ROKAE

ROKAE Robotics

Selection Guide for Full Series of Products

ROKAE Robotics

Industrial Robots & Cobots | Full range of robots and automation solutions provider

As a world-leading next-generation intelligent robotics expert, ROKAE Robotics specializes in the research, development, production, and sales of **articulated industrial robots, collaborative robots, and other serial products.** Based on **platform products and self-developed core technologies**, ROKAE is oriented to **industrial, commercial, and healthcare** fields, providing customers with more intelligent, more efficient, and safer products and automation solutions.

- **Largest** industrial robot + cobot intelligent manufacturing factory **in Northern China**
- **Digital and intelligent** manufacturing system
- Comprehensive and stringent quality control standards
- Robot annual production capacity exceeds **20,000 units**

ROKAE

CONTENTS

50+
Robot products

1,000+
Global customers

40,000
Units sold

600+
Proprietary intellectual properties

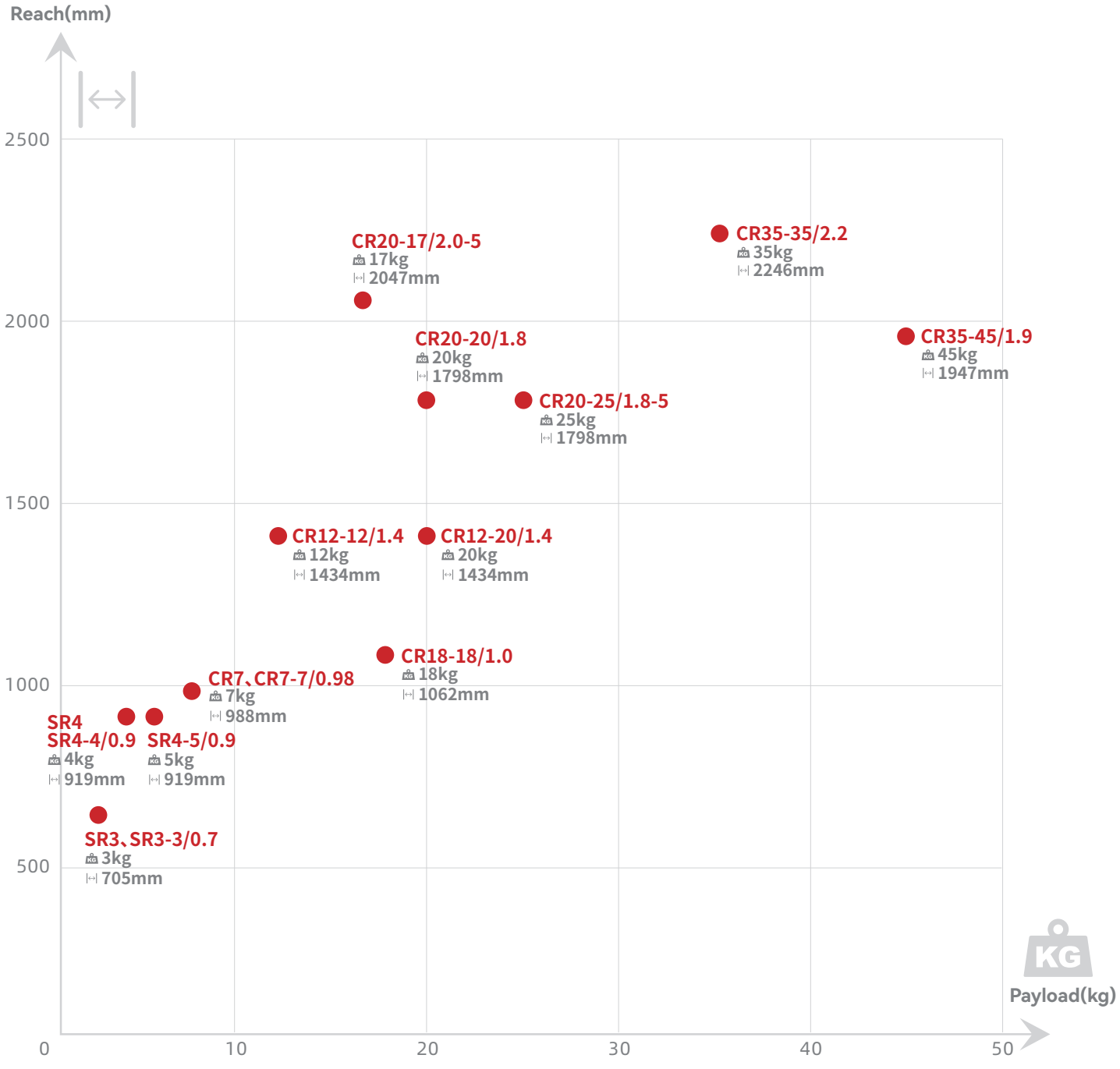
80%
of R&D members hold a master’ s degree or above

xMate

New-Generation Flexible Collaborative Robot

The global labor shortage has created increasing demands for robots in industrial production. As robots are adopted in more and more applications, they are required to be safer, more flexible, and easier to use. The introduction of collaborative robots paves the way for human-robot collaboration, but their application faces huge challenges in many scenarios, such as high-precision assembly in industrial production, compliant human-robot interaction in wellness physiotherapy, and high-precision operations in medical surgery, to name just a few. To satisfy these new scenarios, new robot technologies are needed.

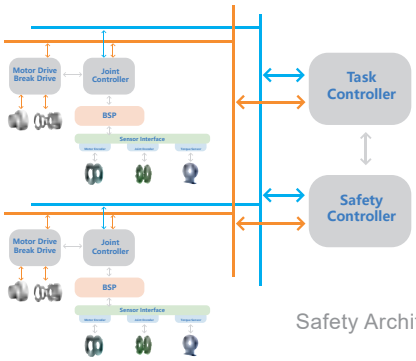
ROKAE's new-generation flexible collaborative robots come with intelligent force sensing and vision. This allows the original open-loop teaching-execution process to be replaced with an intelligent closed-loop process that features dynamic interaction with the environment, making possible safe and accurate interaction between the environment and people. The disruptive innovation enables the robots to unlock more scenarios and become a partner you can rely on in production.



A Powerful Yet Flexible All-Rounder

Extreme Safety

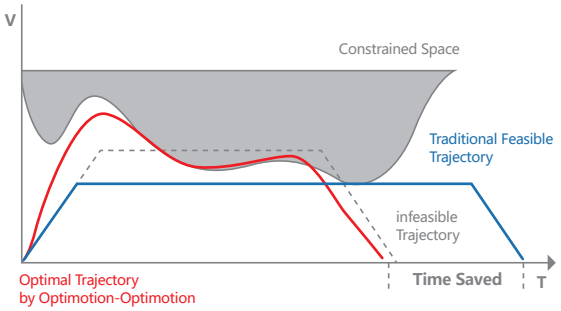
- Sensitivity improved by 10 times thanks to the collision detection by torque sensors
- More than 21 TÜV functional safety features, meets functional safety standards: ISO 13849-1, ISO 10218-1/PL d, Cat. 3; ISO 15066
- Dual-channel redundant monitoring of sensor information and an independently certified safety controller
- The position holding accuracy is better than ±0.1mm when power on and off, powered by suction contracting brake and dynamic feedforward compensation



Safety Architecture

Superior Performance

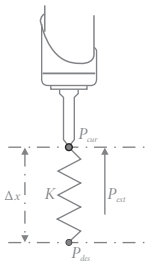
- Cutting-edge motion control technologies for industrial robots: OptiMotion, TrueMotion, and SyncMotion
- First-class robot path accuracy supported by dynamic feedforward compensation and dynamic modeling based on over 2000 parameters
- Payload capacity increased by 20% thanks to the customized motor drive control system



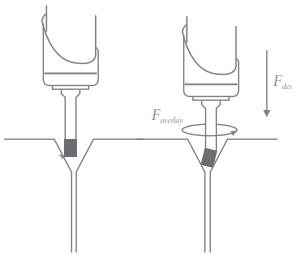
Optimal Takt Time

Compliant Flexibility

- Powerful yet flexible robot control based on patented unified force-position hybrid control framework
- Force control task efficiency improved by over 3 times through highly dynamic force control
- Fine grinding and precision assembly with no extension required thanks to built-in joint sensors and complete force control process kit



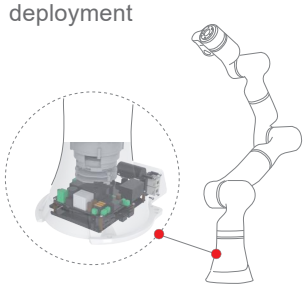
Impedance Control



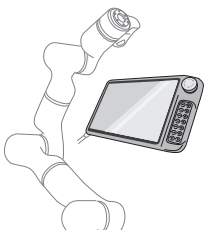
Controlled Force Assembling

Ease of Use

- Direct teaching control with 1N based on point position and continuous trajectory
- Graphical programming interface with flowcharts enables users to get started within 1 hour
- Friendly development and open ecosystem support 100+ ecosystem extension tools of 5 categories
- A control-cabinet-less design is available,reduces system weight by 50% and allows for fast installation and flexible deployment



Cabinet-free Design



Graphical Programming

Excellent Reliability

- Motion planning based on dynamics constraints delivers high performance, overload protection, and an extended service life
- 100+ design verification experiments, 20+ factory tests, and MTBF > 80,000 h
- IP67 protection level satisfies the demands of harsh industrial applications

Better Protection

xMate CR

Flexible Collaborative Robot

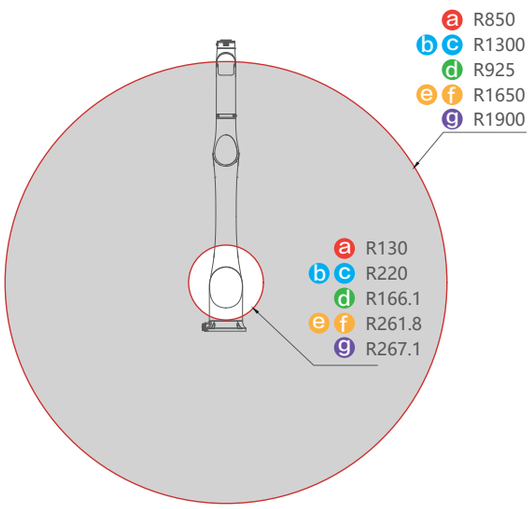
xMate CR series flexible collaborative robots are built on the force-position hybrid control framework and xCore,a new self-developed high-performance control system for industrial robots.Designed for industrial applications,the robots deliver improved motion performance,force control,safety,ease of use,and reliability.Robot body with IP67 protection rating can adapt to more stringent application scenarios.The independent control cabinet provides richer IO resources and more flexible extensibility.Its built-in independent safety controller,TÜV certified,functional safety meets ISO13849-1:2015 standard,up to PL d/Cat.3 level.

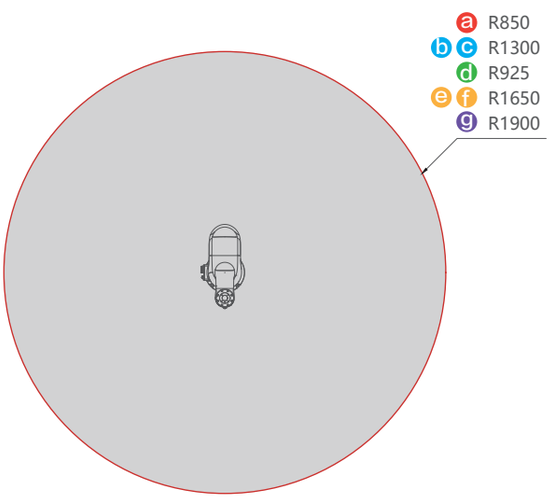
The newly upgraded xMate CR series of flexible cobots further broadens the application scenarios with the characteristics of safer,more flexible and easier to use.The payload capacity has increased to 45kg,with an operating range of up to 2,246 mm.This significantly expands the application scenarios for collaborative robots,allowing them to cover a wide range of industry-specific applications.It comprehensively assists enterprises in enhancing production efficiency and rapidly achieving flexible manufacturing.

