2
	10		0.25 mm ²	GN		10	R1
	2		0.25 mm ²	PK		2	S4
	1		0.25 mm ²	GY		1	S2
	12		0.25 mm ²	RD		12	S3
	11		0.25 mm ²	BU		11	S1
	5						Shield
	3						Shield
	6						Shield

Wiring diagram

Connector	Pin	Wire	Strip	Wire	Connector	Pin	Signal name
XM7.3	1		1		XM7	1	U
	2		2			2	V
	6		3			6	W
	4		RD			4	Brake +
	5		BU			5	Brake -
			GNYE				Grd. conductor
	Housing					Housing connector shield	

—, Multibus handling

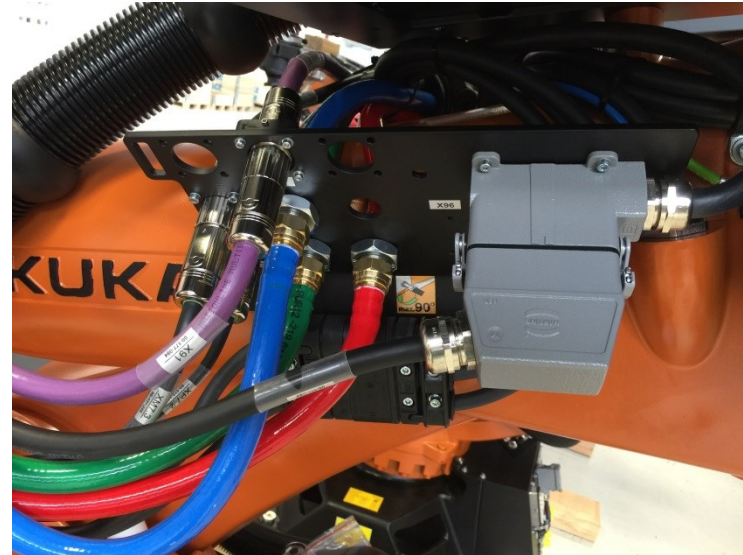


A3



A1

二, Multibus servowelding

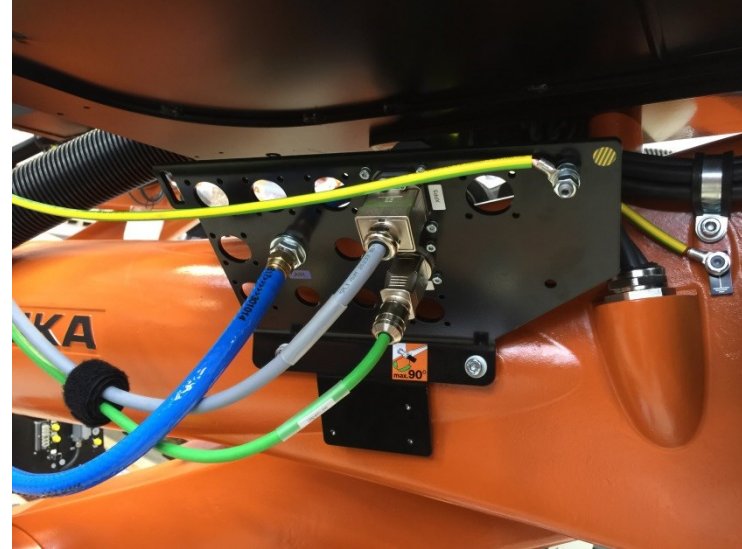


A3



A1

三, Profinet handling

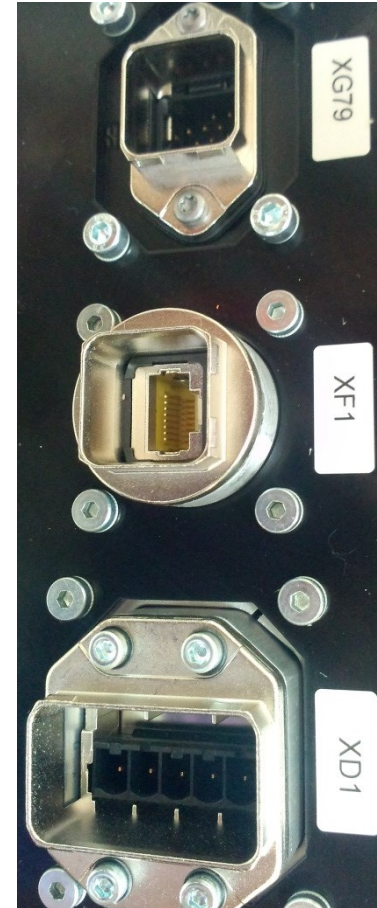


A3

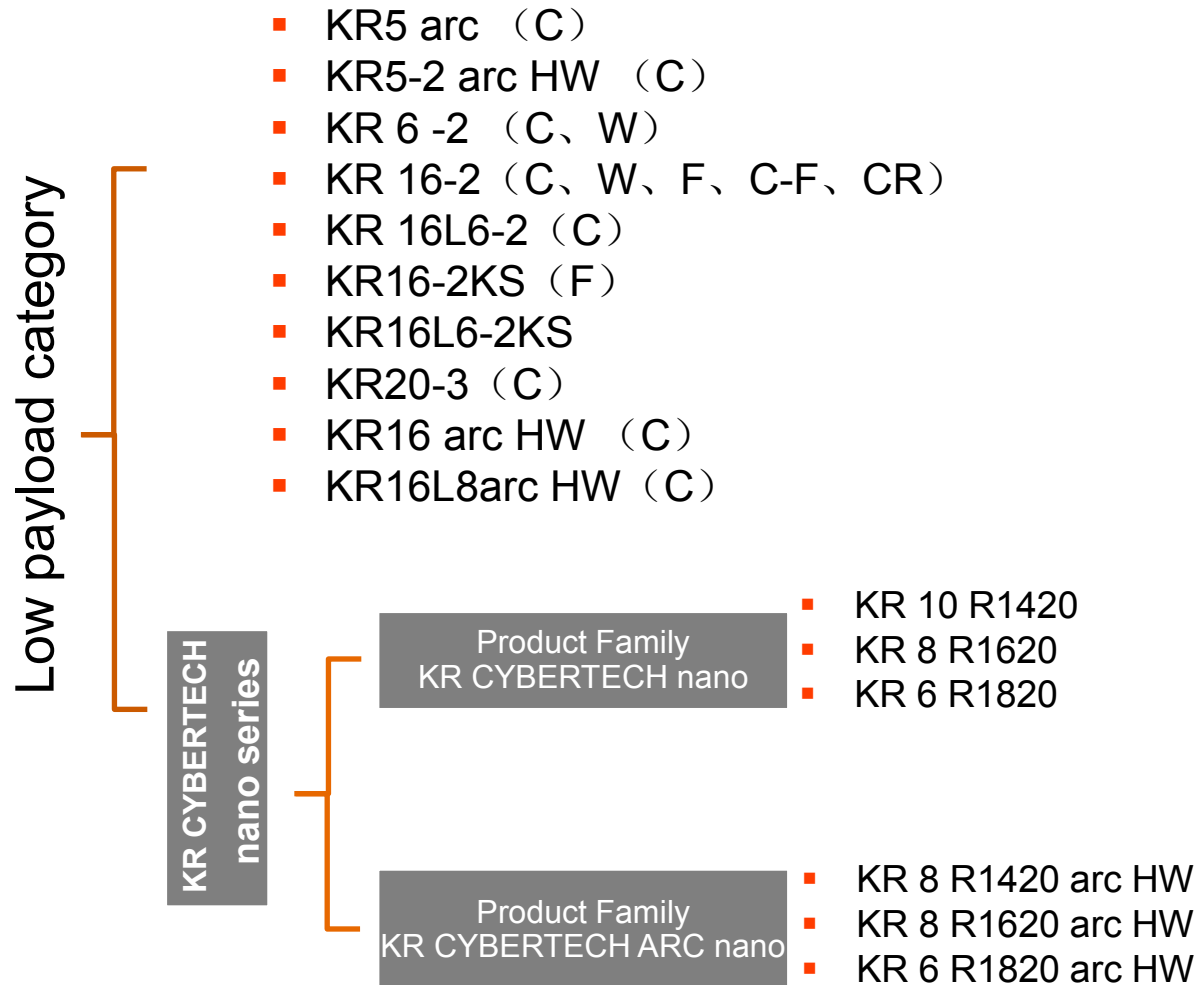


A1

四, Profinet servowelding



KR CYBERTECH: Product structure & portfolio



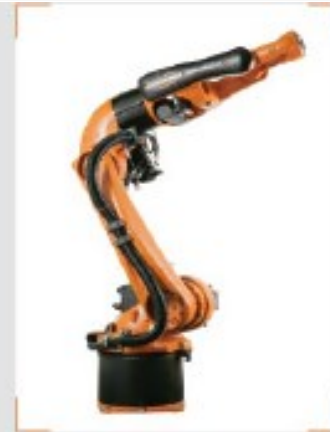
KUKA Low payload Robot



KR 5 ARC



KR 6



KR 5 ARC HW
中空型



KR 16



KR20-3
Intention



KR 16 L6



KR 16 arc HW



KR 16 L6 arc HW
中空型 400

KR 30 L6

KR6-2 / KR16-2



■ TYPE

| KR 6-2 | | KR 16-2 |

■ TECHNICAL DATA

TYPE	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	POSITIONING REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 6-2	6	6	1,611	$< \pm 0.05$	235	C W
KR 16-2	6	16	1,611	$< \pm 0.05$	235	C W CR F C-F

Intention

Overview

Details

Outlook

Summary

KR20-3

Max. reach	1,611 mm
Rated payload	20 kg
Rated suppl. load, arm	10 kg
Maximum total load	30 kg
Pose repeatability	±0.05 mm
Number of axes	6
Mounting position	Floor, ceiling
Robot footprint	580 mm x 580 mm
Weight (excluding controller), approx.	254 kg

