

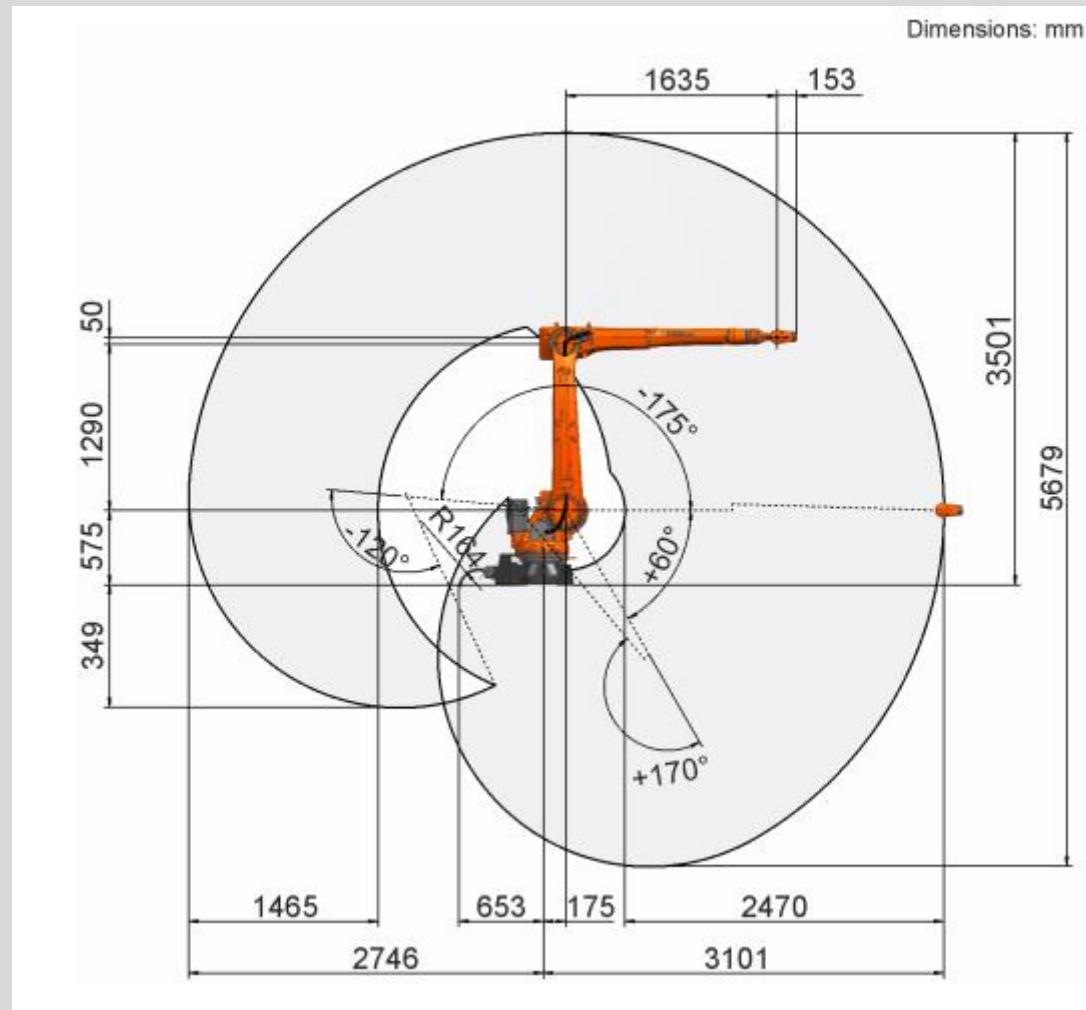
# Telemanipulator Robot



# Outline

- Hull design and work canvas
- Locomotion system
- Navigation system and control
- Data collection
- Data transmission
- Power management

# Hull design and work canvas



# Model variants

	KR 20 R3100	KR 30 R2100	KR 50 R2100	KR 50 R2500	KR 50 R2500 F	KR 70 R2100
Payload	20 kg	30 kg	50 kg	50 kg	50 kg	70 kg
Maximum reach	3100 mm	2100 mm	2100 mm	2500 mm	2500 mm	2100 mm
Construction type	Standard	Standard	Standard	Standard	Standard	Standard
Version environment	Standard	Standard	Standard	Standard	Foundry	Standard
Mounting positions	Angle Ceiling Floor Wall	Angle Ceiling Floor Wall	Angle Ceiling Floor Wall	Angle Ceiling Floor Wall	Angle Ceiling Floor Wall	Angle Ceiling Floor Wall
Protection class	IP 65	IP 65 IP 67	IP 65 IP 67	IP 65 IP 67		IP 65 IP 67