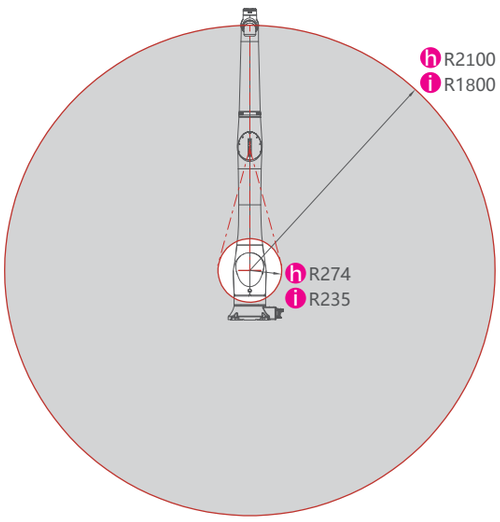
Working range

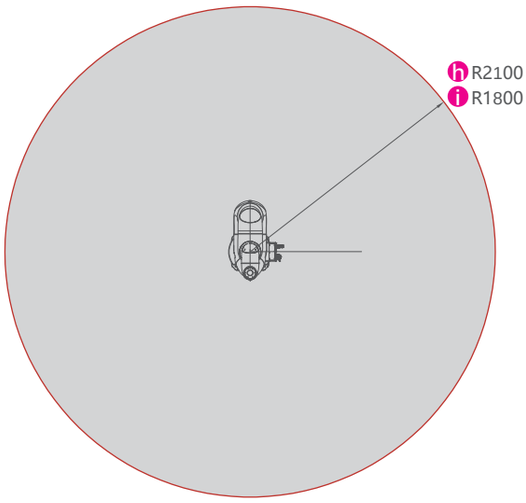
(Dimensions: mm)

a CR7-7/0.98
b CR12-12/1.4
c CR12-20/1.4
d CR18-18/1.0
e CR20-20/1.8
f CR20-25/1.8-5
g CR20-17/2.0-5
h CR35-35/2.2
i CR35-45/1.9



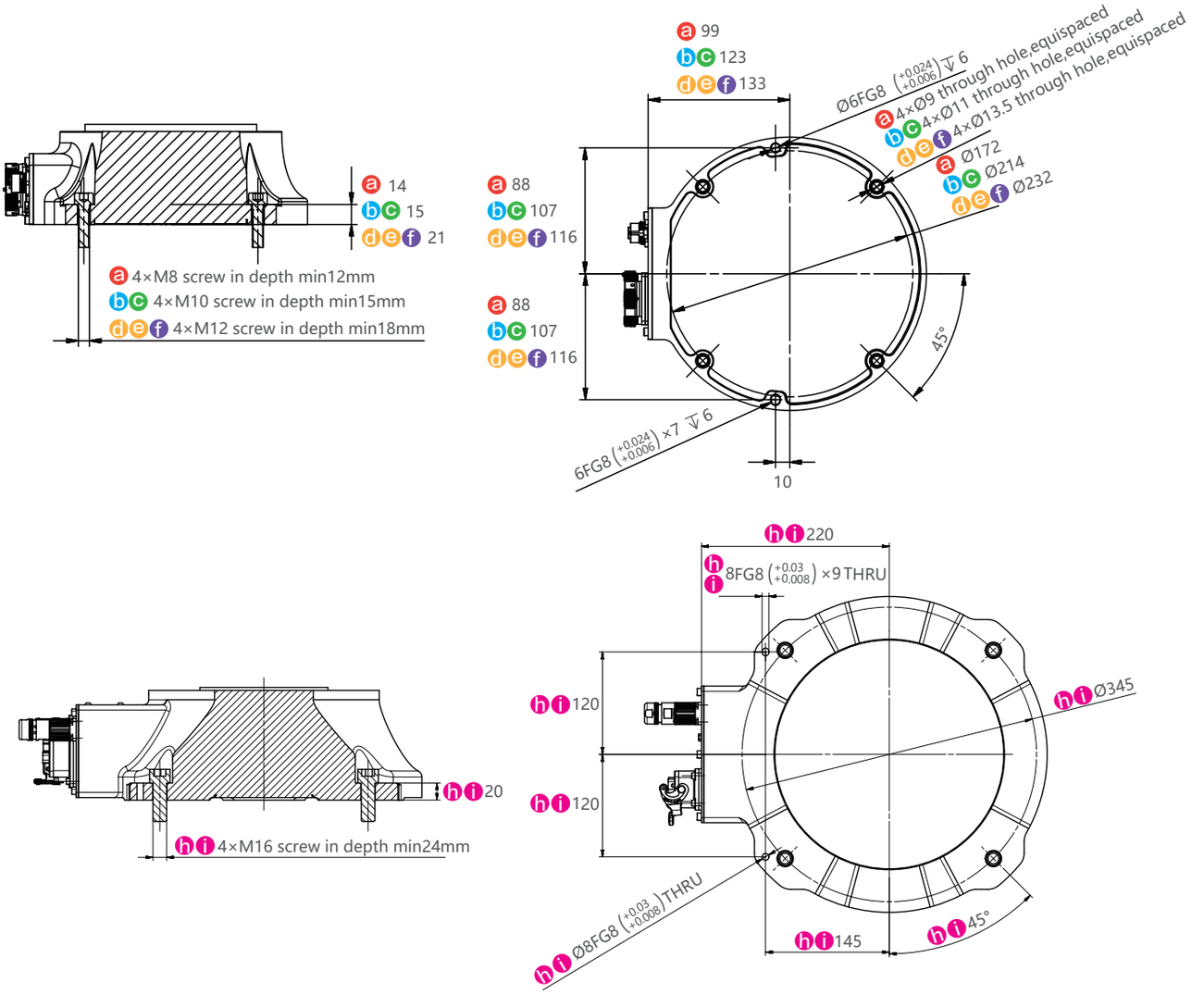




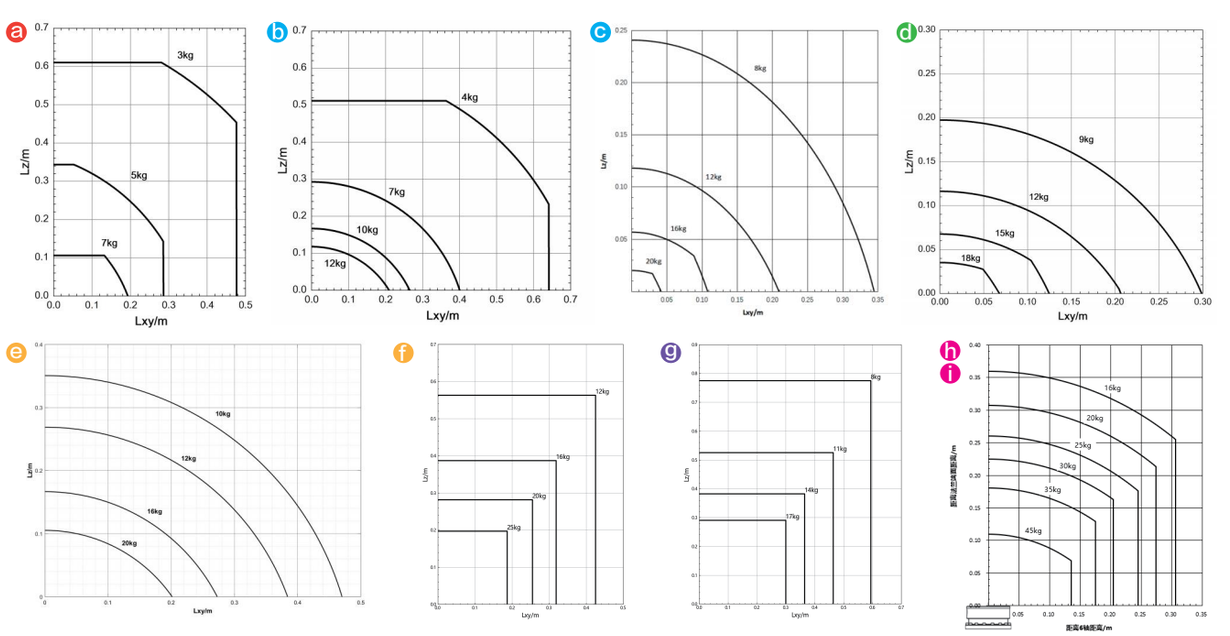


Fixed size of base

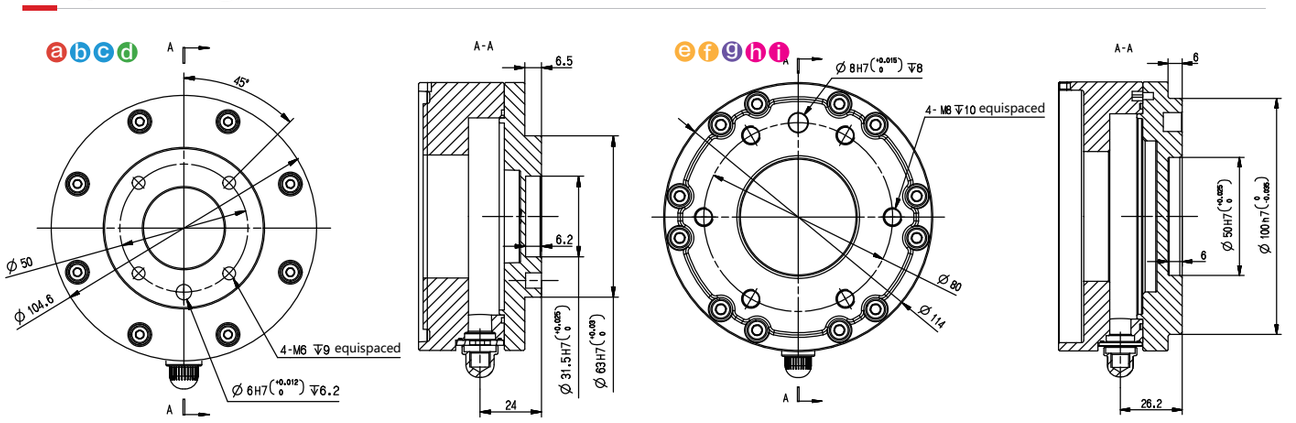
a CR7-7/0.98 b CR12-12/1.4 c CR12-20/1.4 d CR18-18/1.0 e CR20-20/1.8 f CR20-25/1.8-5 g CR20-17/2.0-5 h CR35-35/2.2 i CR35-45/1.9



Wrist load curve



Output flange (Dimensions: mm)



Specifications

Specifications

	CR7-7/0.98	CR12-12/1.4	CR12-20/1.4	CR18-18/1.0	CR20-20/1.8	CR20-25/1.8-5	CR20-17/2.0-5	CR35-35/2.2	CR35-45/1.9
Payload	7 kg	12 kg	20 kg	18 kg	20 kg	25 kg	17 kg	35 kg	45 kg
Reach	988 mm	1,434 mm	1,434 mm	1,062 mm	1,798 mm	1,798 mm	2,047 mm	2,246 mm	1,947 mm
Weight	About 25 kg	About 41 kg	About 41 kg	About 38 kg	About 71 kg	About 69 kg	About 71 kg	About 165 kg	About 161 kg
Degrees of freedom	6	6	6	6	6	5	5	6	6
MTBF	> 80,000 h*	> 80,000 h*	> 80,000 h*	> 80,000 h*	> 80,000 h*	> 80,000 h*	> 80,000 h*	——	——
Power supply	48VDC	48VDC	48VDC	48VDC	48VDC	48VDC	48VDC	——	——
Programming	Direct teaching control and graphical interface	Direct teaching control and graphical interface	Direct teaching control and graphical interface	Direct teaching control and graphical interface	Direct teaching control and graphical interface	Direct teaching control and graphical interface	Direct teaching control and graphical interface	Graphical interface	Graphical interface

Performance

Typical Power	300 w		500 w		500 w		600 w		1,000 w		900 w		600 w		——	——
Safety	Over 21 adjustable safety features including collision detection, virtual walls, and collaboration mode (Optional for models 35kg and above)															
Certification	EN ISO 13849-1, EN ISO 10218-1/ PL d, Cat. 3; ISO 15066, and EU CE marking requirements,KCs marking requirements,EAC marking requirements															
Force sensing (tool flange)	Force，x-y-z	Torque，x-y-z	Force，x-y-z	Torque，x-y-z	Force，x-y-z	Torque，x-y-z	Force，x-y-z	Torque，x-y-z	Force，x-y-z	Torque，x-y-z	Force，x-y-z	Torque，x-y-z	Force，x-y-z	Torque，x-y-z	——	——
Torque sensor resolution	0.1N	0.02Nm	0.1N	0.02Nm	0.1N	0.02Nm	0.1N	0.02Nm	0.1N	0.02Nm	0.1N	0.02Nm	0.1N	0.02Nm	——	——
Adjustable range of Cartesian stiffness	0~6000N/m，0~1000Nm/rad		0~18000N/m，0~2500Nm/rad		0~18000N/m，0~2500Nm/rad		0~18000N/m，0~2500Nm/rad		0~18000N/m，0~2500Nm/rad		0~18000N/m，0~2500Nm/rad		0~18000N/m，0~2500Nm/rad		——	——