Operating conditions

Ambient temperature	+5 °C to +55 °C
---------------------	-----------------

Protection rating

Protection rating, robot	IP 65
Protection rating, in-line wrist	IP 65

Axis 1 (A1)	+/-185°	156°/s
Axis 2 (A2)	+35°/-155°	156°/s
Axis 3 (A3)	+154°/-130°	156°/s
Axis 4 (A4)	+/-350°	330°/s
Axis 5 (A5)	+/-130°	332°/s
Axis 6 (A6)	+/-350°	616°/s



KR CYBERTEC nano series



KR CYBERTEC nano series

KR CYBERTECH: Product structure & portfolio

- KR 10 R1420 HP ①
- KR 8 R1620 HP ②
- KR 6 R1820 HP ③
- KR 8 R1420 arc HW ④
- KR 8 R1620 arc HW ②
- KR 6 R1820 arc HW ③

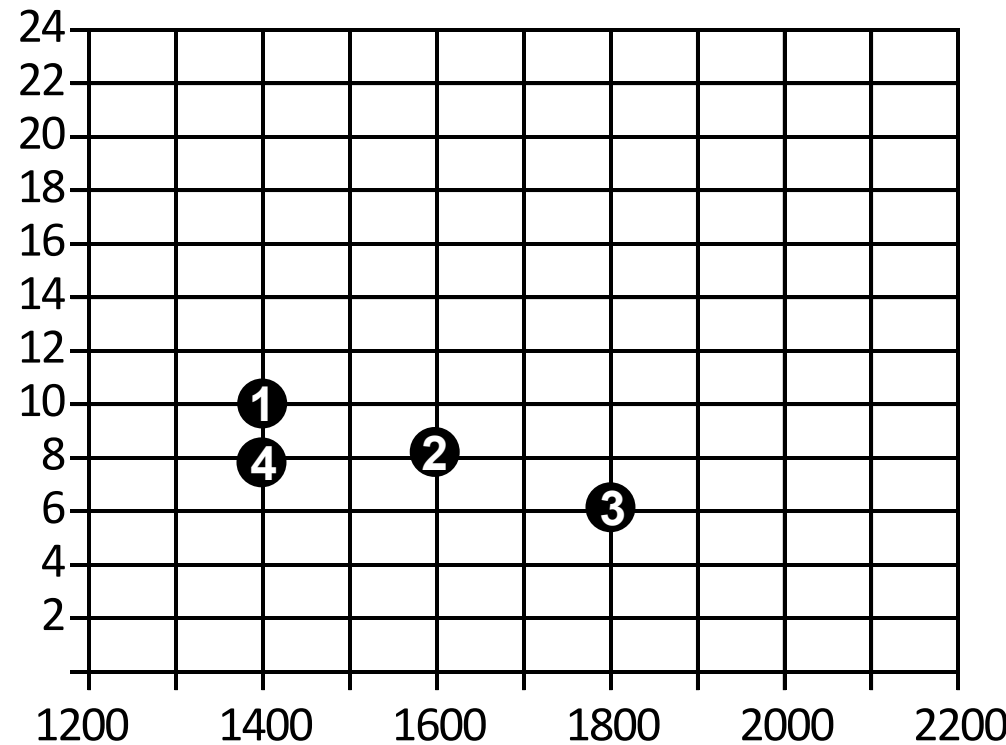


Fig.: Payload/reach portfolio

Accuracy of Pose

Accuracy of Pose [mm]	KR CYBERTECH nano			KR5arc	KR6-2 /KR16-2	KR20-3
	KR 10 R1420	KR 8 R1620	KR 6 R1820			
Absolut (AP)	0.5	0.5	0.5	0.7	0.7	0.7
Repeatability (RP)	0.04	0.04	0.04	0.04	0.05	0.05

Product Family KR CYBERTECH ARC nano: **Technical data**

	KR 8 R1420 arc HW	KR 8 R1620 arc HW	KR 6 R1820 arc HW
Rated payload [kg]	8	8	6
Horizontal reach [mm]	1,421	1,621	1,823
Rated payload distance Lxy [mm]	50		
Rated payload distance Lz [mm]	100		
Path repeatability [mm]	0,04		
Axis angles for A1-A6 [°]	A1: ±170 / A2: -185/+65 / A3: -120/+180 / A4: ±165 / A5: -150/+140 / A6: ±350		
Rated / max. suppl. load, arm [kg]	10 / 15		
Rated / max. suppl. load, link arm [kg]	0 / 15		
Rated / max. suppl. load, rotating column [kg]	0 / 20		
Ambient temperature [°C]	+5 to +45		
Protection rating	IP54		
Weight [kg]	165	175	180