# Locomotion system

- Servo motor
- Model: Kuka MG\_8\_40\_45\_S0
- Servo drive module: KSD 08

Motor dimensions

<b>l</b>	175 mm
<b>a</b>	55 mm
<b>z</b>	40 mm
<b>b</b>	64 mm
<b>w</b>	9k6
<b>v</b>	-
<b>wl</b>	20 mm
<b>zl</b>	2 mm
<b>c</b>	5.4 mm
<b>Connector size</b>	1

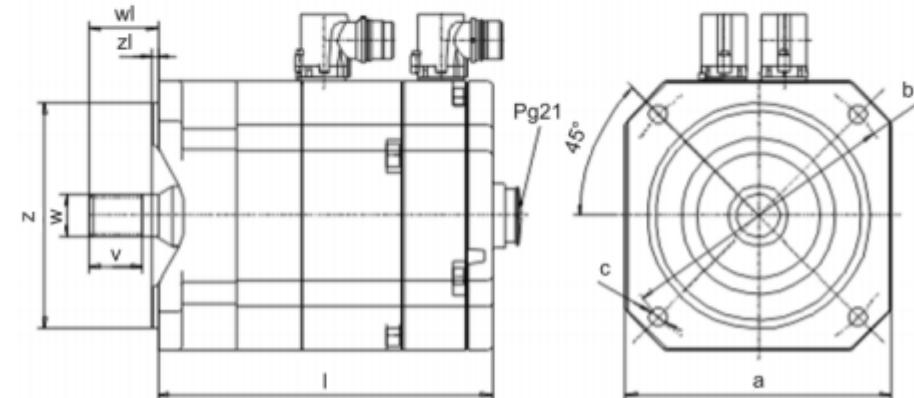


Fig. 3-1: Motor dimensions

# Navigation system and control



# Brain

- Kuka KR C4 Controller
- Robot Control
- PLC Control
- Motion Control
- Safety Control
- Understand KRL, PLC and CNC (G-code)

# KR C4 variants

	KR C4 compact	KR C4 smallsize-2	KR C4	KR C4 midsize	KR C4 extended
Dimensions (HxWxD)	271 x 483 x 460 mm	615 x 580 x 540 mm	960 x 792 x 558 mm	1160 x 792 x 558 mm	1600 x 842 x 562 mm
Processor	Multi-core technology	Multi-core technology	Multi-core technology	Multi-core technology	Multi-core technology
Hard drive	SSD	SSD	SSD	SSD	SSD
Interface	USB3.0, GbE, DVI-I	USB3.0, GbE, DVI-I	USB3.0, GbE, DVI-I	USB3.0, GbE, DVI-I	USB3.0, GbE, DVI-I
Number of axes (max.)	6+2 (with additional axis box)	6+6 (with additional axis box)	9	9	16
Mains frequency	50/60 Hz ± 1 Hz	50/60 Hz ± 1 Hz	49 to 61 Hz	49 to 61 Hz	49 to 61 Hz
Rated supply voltage	200 V to 230 V AC	3 x 380 V to 3 x 575 V AC	3 x 380 V to 3 x 575 V AC	3 x 380 V to 3 x 575 V AC	3 x 380 V to 3 x 575 V AC
Protection rating	IP20	IP54	IP54	IP54	IP54
Ambient temperature	+5 °C to +45 °C	+5 °C to +45 °C	+5 °C to +45 °C	+5 °C to +45 °C	+5 °C to +45 °C
Weight	33kg	60kg	150kg	160kg	240kg

# Data collection

- Motor angle data collection
- Encoder installed on servomotor

# Data transmission



- Kuka smartPad
- Use to teach robot to move

# Power management

- Each motor controlled by a three-phase inverter.
- In the resting position a robot consumes about 700 W, which after 20 seconds at a standstill is automatically reduced to only 200 W.
- In the “hibernate” mode, the power consumption of the overall system is about 18 W.
- In full operation it rises to peaks of about 60 kW.
- Added to this is the power consumption of the tools.



# Thank you