Motion

Repeatability	±0.02 mm		±0.03 mm		±0.05 mm		±0.03 mm		±0.05 mm		±0.05 mm		±0.05 mm		±0.05 mm	
Motion joint	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed
Axis 1	±360°	180°/s	±360°	120°/s	±360°	90°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	163°/s	±360°	163°/s
Axis 2	±360°	180°/s	±360°	120°/s	±360°	90°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	163°/s	±170°	163°/s
Axis 3	±360°	234°/s	±360°	180°/s	±360°	112°/s	±165°	180°/s	±170°	120°/s	±170°	120°/s	±165°	120°/s	±168°	135°/s	±168°	135°/s
Axis 4	±360°	240°/s	±360°	234°/s	±360°	146°/s	±360°	180°/s	±360°	180°/s	±360°	234°/s	±360°	234°/s	±360°	155°/s	±360°	155°/s
Axis 5	±360°	240°/s	±360°	240°/s	±360°	200°/s	±360°	180°/s	±360°	234°/s	±360°	234°/s	±360°	234°/s	±360°	199°/s	±360°	199°/s
Axis 6	±360°	240°/s	±360°	240°/s	±360°	200°/s	±360°	180°/s	±360°	234°/s	——		——		±360°	228°/s	±360°	228°/s
Maximum speed at tool end	≤3.2m/s		≤3.0m/s		≤3.0m/s		≤3.0m/s		≤3.5m/s		≤3.5m/s		≤4.0m/s		≤6.0m/s		≤6.0m/s	

Physical properties

IP rating	IP67	IP67
ISO cleanroom class	5	5
Noise	≤ 70 dB(A)	≤ 85 dB(A)
Operating ambient temperature	0℃~50℃	0℃~40℃
Humidity	≤ 93% RH (non-condensing)	≤ 93% RH (non-condensing)
Robot installation	At any angle	At any angle
Tool I/O ports	2 Digital outputs, 2 Digital inputs, 2 Analog inputs	2 Digital outputs, 2 Digital inputs, 2 Analog inputs
Tool communication interface	RS485(Alternative with two analog input pins, can not be used simultaneously)	RS485(Alternative with two analog input pins, can not be used simultaneously)
Tool I/O power supply	12V/24V 1A (rated)	12V/24V 1A (rated)

Considering the upgrade of the product, the actual parameters of the product shall be subject to the corresponding hardware installation manual
*Note: If you have any questions about the status of product certification, please contact the manufacturer. Please refer to the corresponding product manual for more details

Controller

Name	xMate Control Cab (MCC)	xMate Control Cab Mix(MCCM)
Applicable models	CR Series models below 35kg	CR Series models 35kg and above
IP rating	IP54	IP54
Operating ambient temperature	0℃~50℃	0℃~50℃
Humidity	≤93% RH (Non-condensing)	≤93% RH (Non-condensing)
Input power	Single-phase 90V ~ 264VAC, 47-63Hz，Single-phase 180V ~ 264VAC, 47-63Hz (CR20 Series)	110V~260V AC，50~60Hz
Dimensions	450 mm x 250 mm x 350 mm	480 mm×325 mm×360 mm
Weight*	About 15 kg	About 15 kg
User IO	16 inputs and 16 outputs (standard)	16 inputs and 16 outputs (standard)
Communication	5 safety inputs, 4 safety outputs (all dual-redundant channels)	5 safety inputs, 4 safety outputs (all dual-redundant channels)
Power output	RS232*1; Gigabit Ethernet RJ45*1;USB3.0*2; HDMI*1; EtherCAT*1	RS232*1; Gigabit Ethernet RJ45*1;USB3.0*2; HDMI*1; EtherCAT*1
Optional extension	General Digital I/O module; Analog I/O module; Incremental encoder signal acquisition module, etc.	General Digital I/O module; Analog I/O module; Incremental encoder signal acquisition module, etc.

Teach Pendant

Name	xPad2
Dimensions	290 mm×170 mm×80 mm
Weight	About 840g (excluding cable)
Cable length	5 m/7 m/15 m/22 m
Display	10.1-in LCD with a resolution of 1,920×1,200
IP rating	IP54

*Note: There will be some differences in the weight of the control cabinet in different configurations.

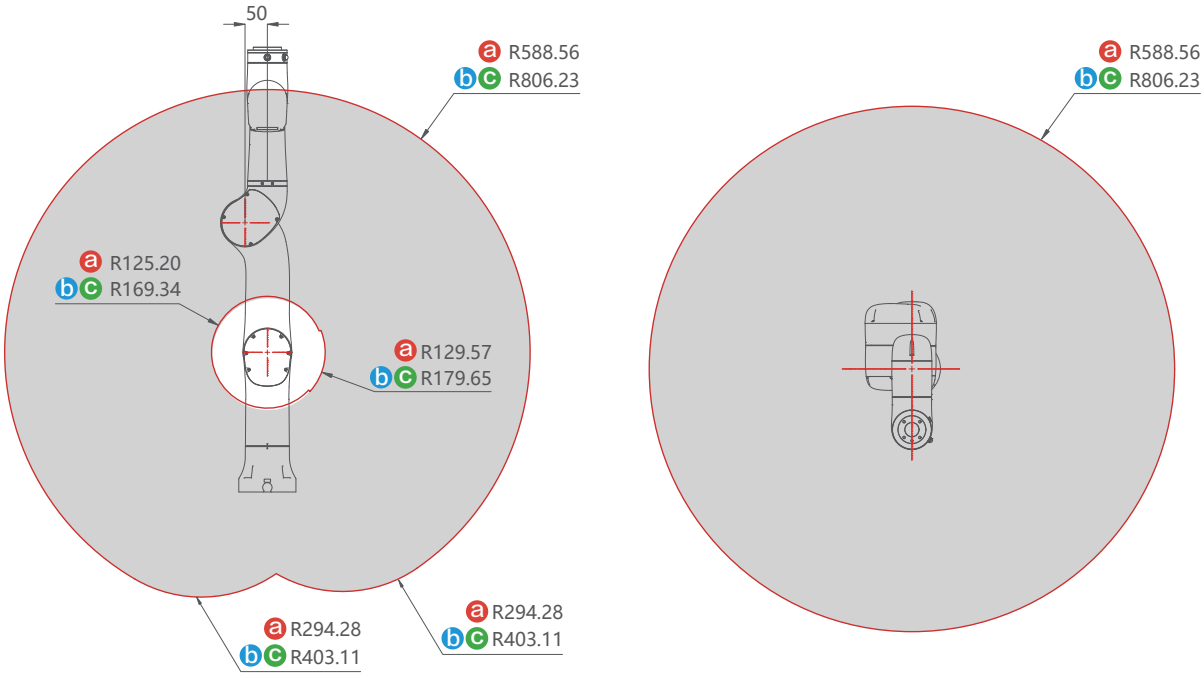
xMate SR

Flexible Collaborative Robot

xMate SR,ROKAE's next-generation flexible cobot series that is lightweight, flexible, and great in cost performance, is a good helper for people's work and life.independent controller cabinet caters to more confined baseinstalation environments.

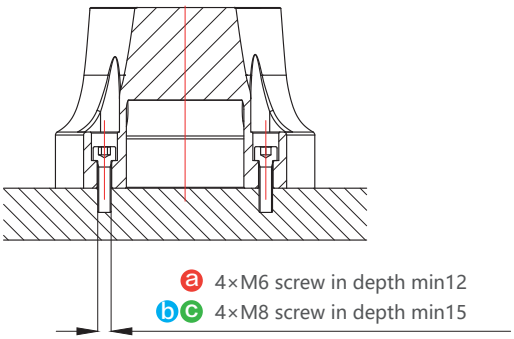
Working range (Dimensions: mm)

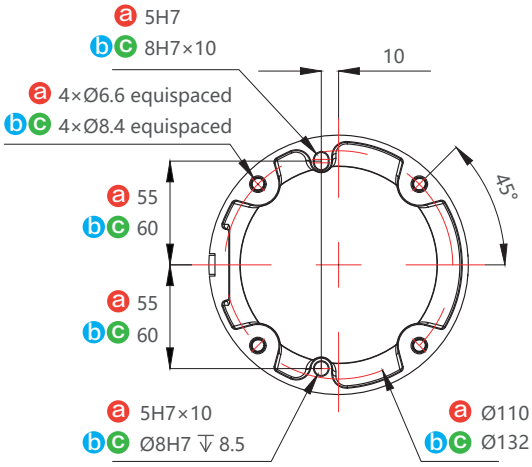
a SR3-3/0.7 b SR4-4/0.9 c SR4-5/0.9



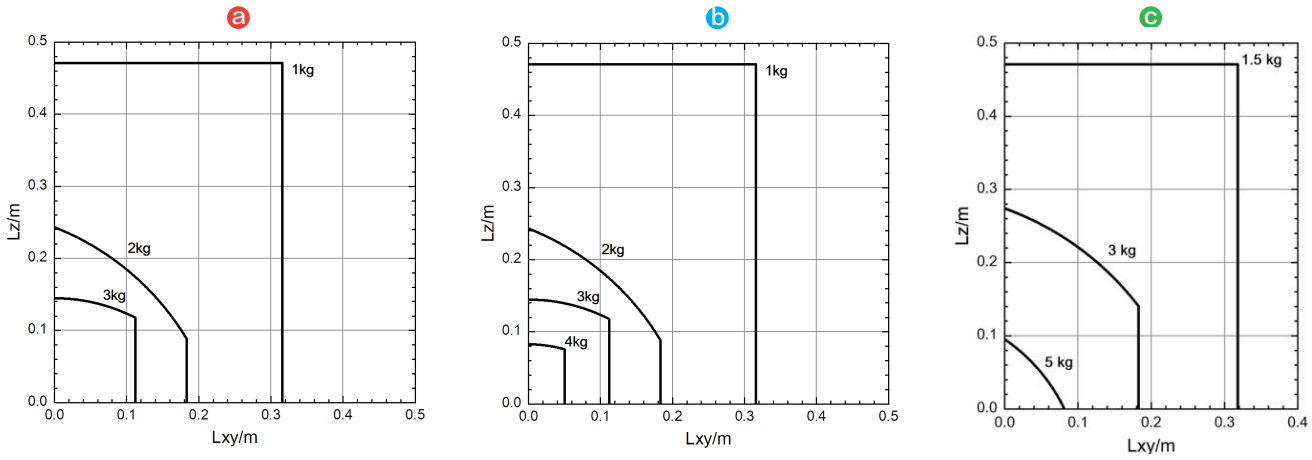
Fixed size of base

ⓐ SR3-3/0.7 ⓑ SR4-4/0.9 ⓒ SR4-5/0.9

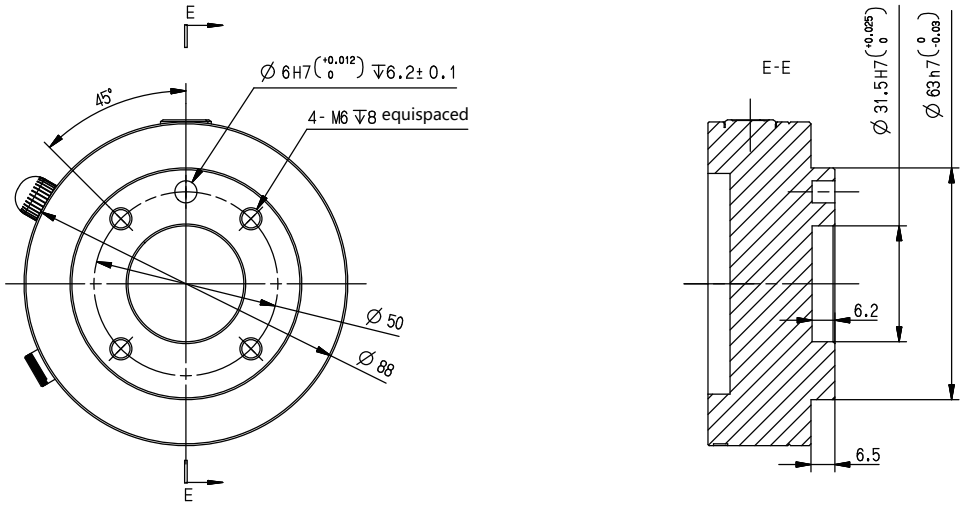




Wrist load curve



Output flange (Dimensions: mm)



Specifications

	SR3-3/0.7	SR4-4/0.9	SR4-5/0.9

Specifications

Payload	3 kg	4 kg	5 kg
Reach	705 mm	919 mm	919 mm
Weight	About 13.8 kg	About 16.5 kg	About 16.5 kg
Degrees of freedom	6 revolute joints	6 revolute joints	6 revolute joints
MTBF	> 80,000 h	> 80,000 h	> 80,000 h
Power supply	48VDC	48VDC	48VDC
Programming	Direct teaching control and graphical interface	Direct teaching control and graphical interface	Direct teaching control and graphical interface