Intention

Overview

Details

Outlook

Summary

KR CYBERTECH nano series: Arc welding equipment

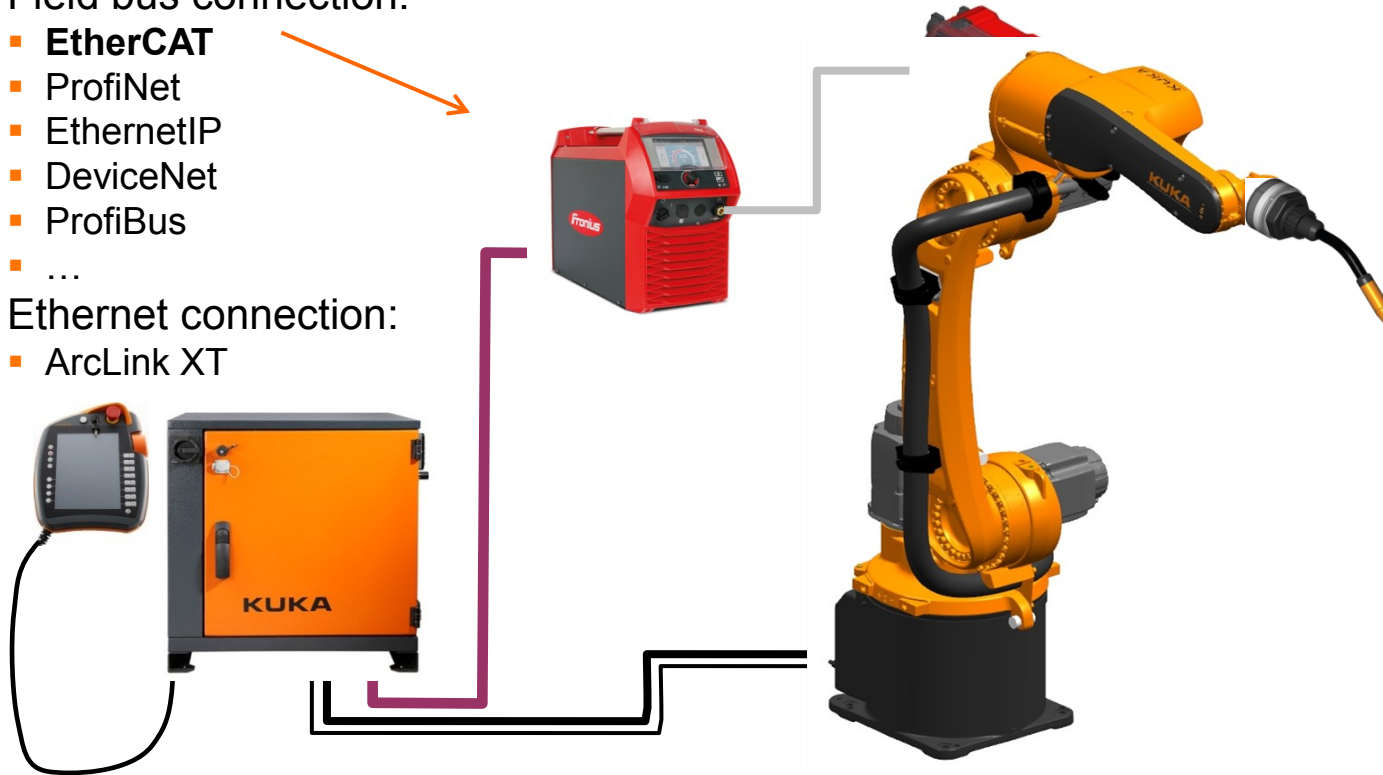
All relevant power source manufacturers are offering suitable equipment for the start of delivery of the KR CYBERTECH nano.

Field bus connection:

- **EtherCAT**
- ProfiNet
- EthernetIP
- DeviceNet
- ProfiBus
- ...

Ethernet connection:

- ArcLink XT



and others

KUKA Medium payload Robot



TYPE

| KR 30-3 | | KR 60-3 |

TECHNICAL DATA

TYPE	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	POSITIONING REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 30-3	6	30	2,033	$< \pm 0.06$	665	C CR F C-F HA
KR 60-3	6	60	2,033	$< \pm 0.06$	665	C CR F C-F HA
KR 60 L45-3	6	45	2,230	$< \pm 0.06$	671	C CR F C-F HA
KR 60 L30-3	6	30	2,429	$< \pm 0.06$	679	C CR F C-F HA
KR30L16-2	6	16	3102	± 0.07	700	C F