Performance

Typical Power	160w		225w		225w	
Safety	Over 21 adjustable safety features including collision detection, virtual walls, and collaboration mode.					
Certification	EN ISO 13849-1, EN ISO 10218-1/ PL d, Cat. 3; ISO 15066, and EU CE marking requirements, KCs marking requirements,EAC marking requirements					
Force sensing (tool flange)	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z
Force measurement resolution	0.1 N	0.02 Nm	0.1 N	0.02 Nm	0.1 N	0.02 Nm
Relative accuracy of force control	0.5 N	0.1 Nm	0.5 N	0.1 Nm	0.5 N	0.1 Nm
Adjustable range of Cartesian stiffness	0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad	

Motion

Repeatability	±0.03 mm		±0.03 mm		±0.03 mm	
Motion joint	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed
Axis 1	±360°	180°/s	±360°	180°/s	±360°	180°/s
Axis 2	-155°~+140°	180°/s	-160°~+150°	180°/s	-160°~+150°	180°/s
Axis 3	-175°~+135°	180°/s	-170°~+140°	180°/s	-170°~+140°	180°/s
Axis 4	±360°	180°/s	±360°	180°/s	±360°	180°/s
Axis 5	±360°	180°/s	±360°	180°/s	±360°	180°/s
Axis 6	±360°	180°/s	±360°	180°/s	±360°	180°/s
Maximum speed at tool end	⩽ 1.5 m/s		⩽ 2.0m/s		⩽ 2.0m/s	

Considering the upgrade of the product, the actual parameters of the product shall be subject to the corresponding hardware installation manual

Physical properties

IP rating	IP54
ISO cleanroom class	5
Noise	⩽ 70 dB(A)
Operating ambient temperature	0°C~50°C
Humidity	⩽ 93% RH (non-condensing)
Robot installation	At any angle
Tool I/O ports	2 Digital outputs, 2 Digital inputs, 2 Analog inputs
Tool communication interface	One 100-megabit Ethernet port with RJ45 interface on the connection base
Tool I/O power supply	(1) 24V/12V, 1A (2) 5V, 1.5A

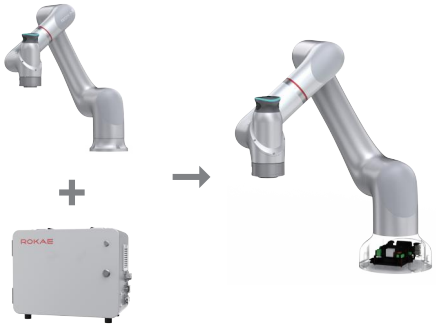
Control cabinet

Name	LightCab
IP rating	IP20
Operating ambient temperature	0°C~50°C
Humidity	⩽93% RH (Non-condensing)
Input power	48VDC
Dimensions	228.5 mm x 180 mm x 88 mm
Weight	About 2.4 kg
User IO	4 Digital outputs, 4 Digital inputs
Communication	2 safety inputs, 1 safety outputs
Power output	2 channels Ethernet,Ethercet
Optional extension	General Digital I/O module; Analog I/O module; Incremental encoder signal acquisition module, etc.

Robot-Integrated Controller CR series

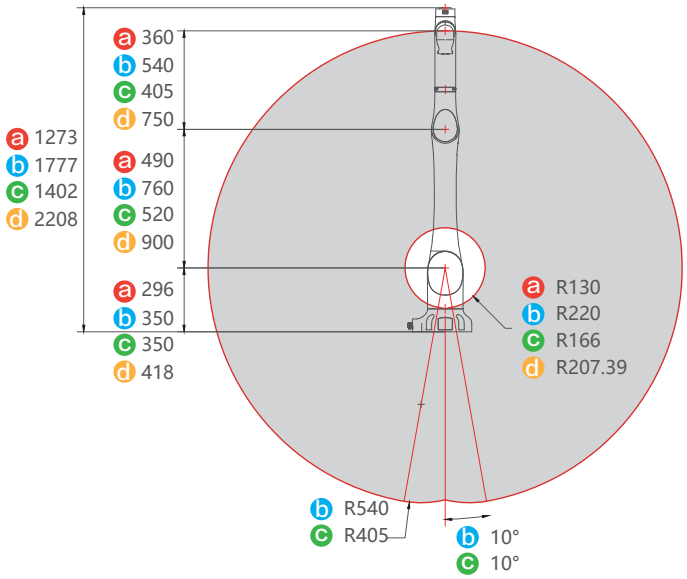
Next-Generation Flexible Collaborative Robots offers an integrated controller design option, which is more convenient for installation and deployment compared to the traditional robot + control cabinet method.

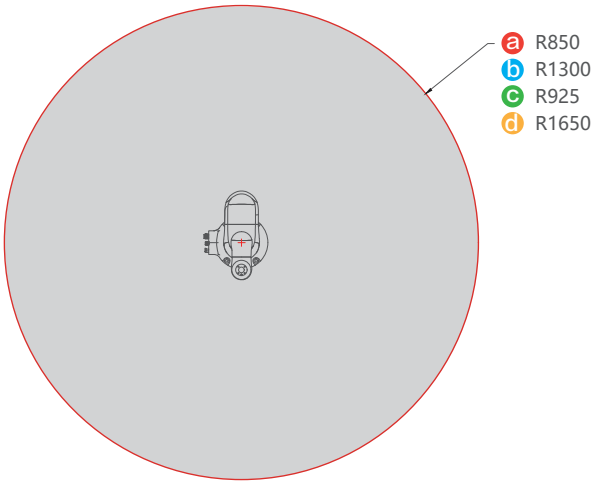
The CR series includes the CR7、CR12、CR18 and CR20,with different payload capacities and working ranges.Highly dynamic force control integrated into the joints increases the payload by 20% compared with competitors.Besides, the CR series is lighter, easier to use, safer, more precise, and more reliable. This makes it an ideal choice for different applications in various industries, helping enterprises implement flexible production quickly.



Working range (Dimensions: mm)

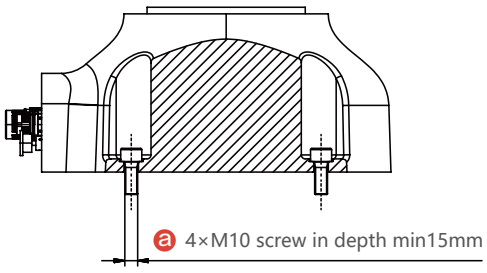
a CR7 b CR12 c CR18 d CR20

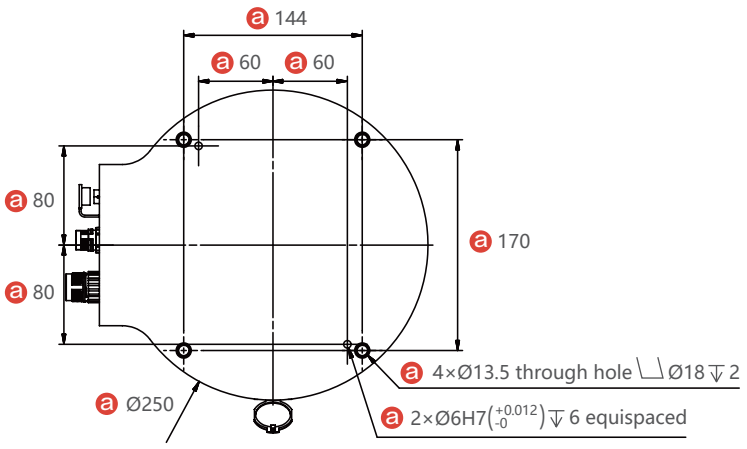


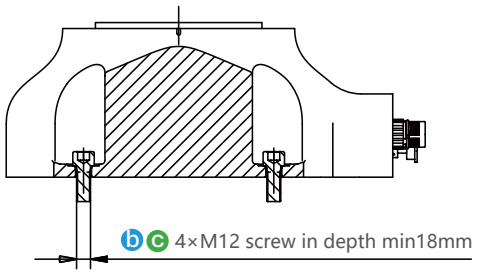


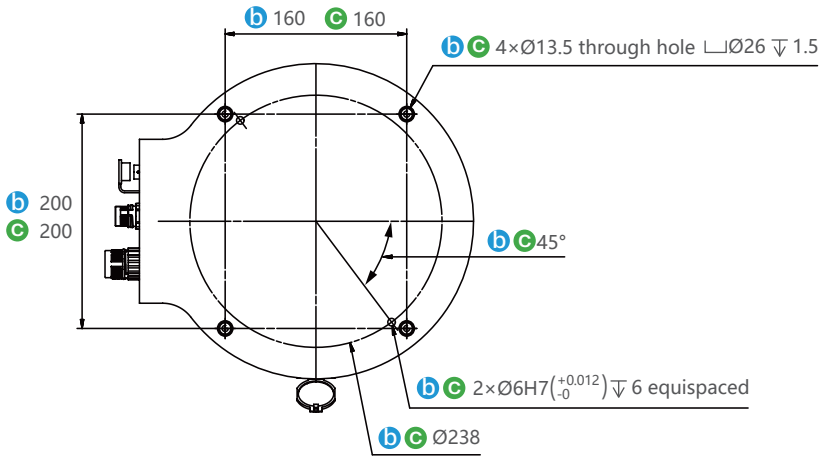
Fixed size of base

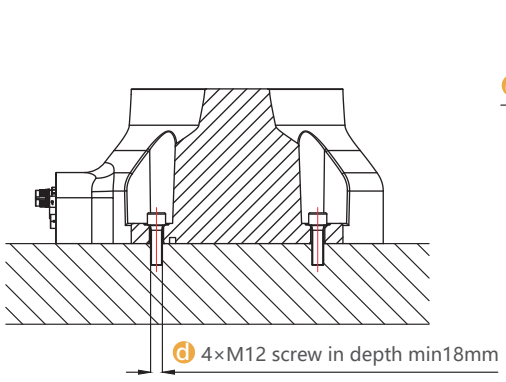
a CR7 b CR12 c CR18 d CR20

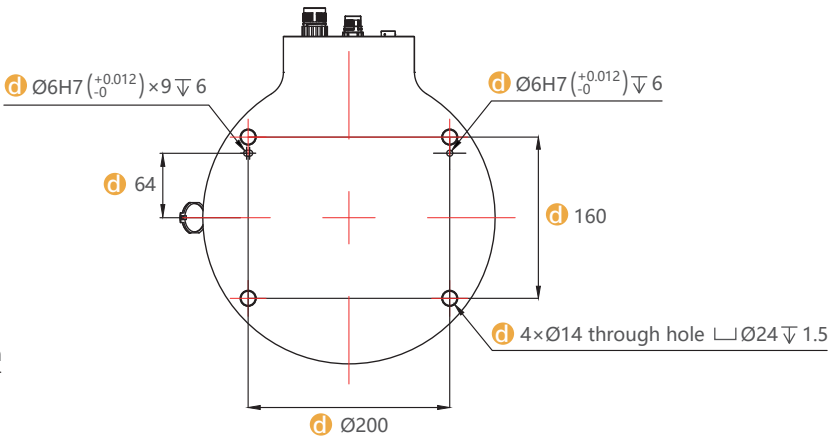




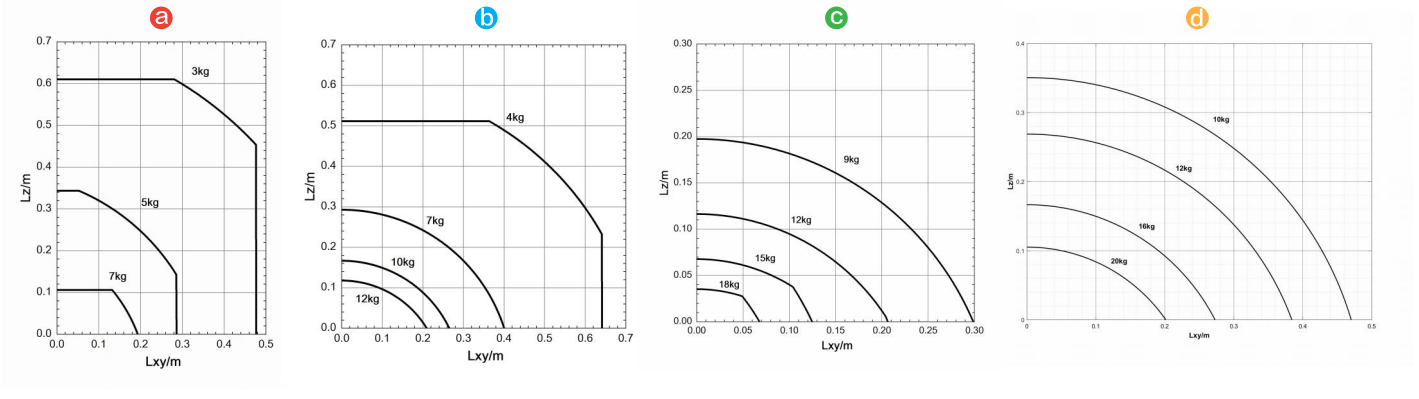






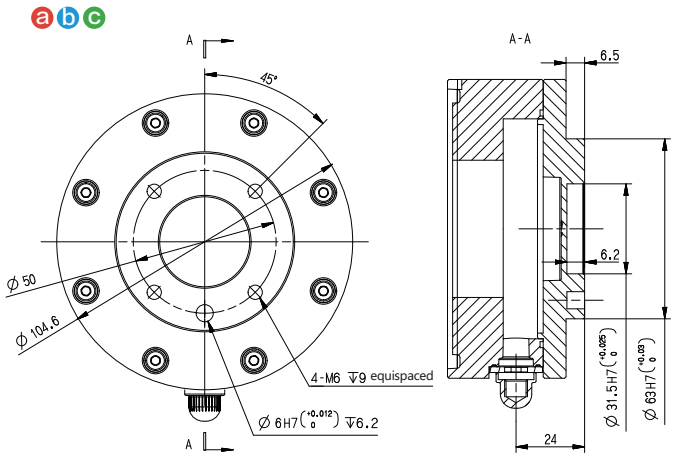


Wrist load curve

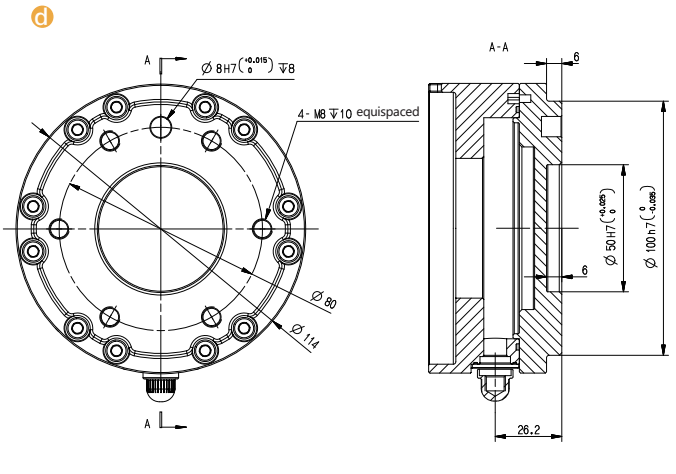


Output flange (Dimensions: mm)

a b c



d



Specifications

Specifications

	CR7	CR12	CR18	CR20
Payload	7 kg	12 kg	18 kg	20 kg
Reach	988 mm	1,434 mm	1，062 mm	1,798 mm
Weight (including built-in controller)	About 27 kg	About 43 kg	About 40 kg	About 75 kg
Degrees of freedom	6	6	6	6
MTBF	> 80,000 h	> 80,000 h	> 80,000 h	> 80,000 h
Power supply	Single-phase 90-264VAC, frequency 47-63Hz / 48VDC			Single-phase 180V ~ 264VAC, frequency 47-63Hz / 48VDC
Programming	Direct teaching control and graphical interface			

Performance

Typical Power	300 w		500 w		600 w		1000 w	
Safety	Over 21 adjustable safety features including collision detection, virtual walls, and collaboration mode.							
Certification	EN ISO 13849-1, EN ISO 10218-1/ PL d, Cat. 3; ISO 15066, and EU CE marking requirements, KCs marking requirements,EAC marking requirements							
Force sensing (tool flange)	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z
Force measurement resolution	0.1 N	0.02 Nm	0.1N	0.02Nm	0.1N	0.02Nm	0.1N	0.02Nm
Relative accuracy of force control	0.5 N	0.1 Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm
Adjustable range of Cartesian stiffness	0~6000N/m，0~1000Nm/rad		0~18000N/m，0~2500Nm/rad		0~18000N/m，0~2500Nm/rad		0~18000N/m，0~2500Nm/rad	

Motion

Repeatability	±0.02 mm		±0.03 mm		±0.03 mm		±0.05 mm	
Motion joint	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed	Working range	Maximum speed
Axis 1	±360°	180°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s
Axis 2	±360°	180°/s	±170°	120°/s	±170°	120°/s	±360°	120°/s
Axis 3	±360°	234°/s	±360°	180°/s	±165°	180°/s	±170°	120°/s
Axis 4	±360°	240°/s	±360°	234°/s	±360°	180°/s	±360°	180°/s
Axis 5	±360°	240°/s	±360°	240°/s	±360°	180°/s	±360°	234°/s
Axis 6	±360°	240°/s	±360°	240°/s	±360°	180°/s	±360°	234°/s
Maximum speed at tool end	⩽ 3.2 m/s		⩽ 3.0 m/s		⩽ 3.0 m/s		⩽ 3.5 m/s	

Considering the upgrade of the product, the actual parameters of the product shall be subject to the corresponding hardware installation manual

Physical properties

IP rating	IP54
ISO cleanroom class	5
Noise	⩽ 70 dB(A)
Operating ambient temperature	0°C~50°C
Humidity	⩽ 93% RH (non-condensing)
Robot installation	At any angle
Tool I/O ports	2 Digital outputs, 2 Digital inputs, 2 Analog inputs
Tool communication interface	RS485(Alternative with two analog input pins, can not be used simultaneously)
Tool I/O power supply	12V/24V 1A

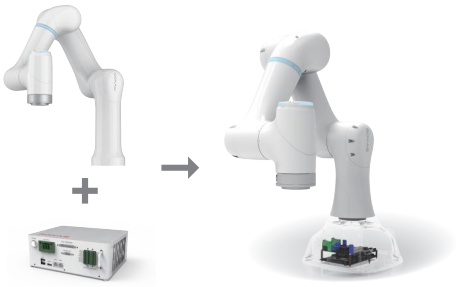
Robot-Integrated Controller

Controller	Built-in controller
Operator interface	Notebook/PAD/Drag Interactive Module
Safety protection device	1 handheld enable / 1 handheld emergency stop
Communication protocols	TCP/IP 1000Mbit, Modbus TCP, Profinet, Ethernet/IP,DeviceNet, CC-Link, CC-Link IE Field Basic
External control interface	Highly dynamic external control; low-level force/position control;robot model library and API
Input power	48VDC
Base I/O ports	4 Digital outputs, 4 Digital inputs, 2 safety input, 1 safety output
Base communication interface	1 channel Ethernet
Base output power supply	24V,1.5A

Robot-Integrated Controller SR series

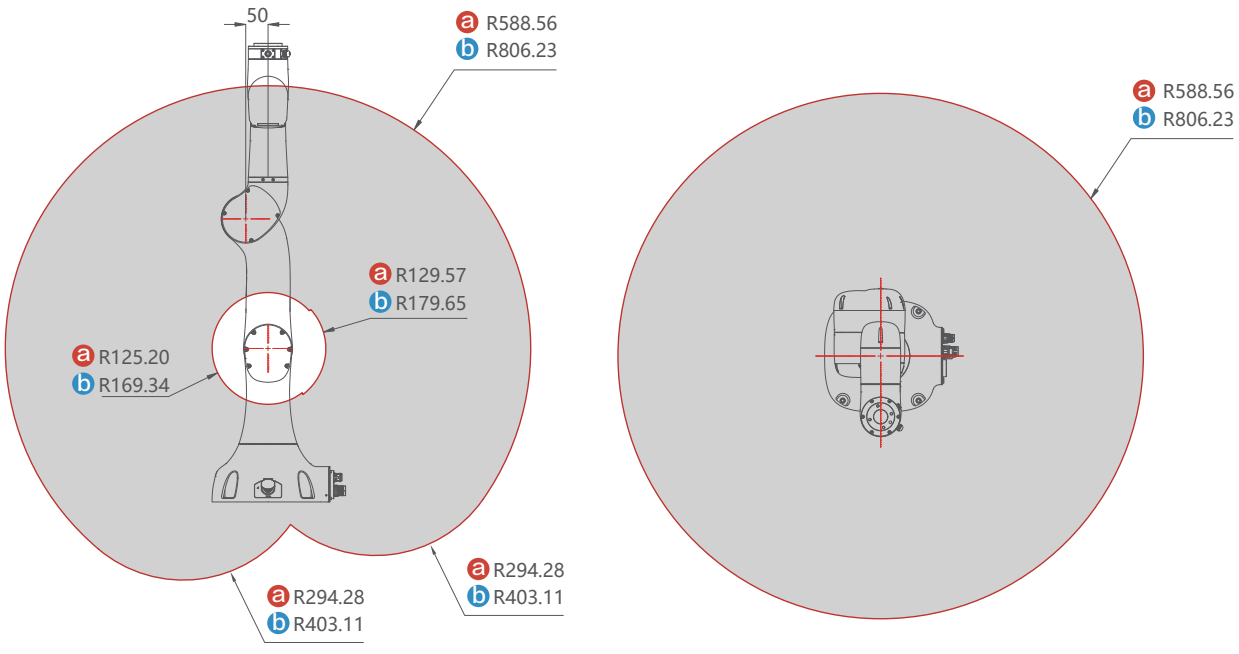
Next-Generation Flexible Collaborative Robots offers an integrated controller design option, which is more convenient for installation and deployment compared to the traditional robot + control cabinet method.

Meanwhile, the integrated controller series products still possess the core features of Next-Generation Flexible Collaborative Robots, xMate. Each joint is equipped with high-precision torque sensors, adopting a brand-new direct force control framework and advanced force control algorithms. This enables capabilities that the first generation of collaborative robots could not achieve or perform well, such as zero-force drag teaching, sensitive collision protection based on joint sensors, and compliant force control functions applicable to industrial precision assembly and medical surgeries.



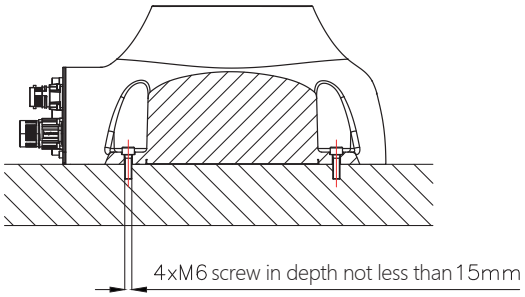
Working range (Dimensions: mm)

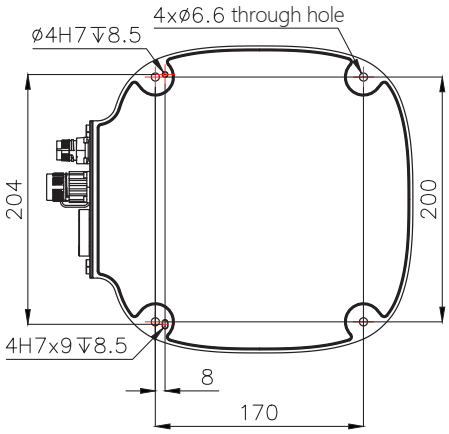
ⓐ SR3 ⓑ SR4



Fixed size of base

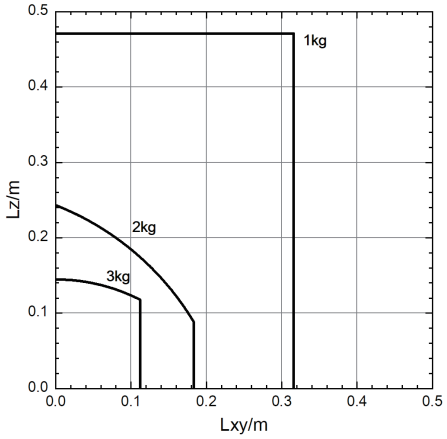
ⓐ SR3 ⓑ SR4



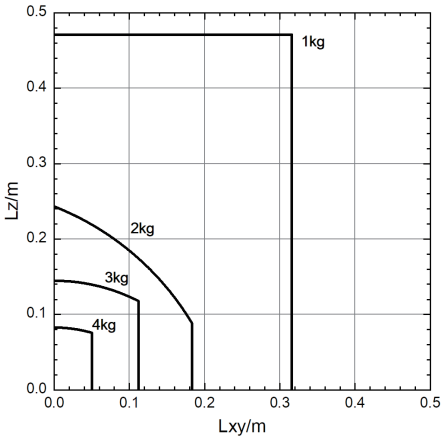


Wrist load curve

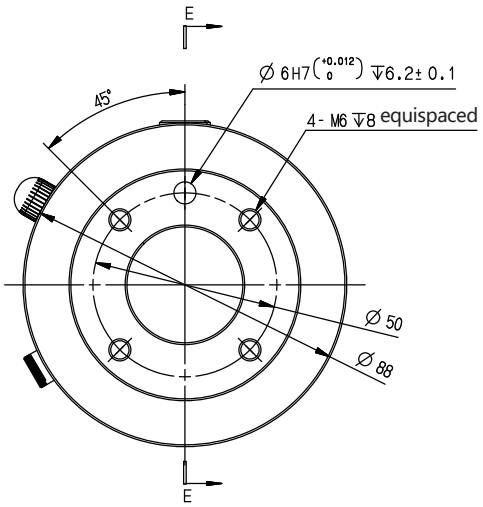
ⓐ

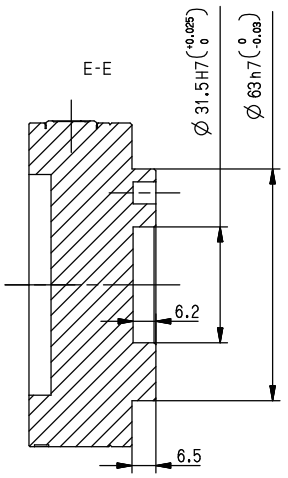


ⓑ



Output flange (Dimensions: mm)