KR QUANTEC High Payload from 90Kg~300Kg

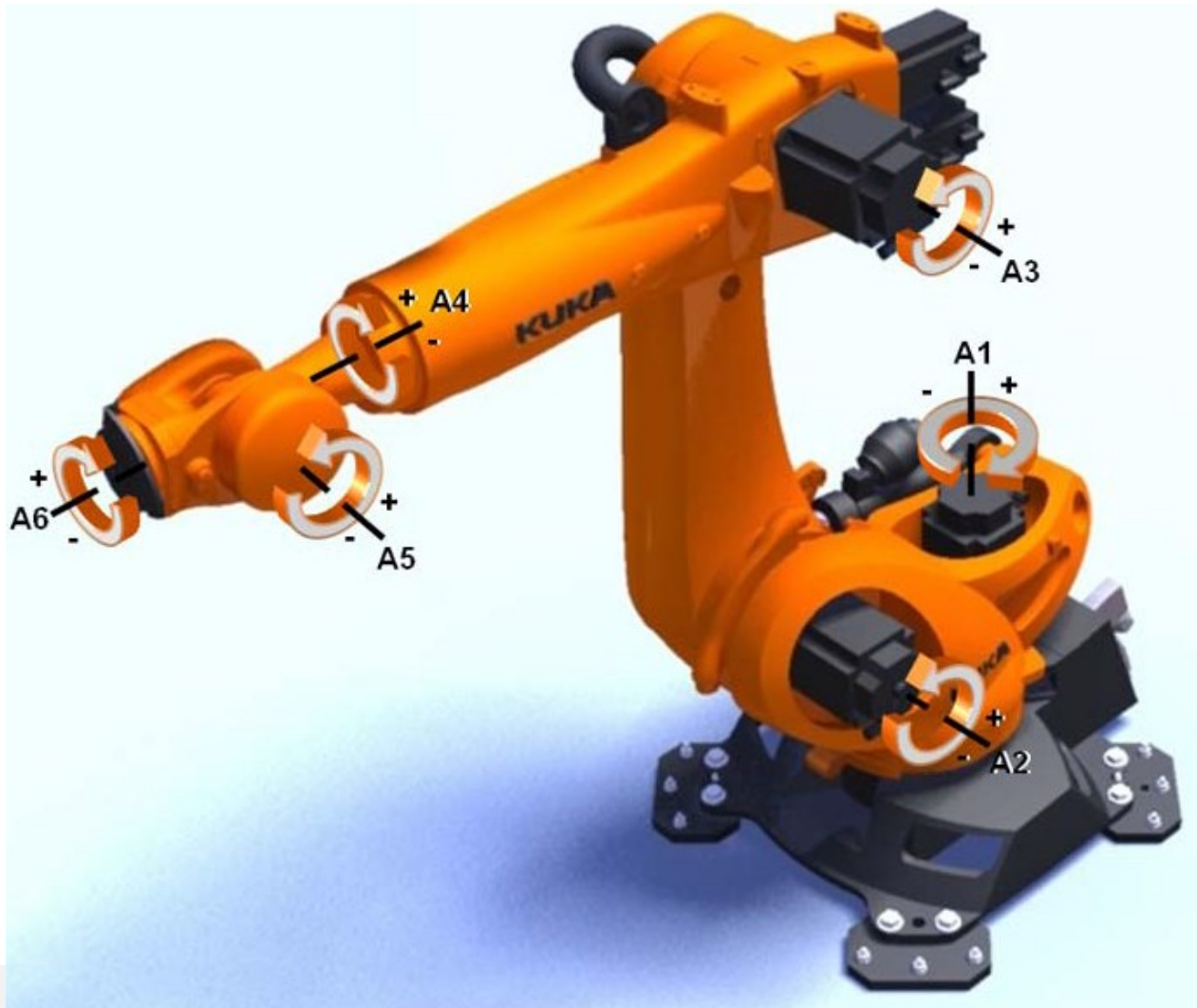
THE NEW PRODUCT GENERATION



THE NEW COMPACT FORCE UP
TO 120 KG FOR INNOVATIVE CELL
CONCEPT

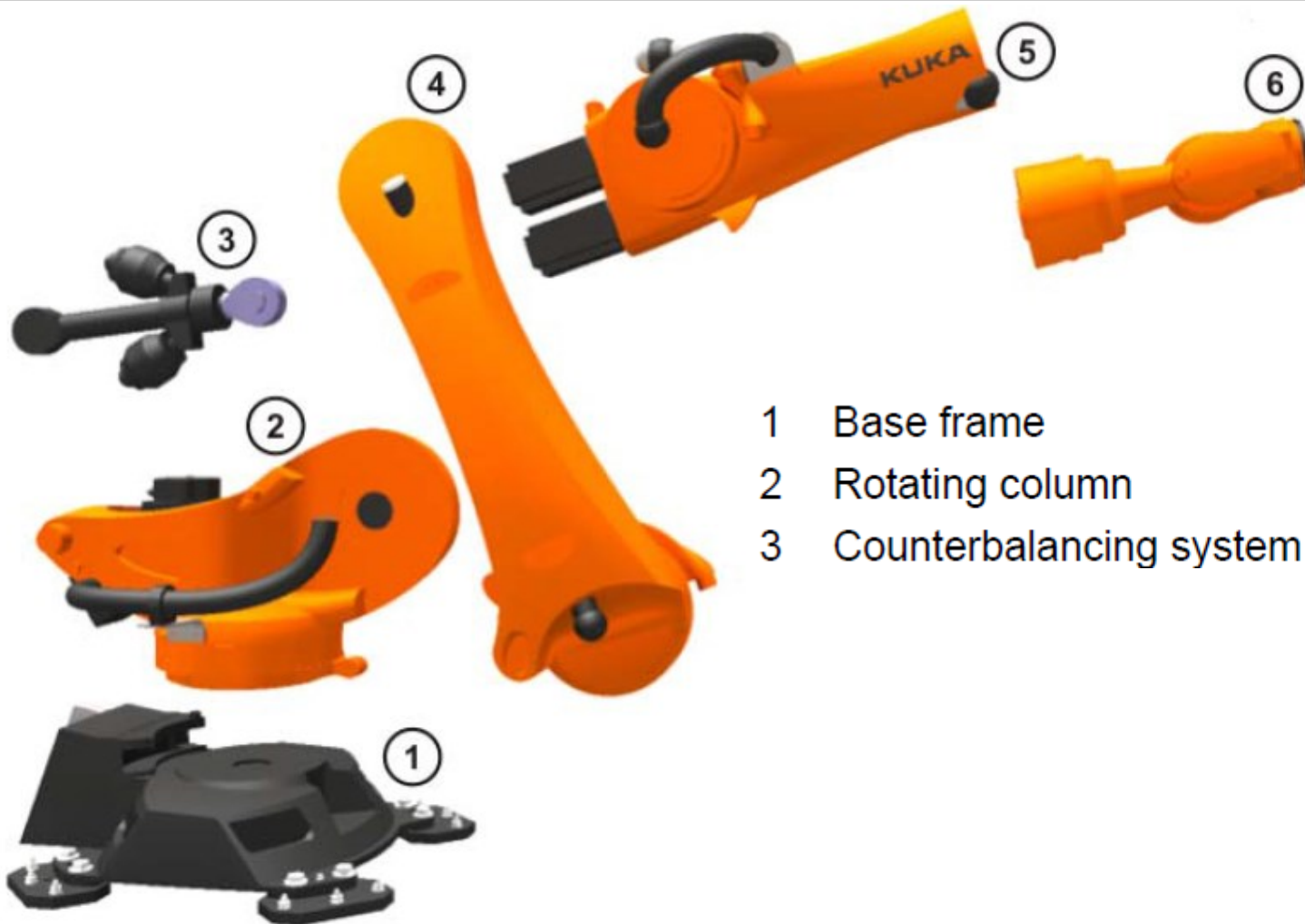


Degrees of freedom of a KUKA robot



Intention

Summary



- 1 Base frame
- 2 Rotating column
- 3 Counterbalancing system

- 4 Link arm
- 5 Arm
- 6 Wrist

There are many models to choose from...