Specifications

Specifications

	SR3	SR4
Payload	3 kg	4 kg
Reach	705 mm	919 mm
Weight	About 15 kg	About 17.5 kg
Degrees of freedom	6 revolute joints	6 revolute joints
MTBF	> 80,000 h	> 80,000 h
Power supply	90-264VAC, 47-63Hz/48VDC	90-264VAC, 47-63Hz/48VDC
Programming	Direct teaching control and graphical interface	Direct teaching control and graphical interface

Performance

Typical Power	160w		225w	
Safety	Over 21 adjustable safety features including collision detection, virtual walls, and collaboration mode.			
Certification	EN ISO 13849-1, EN ISO 10218-1/ PL d, Cat. 3; ISO 15066, and EU CE marking requirements, KCs marking requirements,EAC marking requirements			
Force sensing (tool flange)	Force, x-y-z	Torque, x-y-z	Force, x-y-z	Torque, x-y-z
Force measurement resolution	0.1 N	0.02 Nm	0.1 N	0.02 Nm
Relative accuracy of force control	0.5 N	0.1 Nm	0.5 N	0.1 Nm
Adjustable range of Cartesian stiffness	0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad	

Motion

Repeatability	±0.03 mm		±0.03 mm	
Motion joint	Working range	Maximum speed	Working range	Maximum speed
Axis 1	±360°	180°/s	±360°	180°/s
Axis 2	-135°~+130°	180°/s	-135°~+135°	180°/s
Axis 3	-175°~+135°	180°/s	-170°~+140°	180°/s
Axis 4	±360°	180°/s	±360°	180°/s
Axis 5	±360°	180°/s	±360°	180°/s
Axis 6	±360°	180°/s	±360°	180°/s
Maximum speed at tool end	⩽ 1.5 m/s		⩽ 2.0m/s	

Considering the upgrade of the product, the actual parameters of the product shall be subject to the corresponding hardware installation manual

Physical properties

IP rating	IP54
ISO cleanroom class	5
Noise	⩽ 70 dB(A)
Operating ambient temperature	0°C~50°C
Humidity	⩽ 93% RH (non-condensing)
Robot installation	At any angle
Tool I/O ports	2 Digital outputs, 2 Digital inputs, 2 Analog inputs
Tool communication interface	One 100-megabit Ethernet port with RJ45 interface on the connection base
Tool I/O power supply	(1) 24V/12V, 1A (2) 5V, 1.5A

Robot-Integrated Controller

Controller	Built-in controller
Operator interface	Notebook/PAD/Drag Interactive Module
Safety protection device	1 handheld enable / 1 handheld emergency stop
Communication protocols	TCP/IP 1000Mbit, Modbus TCP, Profinet, Ethernet/IP,DeviceNet, CC-Link, CC-Link IE Field Basic
External control interface	Highly dynamic external control; low-level force/position control;robot model library and API
Input power	48VDC
Base I/O ports	4 Digital outputs, 4 Digital inputs, 2 safety input, 1 safety output
Base communication interface	2 channel Ethernet
Base output power supply	24V,1.5A

Industrial Robots

ROKAE industrial robots are faster, more reliable, and more precise.

Every second and every motion of industrial robots matter throughout manufacturing, and that explains why robot reliability and speed come first for us.
After years of updating and improving, our products have become faster and more reliable, with more functions integrated into a compact size. That makes applications easier, production more stable, and intelligent manufacturing more efficient.

More intelligent, more efficient

Faster - Efficient Production

- Optimal hardware performance powered by self-developed control systems
- Remarkably adroit motion backed by modularized control architecture

More Reliable - Stable Operation

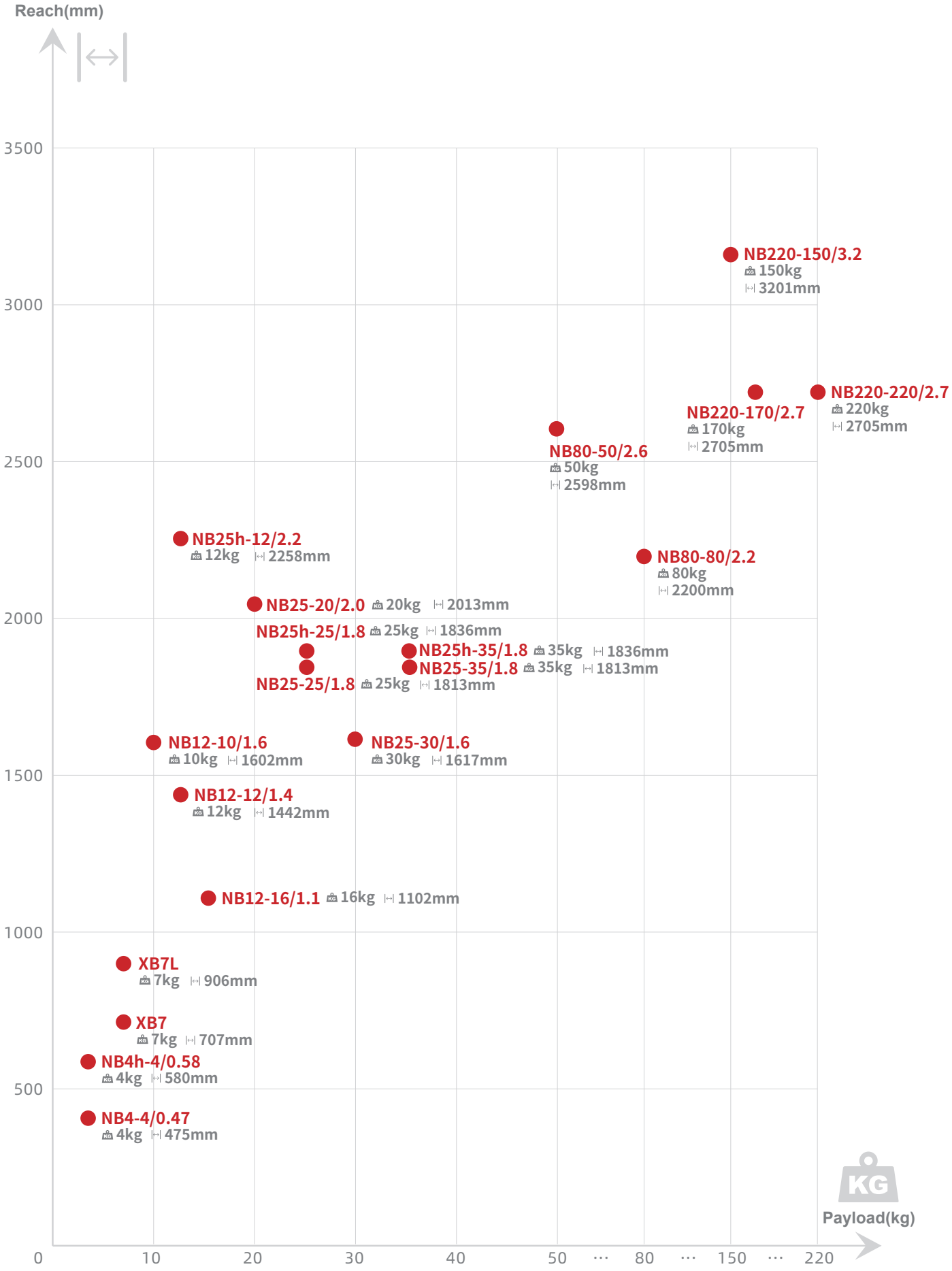
- Rigourous design and continuous improvement bring you a reliable partner in industrial production
- IP67, CE, CR, KCs, and MTBF certifications

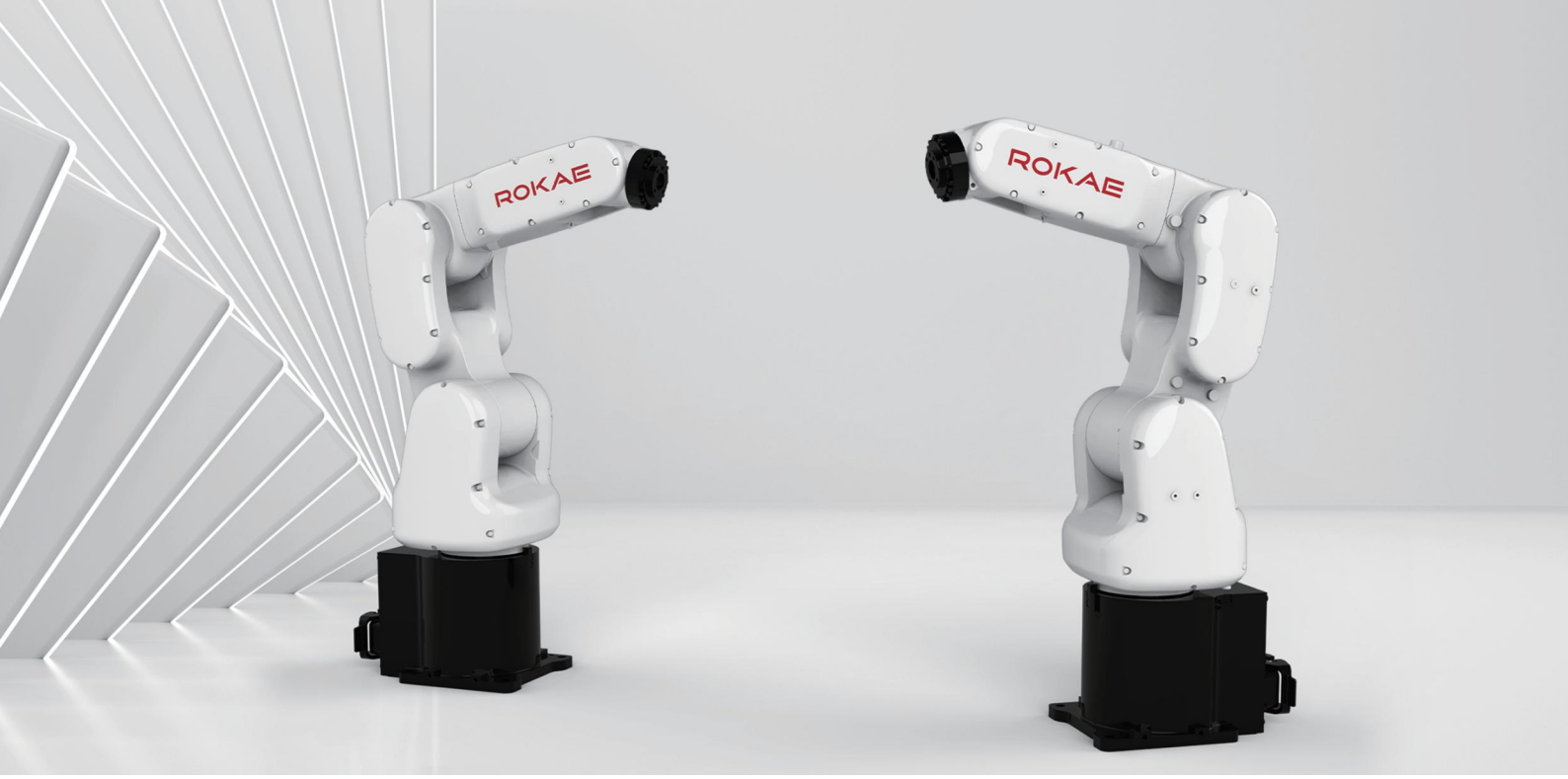
More Precise - Flexible Integration

- Easier deployment thanks to the compact structure and hollow wrist
- Broader application due to various interfaces

Easier to Use - Worry-free Operation

- Simple maintenance with timely, professional, and efficient service


Reach(mm)
3500
3000
2500
2000
1500
1000
500
0
10
20
30
40
50
80
150
220
Payload(kg)
NB220-150/3.2
150kg
3201mm
NB220-170/2.7
170kg
2705mm
NB220-220/2.7
220kg
2705mm
NB80-50/2.6
50kg
2598mm
NB25h-12/2.2
12kg
2258mm
NB80-80/2.2
80kg
2200mm
NB25-20/2.0
20kg
2013mm
NB25h-25/1.8
25kg
1836mm
NB25h-35/1.8
35kg
1836mm
NB25-35/1.8
35kg
1813mm
NB25-25/1.8
25kg
1813mm
NB12-10/1.6
10kg
1602mm
NB25-30/1.6
30kg
1617mm
NB12-12/1.4
12kg
1442mm
NB12-16/1.1
16kg
1102mm
XB7L
7kg
906mm
XB7
7kg
707mm
NB4h-4/0.58
4kg
580mm
NB4-4/0.47
4kg
475mm



NB4 Series

Light and Compact, Easy to Deploy

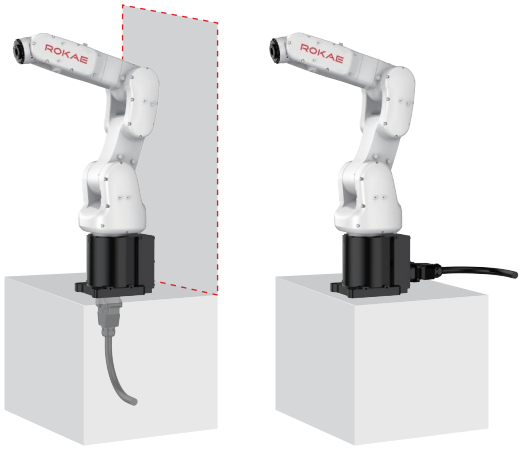
- Add bottom outlet configuration, can also be installed near the wall,Suitable for scenarios with demanding space requirements such as electronics factories and machine tools.