16 Standard KRQuantec Models

- 2 PRO
- 5 EXTRA
- 5 PRIME
- 4 ULTRA



11 Shelf Mount KR Quantec Models

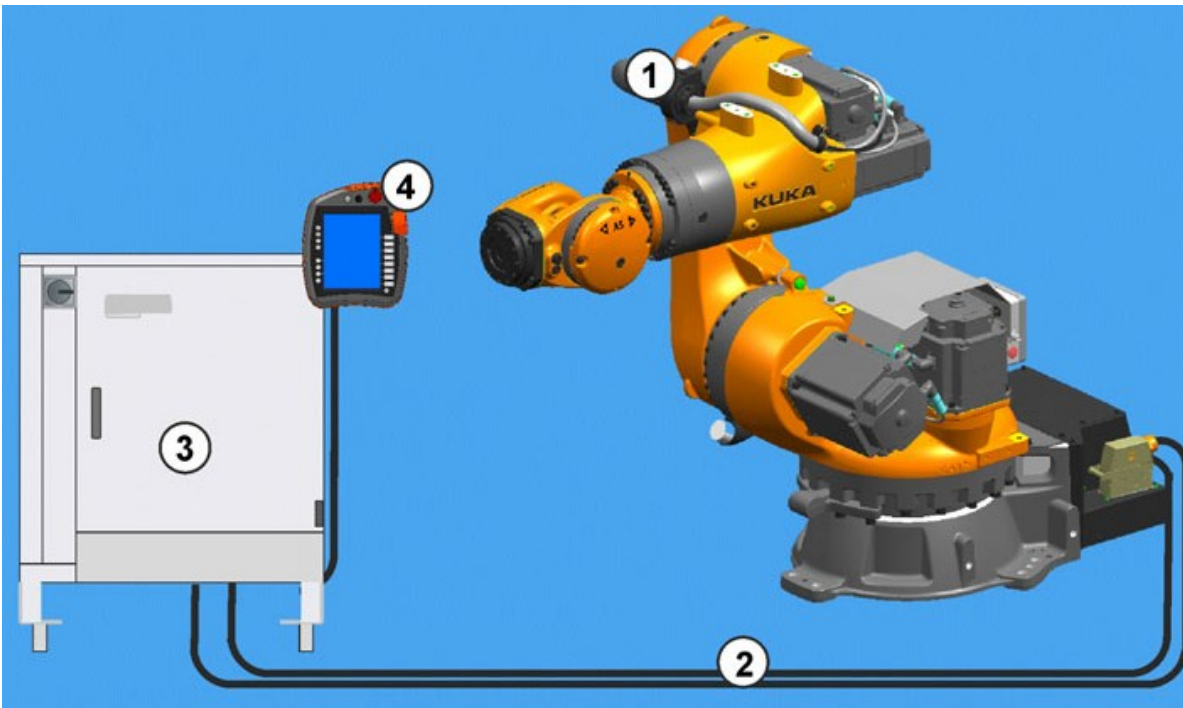
- 5 PRIME
- 6 ULTRA



2 Press KR Quantec Models



2 KR QUANTEC nano



KR160 R1570 nano

KR160 R1570 C nano

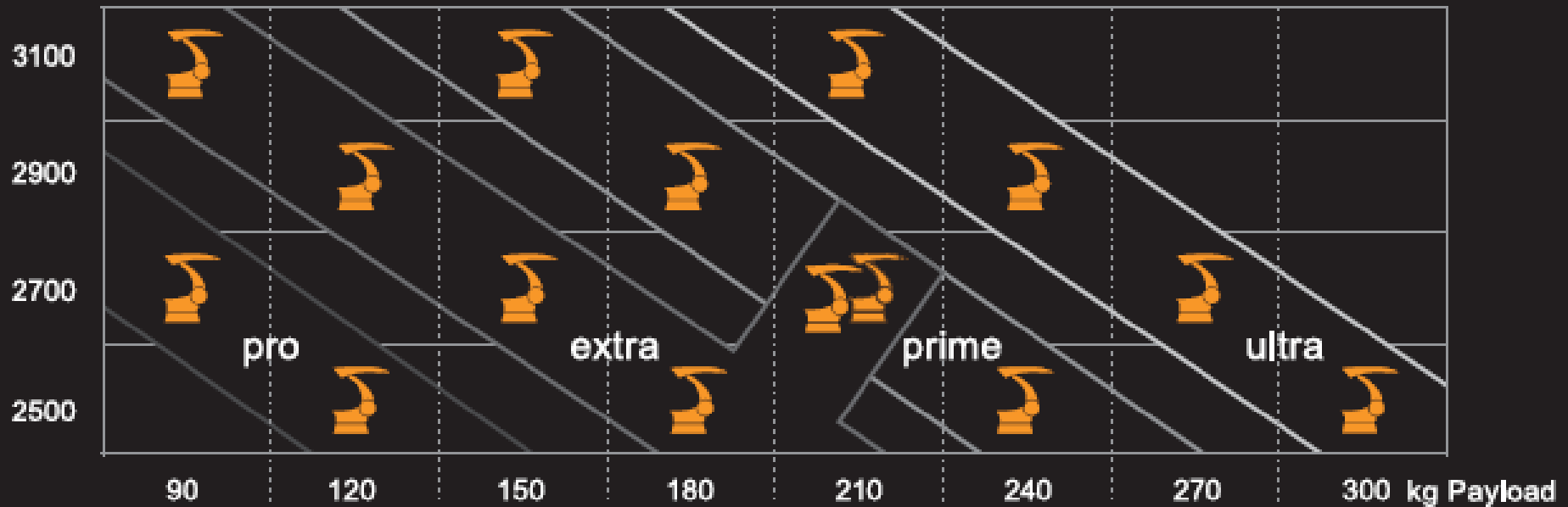
KR120 R1800 nano

KR120 R1800 C nano

Repeatability

All Quantec robots have 0.06mm pose repeatability

mm Reach



KR QUANTEC

■ TYPE

QUANTEC PRO | **KR 90 R2700 pro** | **KR 120 R2500 pro** |

■ TECHNICAL DATA

TYPE	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	POSITIONING REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 90 R2700 pro	6	90	2,700	$< \pm 0.06$	1,058	
KR 120 R2500 pro	6	120	2,500	$< \pm 0.06$	1,049	

■ TYPE

QUANTEC EXTRA | **KR 90 R3100 extra** | **KR 120 R2900 extra** |
KR 150 R2700 extra | **KR 180 R2500 extra** | **KR 210 R2700 extra** |

■ TECHNICAL DATA

TYPE	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	POSITIONING REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 90 R3100 extra	6	90	3,100	$< \pm 0.06$	1,092	F
KR 120 R2900 extra	6	120	2,900	$< \pm 0.06$	1,084	F
KR 150 R2700 extra	6	150	2,700	$< \pm 0.06$	1,068	F
KR 180 R2500 extra	6	180	2,500	$< \pm 0.06$	1,059	F
KR 210 R2700 extra	6	210	2,700	$< \pm 0.06$	1,068	

■ TYPE

QUANTEC PRIME | **KR 150 R3100 prime** | **KR 180 R2900 prime** |
KR 210 R2700 prime | **KR 240 R2500 prime** |

■ TECHNICAL DATA

TYPE	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	POSITIONING REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 150 R3100 prime	6	150	3,100	$< \pm 0.06$	1,114	
KR 180 R2900 prime	6	180	2,900	$< \pm 0.06$	1,106	
KR 210 R2700 prime	6	210	2,700	$< \pm 0.06$	1,111	F
KR 240 R2500 prime	6	240	2,500	$< \pm 0.06$	1,102	

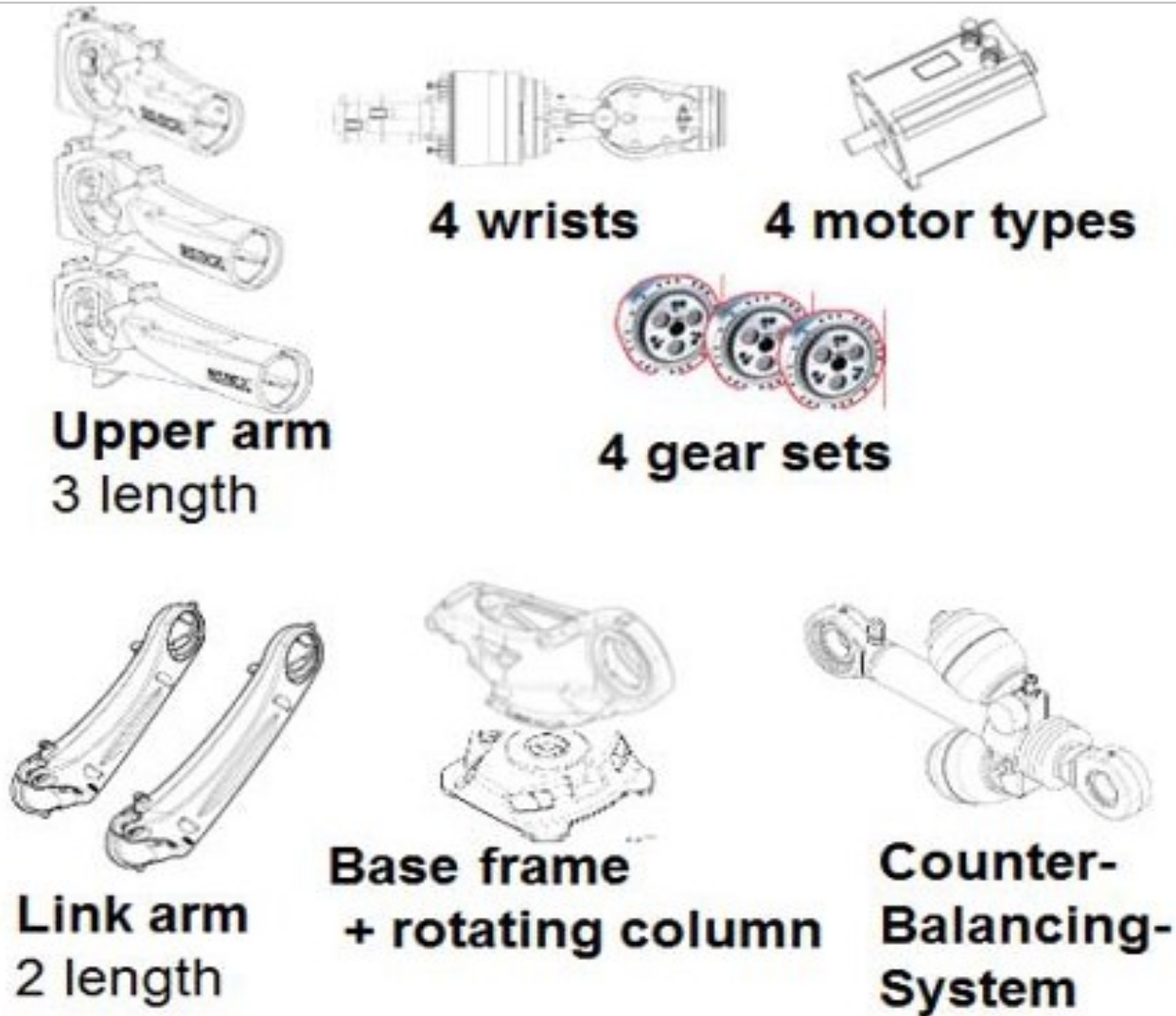
■ TYPE

QUANTEC ULTRA | **KR 210 R3100 ultra** | **KR 240 R2900 ultra** |
KR 270 R2700 ultra | **KR 300 R2500 ultra** |

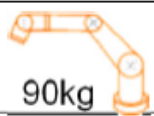
■ TECHNICAL DATA

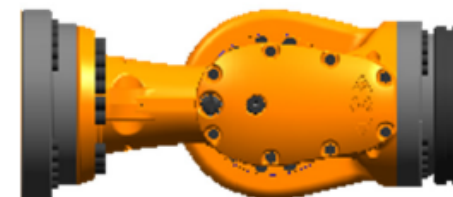
TYPE	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	POSITIONING REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 210 R3100 ultra	6	210	3,100	$< \pm 0.06$	1,155	F
KR 240 R2900 ultra	6	240	2,900	$< \pm 0.06$	1,145	F
KR 270 R2700 ultra	6	270	2,700	$< \pm 0.06$	1,130	F
KR 300 R2500 ultra	6	300	2,500	$< \pm 0.06$	1,120	F

Modular concept for QUANTEC



KUKA QUANTEC SERIES – wrists

2500mm	2700mm	2900mm	3100mm
 4 300kg			
	 4 270kg		
 3 240kg		 3 240kg	
	 3 210kg		 3 210kg
 2 180kg	 2 210kg	 2 180kg	
	 2 150kg		 2 150kg
 1 120kg		 1 120kg	
	 1 90kg		 1 90kg
short link short arm	short link medium arm	long link medium arm	long link long arm

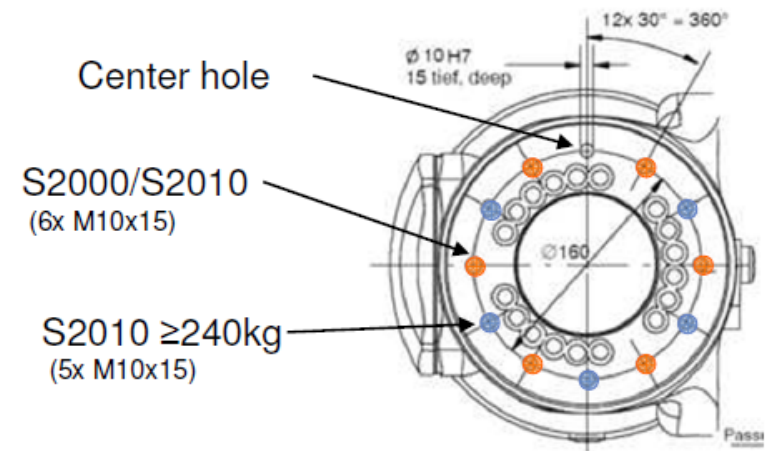
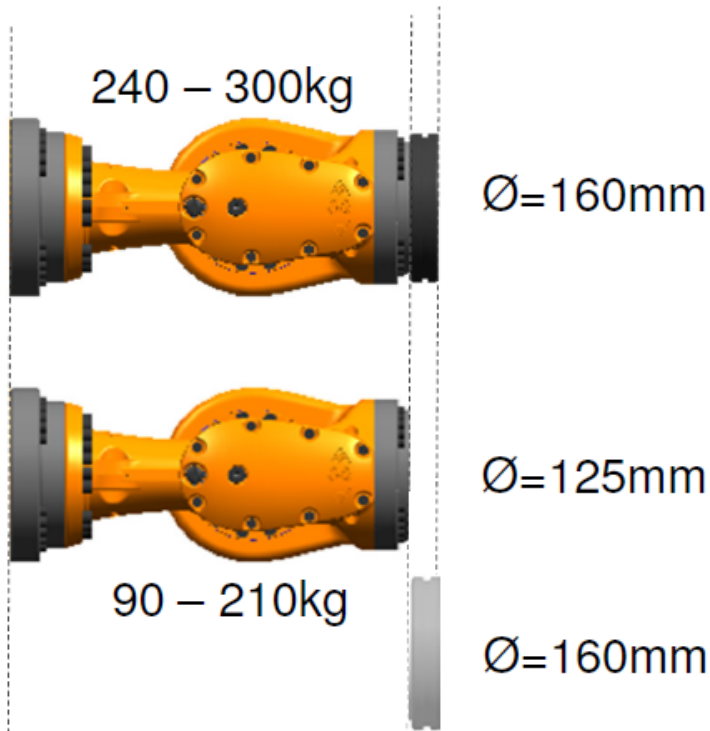


4 wrists for all robots:

- 4** wrist 1, 300/270kg
- 3** wrist 2, 210/240kg
- 2** wrist 3, 150/180kg
- 1** wrist 4, 120/90kg

Compatible interfaces

- ✓ - base: Compatible With Series 2000
- ✓ - wrist flange: Compatible With Series 2000
+ 5 more screws for
higher payloads



Intention

Overview

Details

Outlook

Summary

KUKA QUANTEC SERIES – gears

	Reach		
2500mm	2700mm	2900mm	3100mm
 300kg 4			
	 270kg 4		
 240kg 3		 240kg 4	
	 210kg 3		 210kg 4
 180kg 2	 210kg 2	 180kg 3	
	 150kg 2		 150kg 3
 120kg 1		 120kg 2	
	 90kg 1		 90kg 2
short link short arm	short link medium arm	long link medium arm	long link long arm

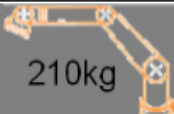
Base axes (1 2 3):

Only 4 different gear sets for all robots (A1, A2, A3)

- 4** Set 1, XL
- 3** Set 2, L
- 2** Set 3, M
- 1** Set 4, S

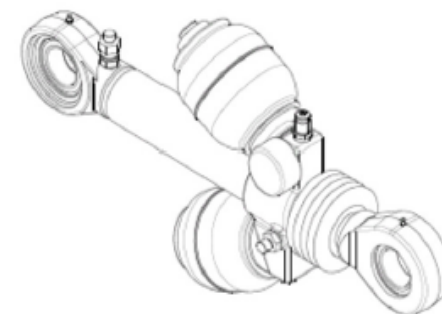
KUKA QUANTEC SERIES – Counter Balance



2500mm	Reach		3100mm
	2700mm	2900mm	
300kg 			
	270kg 		
240kg 		240kg 	
	210kg 		210kg 
180kg 	210kg 	180kg 	
	150kg 		150kg 
120kg 		120kg 	
	90kg 		90kg 
short link short arm	short link medium arm	long link medium arm	long link long arm

Base axes:

- 1 Counter Balance for all robots

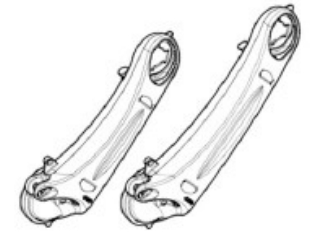


- + high power density
- + smaller interference radius
- + lower weight

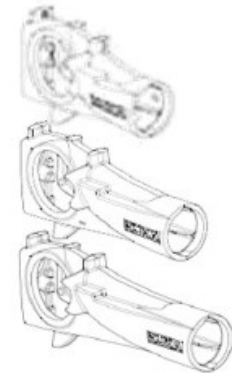
Shelf Mount KR QUANTEC



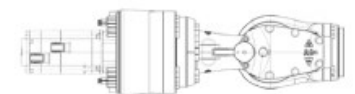
MAXIMUM FLEXIBILITY
AND VERSATILITY



Link = 2 Lengths



Arm = 3 Lengths



Wrist = 4 Versions

■ TYPE

QUANTEC PRIME K | KR 90 R3700 prime K |
 KR 120 R3500 prime K | KR 150 R3300 prime K |
 KR 180 R3100 prime K | KR 210 R2900 prime K |

■ TECHNICAL DATA

TYPE	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	POSITIONING REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 90 R3700 prime K	6	90	3,700	$< \pm 0.06$	1,204	F
KR 120 R3500 prime K	6	120	3,500	$< \pm 0.06$	1,192	F
KR 150 R3300 prime K	6	150	3,300	$< \pm 0.06$	1,184	F
KR 180 R3100 prime K	6	180	3,100	$< \pm 0.06$	1,168	F
KR 210 R2900 prime K	6	210	2,900	$< \pm 0.06$	1,180	F