Faster, More Precise, and More Efficient

- Due to the faster running speed and shorter takt time, combined with the industry-leading repeatability, the robot guarantees high efficiency and high precision.

Better Protection, Excellent Reliability

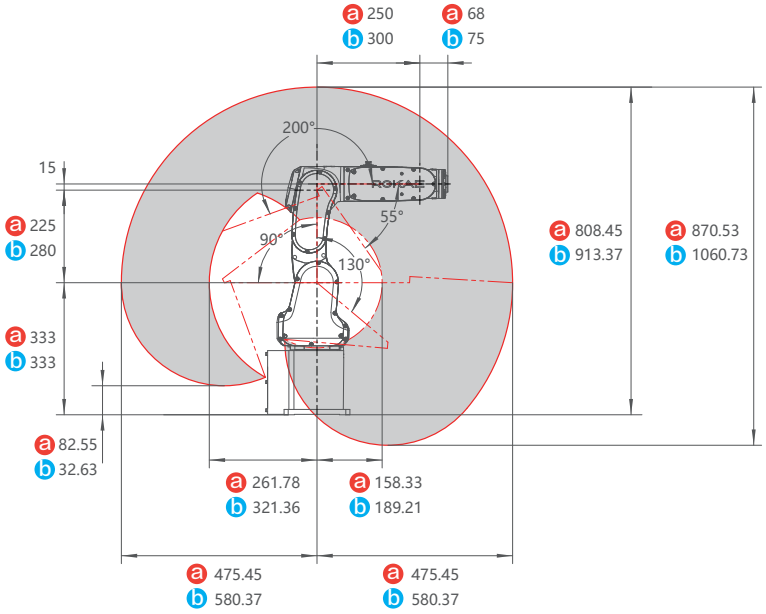
- The robot features an overall IP67 protection rating for long-term stability and reliability even in the most demanding environment

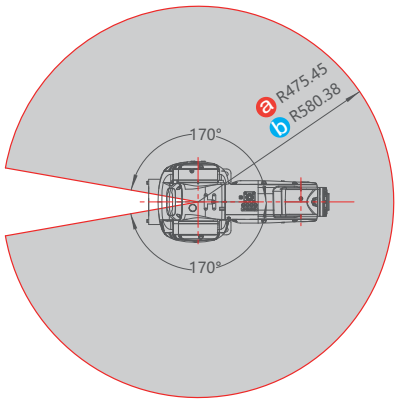


Handling | Loading and unloading | Deburring | Gluing | Assembly | Inspection

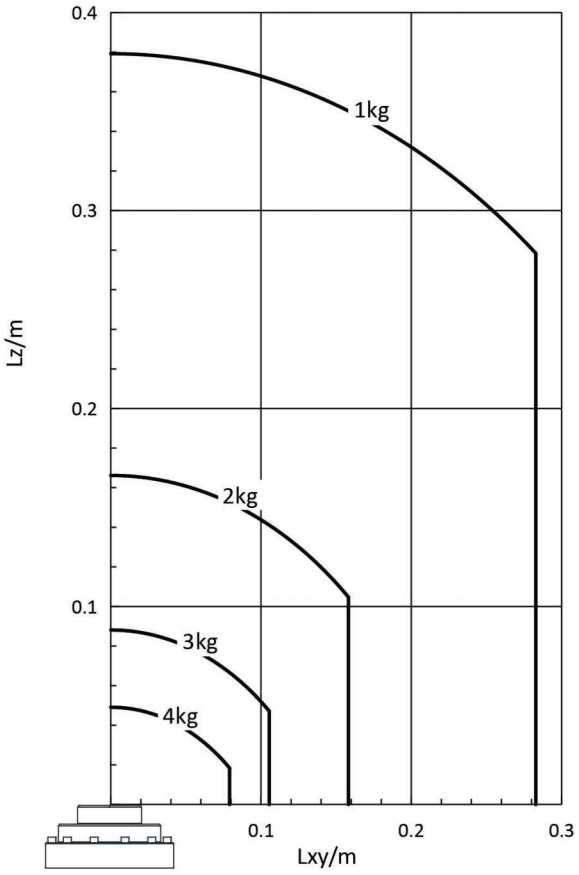
Working range (Dimensions: mm)

a NB4-4/0.47 b NB4h-4/0.58





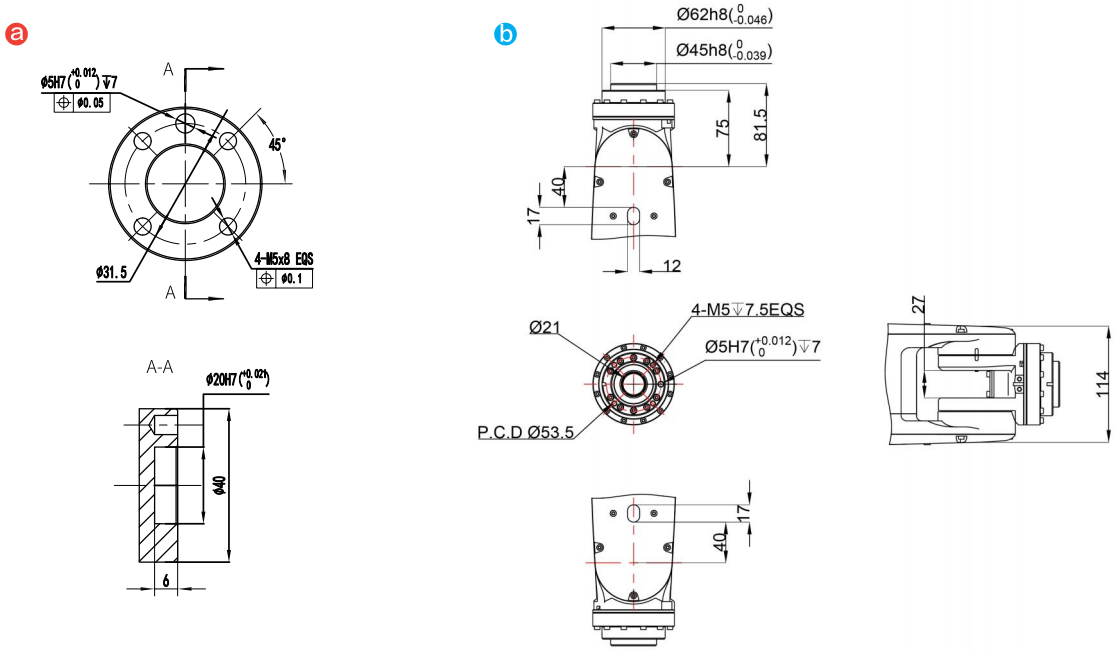
Wrist load curve



Payload(KG)

Output flange (Dimensions: mm)

ⓐ NB4-4/0.47 ⓑ NB4h-4/0.58



Specifications

Model		NB4-4/0.47	NB4h-4/0.58
DOF		6	6
Reach		475 mm	580mm
Repeatability		±0.02 mm	±0.02mm
Payload		4 kg	4kg
Range of motion	Axis 1	-170° to +170°	-170° to +170°
	Axis 2	-90° to +130°	-90° to +130°
	Axis 3	-200° to +55°	-200° to +55°
	Axis 4	-170° to +170°	-170° to +170°
	Axis 5	-120° to +120°	-120° to +120°
	Axis 6	-360° to +360°	-360° to +360°
Maximum speed	Axis 1	450°/s	450°/s
	Axis 2	360°/s	318°/s
	Axis 3	360°/s	288°/s
	Axis 4	550°/s	550°/s
	Axis 5	450°/s	450°/s
	Axis 6	860°/s	612°/s
Operating temperature		0℃ to +40℃	0℃ to +40℃
Storage temperature		-10℃ to +55℃	-10℃ to +55℃
IP rating		IP67	IP67
Mounting method		Floor，Ceiling	Floor，Ceiling
Noise level		≤70dB(A)	≤75dB(A)
Weight		About 21 kg	About 22 kg
AIR		4-Φ4，5bar	4-Φ4，5bar
Signal		8 channels（30V，0.5A）	8 channels（30V，0.5A）
Average power consumption in ISO scenarios		0.22kW	0.22kW

XB7 Series

Various Choices, Extensive Applications

- The two reach choices of 707/906 mm offer users more flexible and extensive application scenarios

High Precision & High Speed, Efficient Production

- Satisfactory quality and takt time and supreme production efficiency thanks to the incredible stability and best-in-class motion control

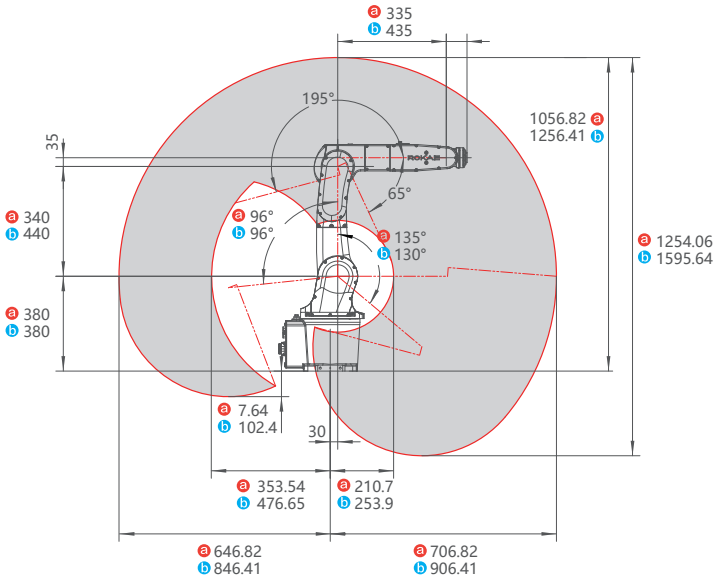
Easy to Deploy, Stronger Protection

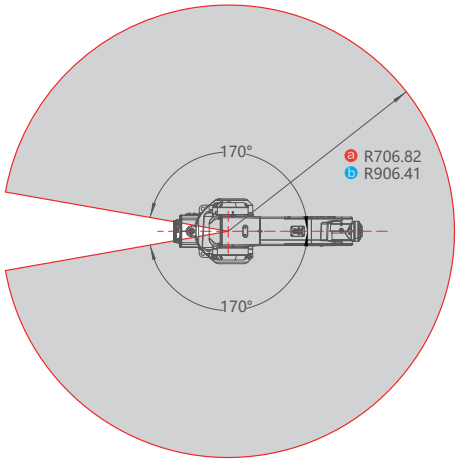
- Reliability and efficiency made possible thanks to the the supreme IP67 protection rating that conquers even the most extreme environments

Handling | Loading & unloading | Deburring | Assembly | Inspection | Gluing | Sorting