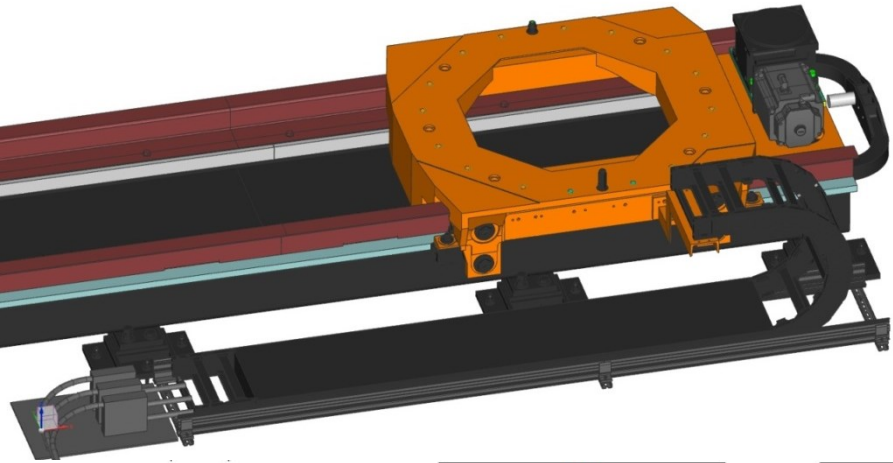
■ TYPE

QUANTEC ULTRA K | KR 120 R3900 ultra K | KR 150 R3700 ultra K |
 KR 180 R3500 ultra K | KR 210 R3300 ultra K |
 KR 240 R3100 ultra K | KR 270 R2900 ultra K |

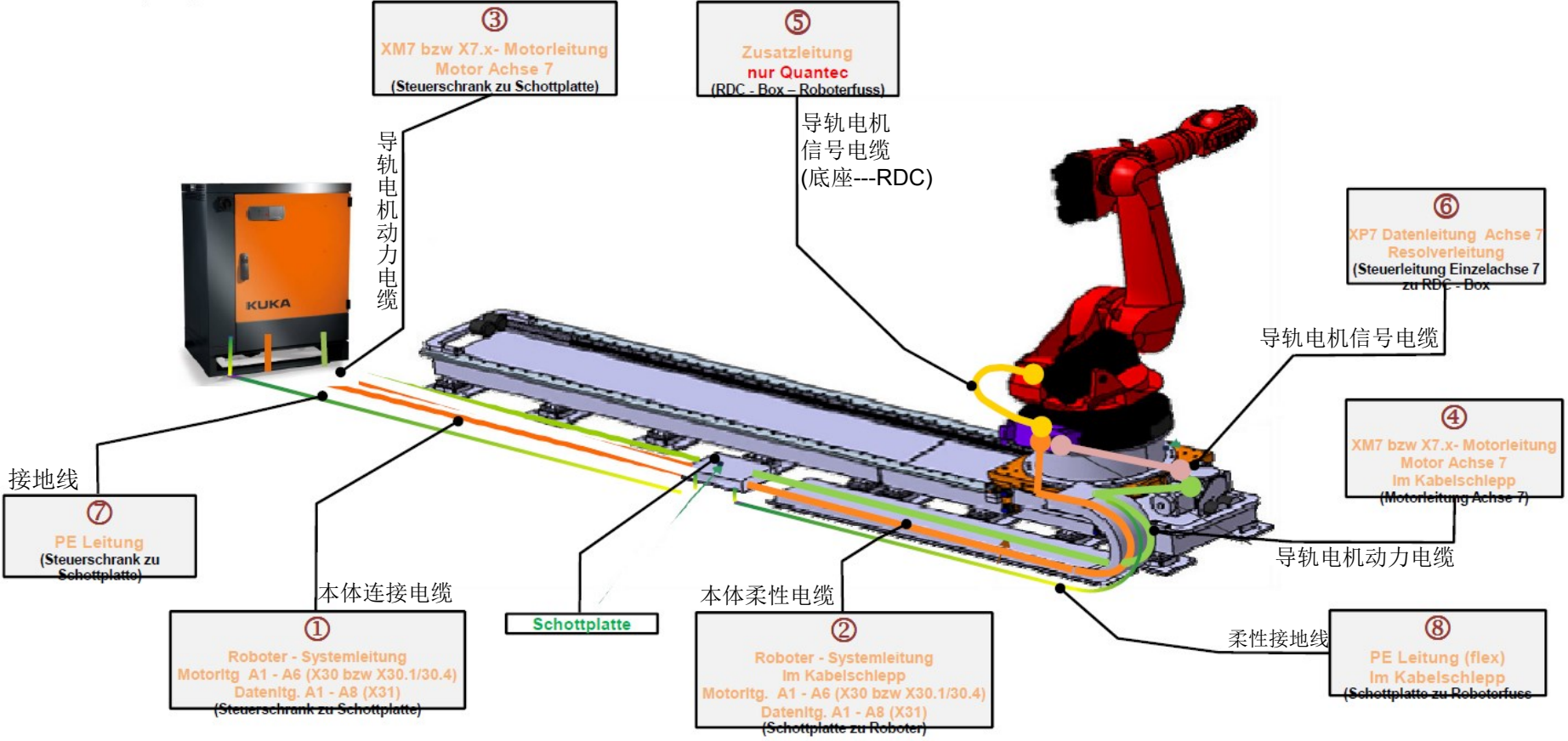
■ TECHNICAL DATA

TYPE	NUMBER OF AXES	PAYLOAD [kg]	REACH [mm]	POSITIONING REPEATABILITY [mm]	WEIGHT [kg]	ADDITIONAL MOUNTING POSITIONS/VARIANTS
KR 120 R3900 ultra K	6	120	3,900	$< \pm 0.06$	1,221	F
KR 150 R3700 ultra K	6	150	3,700	$< \pm 0.06$	1,215	F
KR 180 R3500 ultra K	6	180	3,500	$< \pm 0.06$	1,201	F
KR 210 R3300 ultra K	6	210	3,300	$< \pm 0.06$	1,214	F
KR 240 R3100 ultra K	6	240	3,100	$< \pm 0.06$	1,189	F
KR 270 R2900 ultra K	6	270	2,900	$< \pm 0.06$	1,189	F
KR270R3100 ultra K	6	270	3100			

KL 1500-3 Linear Unit designed for KR 90~300



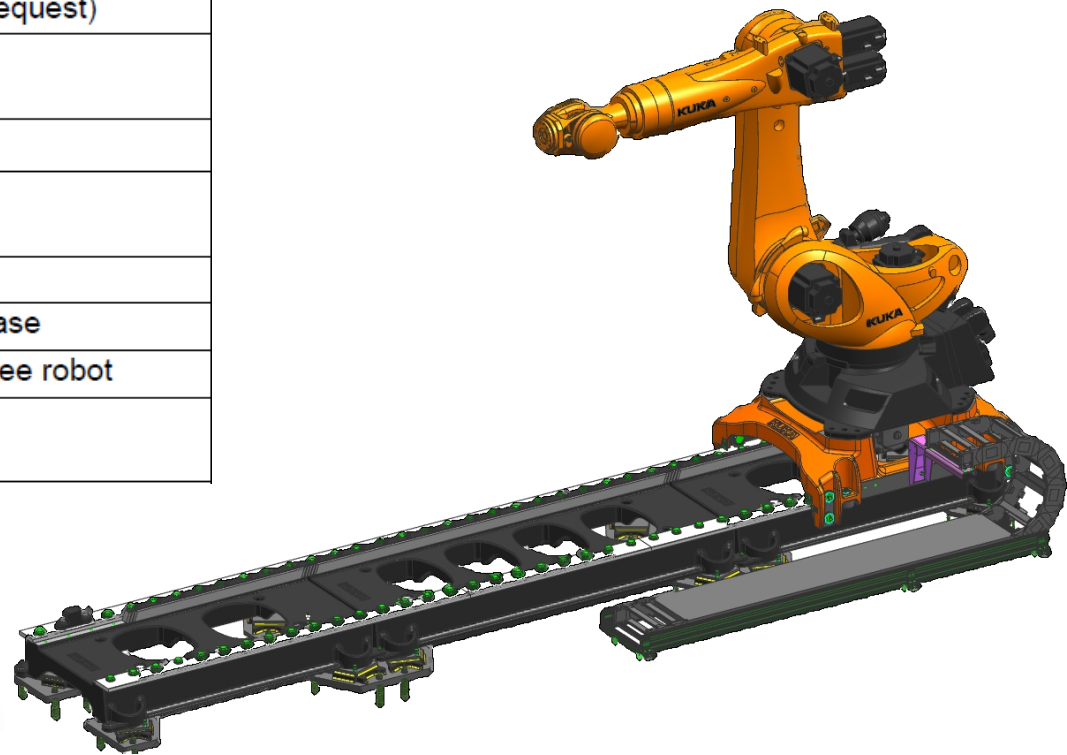
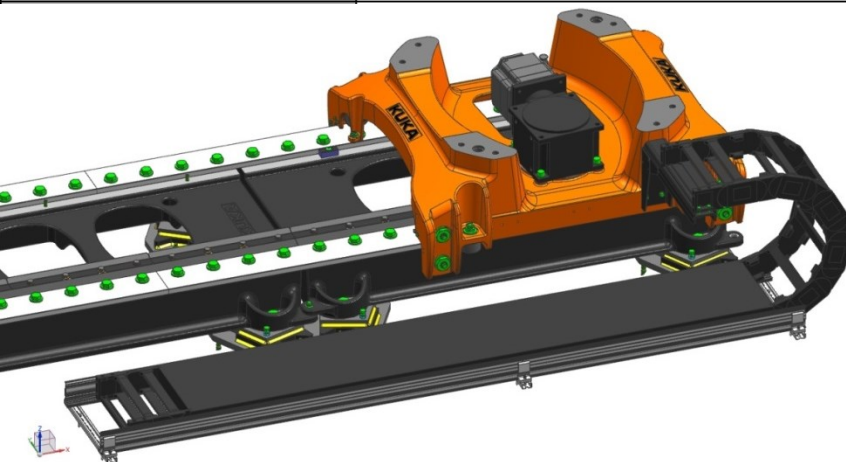
Type	KL 1500-3	KL 1500-3 S	KL 1500-3 T
Linear unit designed for robot series	up to KR 2000 (KR 270) without pedestal (booster frame)	up to KR 500 without pedestal, up to KR 2000 (KR 270) with pedestal	up to KR 2000 (KR 270) without pedestal (booster frame)
Mounting position	Floor		
Mass of payload	2,000 kg	3,800 kg	
Mass of carriage	440 kg		
Mass of beam per meter	345 kg		
Min. rated travel	1,000 mm		
Max. rated travel	30,000 mm		
Gradation of rated travel	500 mm		
Max. traversing velocity	1.45 m/s	2.35 m/s	1.89 m/s
Repeatability	± 0.02 mm		
Transmission of force	Rack		



KL 2000 Linear Unit designed for KR 90~300

Type	KL 2000
Number of axes	1
Rated travel	Min. rated travel = 400 mm Max. rated travel = 30,400 mm (longer rated travels available on request)
Gradation of rated travel	500 mm
Velocity	$v_{\max} = 1.96 \text{ m/s}$
Repeatability (ISO 9283)	$\pm 0.02 \text{ mm}$
Mass of carriage	$m = 350 \text{ kg}$
Mass of beam assy	$m = 180 \text{ kg/m}$, without mounting base
Payload	Robot with supplementary loads, see robot
Max. permissible payload (per carriage)	2,000 kg

Description: basic axis for Quantec robots, booster frames are possible up to 800mm, Quantec K robots are not possible



KR FORTEC Heavy Payload from 360Kg~600Kg



Intention

Overview

Details

Outlook

Summary

Portfolio

KR 360 FORTEC family KR 500 FORTEC family KR 600 FORTEC family

KR 360 R2830
 KR 280 R3080
 KR 240 R3330
 KR 360 R2830 F
 KR 280 R3080 F
 KR 240 R3330 F
 KR 360 R2830 C
 KR 240 R3330 C

KR 500 R2830
 KR 420 R3080
 KR 340 R3330
 KR 500 R2830 F
 KR 420 R3080 F
 KR 340 R3330 F
 KR 500 R2830 MT
 KR 480 R3080 MT
 KR 480 R3080 MT-F
 KR 500 R2830 C

KR 600 R2830
 KR 510 R3080
 KR 420 R3330
 KR 600 R2830 F
 KR 510 R3080 F
 KR 420 R3330 F

F: Foundry
 C: Ceiling
 MT: Machine Tool

- KR FORTEC 与 KR 360/500-3之间的区别:
 - 负载范围扩大到**600Kg**
 - 更新了命名，方便选型、规划
 - 增加了各轴的速度，增强了机器人的动态特性，较少节拍
 - 交换了手腕处**A5**和**A6**电机位置
 - 手腕传动方式由带传动技术调整为齿轮传动技术
减少了维护成本(只需每**20.000h**换一次油) – 不再需要更换皮带
- 在新的系列中，所有接口保持不变
 - Hole pattern for mounting base
 - Fastening of supplementary loads
 - Flange A6 (hole pattern diameter 200 mm)
 - Fastening points for energy supply systems

KR500R2830

KR500-3

Speed with rated payload		Speed with rated payload
A1	90 °/s	84 °/s
A2	80 °/s	79 °/s
A3	75 °/s	73 °/s
A4	90 °/s	76 °/s
A5	83 °/s	74 °/s
A6	130 °/s	123 °/s

KR360R2830

KR360-3

Speed with rated payload		Speed with rated payload
A1	100 °/s	98 °/s
A2	90 °/s	91 °/s
A3	90 °/s	89 °/s
A4	120 °/s	110 °/s
A5	110 °/s	111 °/s
A6	160 °/s	153 °/s

清洗机器人

Comparison of installation size Series 2000 Foundry Exclusive

- 1 Series 2000 Foundry Exclusive (KR 210 R2100 F Exclusive)
- 2 KR 120 R2100 nano F Exclusive



Series 2000 Foundry Exclusive



Typ	KR 210 F exclusive
Maximum reach	2700 mm
Rated payload	210 kg
Supplementary load on arm	35 kg
In-line wrist type	Foundry, ≤180 °C (10 s/min) – surface temperature <100 °C
Maximum total load	610 kg
Number of axes	6
Mounting position	Floor
Pose repeatability	±0,06 mm
Path repeatability	Not specified
Controller	KR C2
Weight (excluding controller)	1289 kg
Temperature during operation	+10 °C bis +55 °C
Protection classification	IP 67
Footprint	1006 x1006 mm – diameter 1020 +1 mm
Connection	Installed motor capacity 23.40 kW
Noise level	< 75 dB (A)

KR 120 R2100 nano F Exclusive



Max. reach	2,100 mm
Rated payload	120 kg
Rated suppl. load on arm / link arm / rot. column	30 kg/-/-
Maximum payload	150 kg
Pose repeatability	±0.06 mm
Number of axes	6
Mounting position	Floor
Variant	F
Robot footprint	615 x 860 mm
Weight (excluding controller), approx.	963 kg
Remote RDC	YES
Protection rating, robot	IP 69
Protection rating, in-line wrist	IP 67, IP 69

Axis data / Range of motion			Speed
Axis 1 (A1)	+/-165°		136°/s
Axis 2 (A2)	+45°/-135°		95°/s
Axis 3 (A3)	+155°/-65°		120°/s
Axis 4 (A4)	+/-350°		292°/s
Axis 5 (A5)	+/-125°		258°/s
Axis 6 (A6)	+/-350°		284°/s