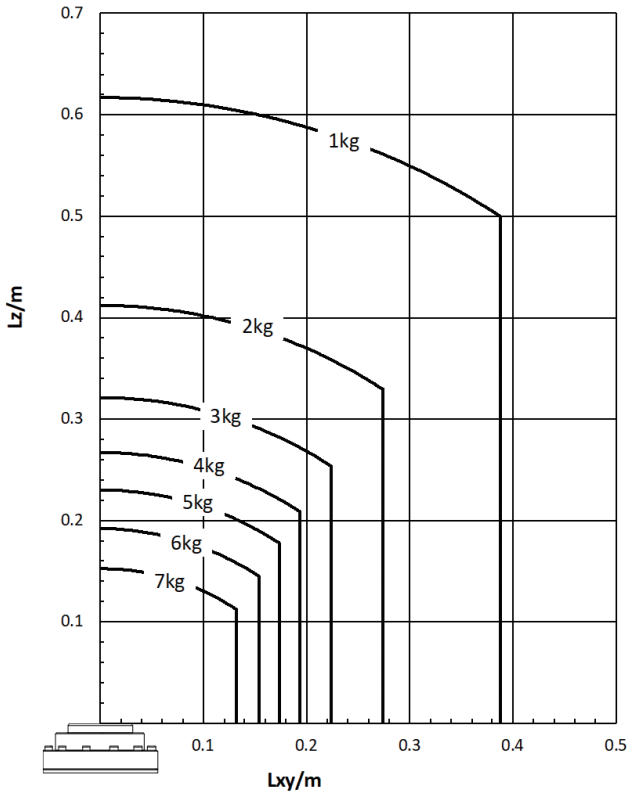
Working range (Dimensions: mm)

a XB7 b XB7L

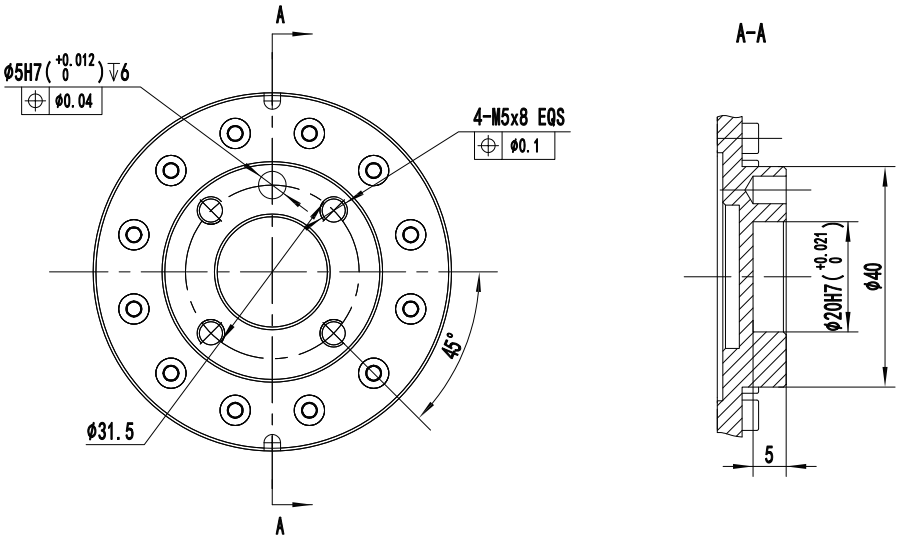




Wrist load curve



Output flange (Dimensions: mm)



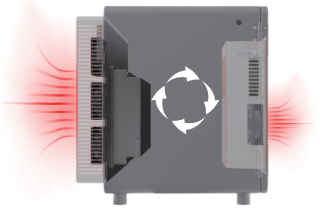
Specifications

Model		XB7	XB7L
DOF		6	6
Reach		707 mm	906 mm
Repeatability		±0.02 mm	±0.03 mm
Payload		7 kg	7 kg
Range of motion	Axis 1	-170° to +170°	-170° to +170°
	Axis 2	-96° to +130°	-96° to +130°
	Axis 3	-195° to +65°	-195° to +65°
	Axis 4	-170° to +170°	-170° to +170°
	Axis 5	-120° to +120°	-120° to +120°
	Axis 6	-360° to +360°	-360° to +360°
Maximum speed	Axis 1	440°/s	355°/s
	Axis 2	355°/s	355°/s
	Axis 3	440°/s	355°/s
	Axis 4	480°/s	480°/s
	Axis 5	450°/s	450°/s
	Axis 6	705°/s	705°/s
Operating temperature		0℃ to +40℃	0℃ to +40℃
Storage temperature		-10℃ to +55℃	-10℃ to +55℃
IP rating		IP67	IP67
Mounting method		Floor，Ceiling	Floor，Ceiling
Noise level		≤70 dB(A)	≤70 dB(A)
Weight		About 50 kg	About 52 kg
AIR		4-Φ4，5bar	4-Φ4，5bar
Signal		8 channels（30V，0.5A）	8 channels（30V，0.5A）
Average power consumption in ISO scenarios		0.52kW	0.52kW

NB12 Series

Brand New Design, Stronger Protection

- The NB12 series features an all-cast aluminum body that is about 20% lighter than the products in its class. Its body with an IP67 high protection rating and the controller cabinet with an IP54 protection rating that features dual-cycle heat dissipation provide adequate protection against even the most demanding environments.



Compact Design, Easy Deployment

- The NB12 series features a built-in motor and cables for a more compact design. The base installation dimension as small as 250×250 mm is 47% smaller than products of the same class, facilitating flexible deployment even in limited spaces for enhanced installation convenience.

Higher Payload, Flexible Choices

- The NB12 series contains three specifications with a broader working range and higher loading capacity that empowers immense possibilities in all kinds of working scenarios.

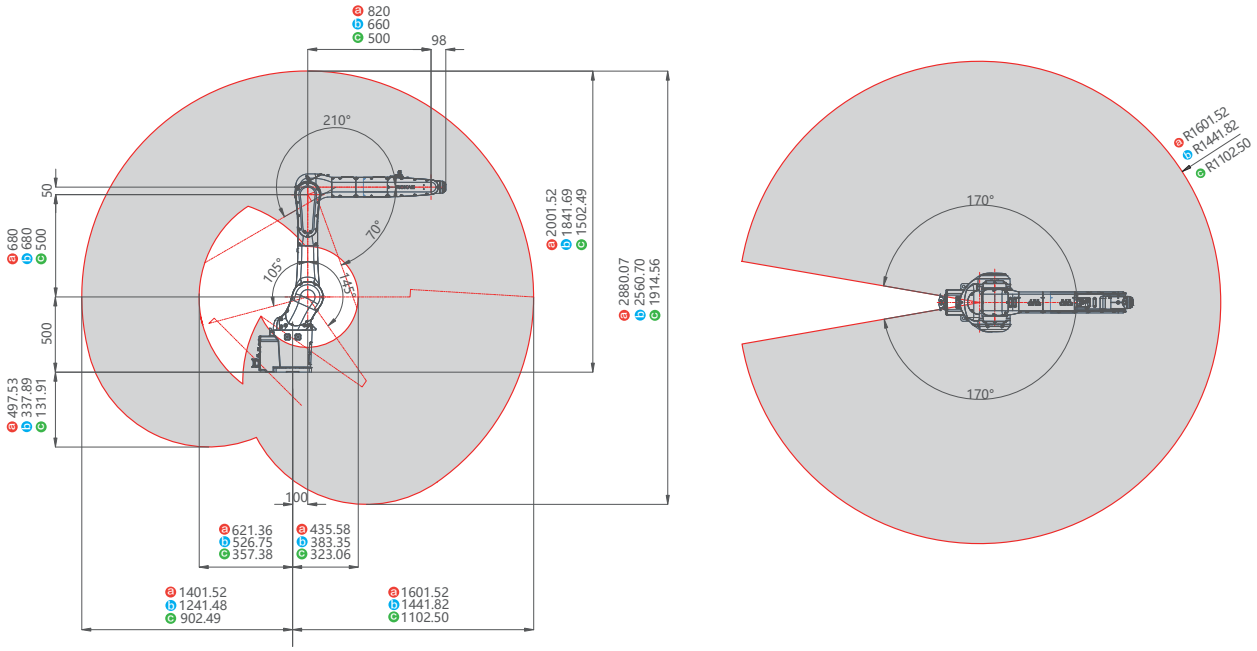
High Precision & High Speed, Efficient Production

- Increased by 20%, the working speed of the NB12 series enables rapid production and excellent capacity improvement.

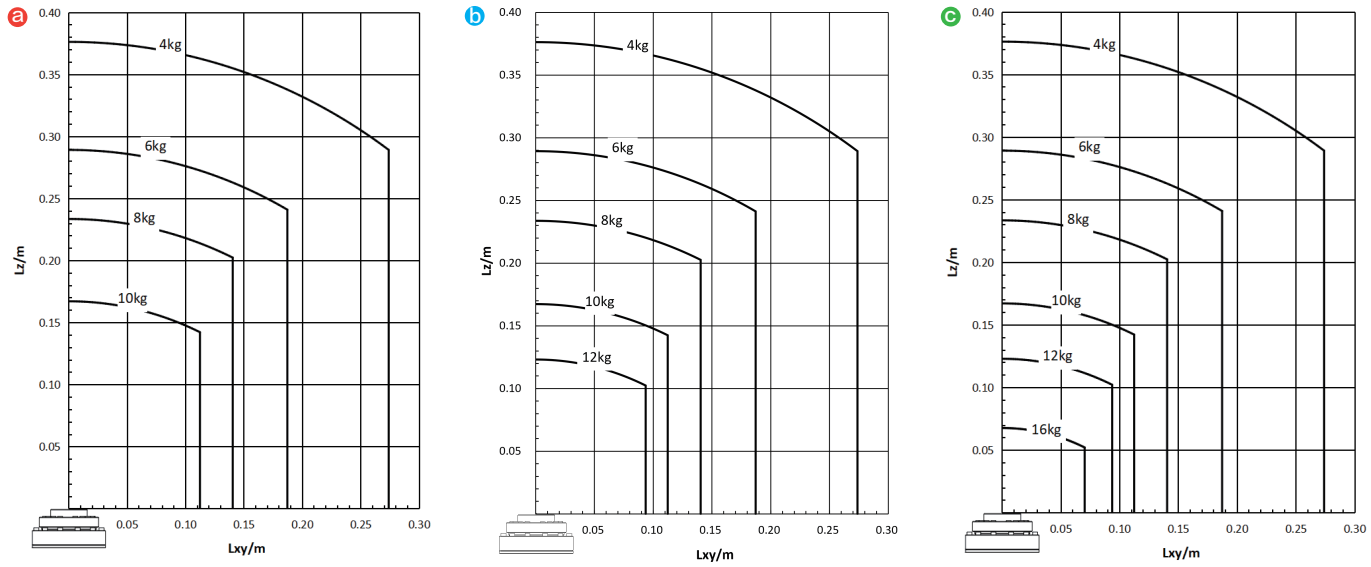
Loading & unloading | Sorting | Gluing | Deburring | Assembly | Inspection

Working range (Dimensions: mm)

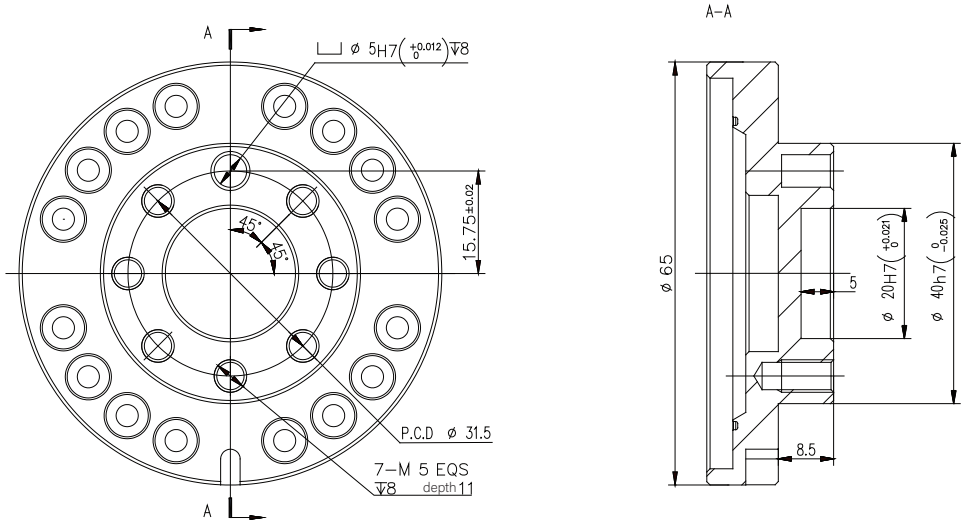
ⓐ NB12-10/1.6 ⓑ NB12-12/1.4 ⓒ NB12-16/1.1



Wrist load curve



Output flange (Dimensions: mm)



Specifications

Model		NB12-10/1.6	NB12-12/1.4	NB12-16/1.1
DOF		6		
Reach		1,602 mm	1,442 mm	1,102 mm
Repeatability		±0.03 mm		
Payload		10 kg	12 kg	16 kg
Range of motion	Axis 1	+170° to -170°		
	Axis 2	+145° to -105°		
	Axis 3	+70° to -210°		
	Axis 4	+200° to -200°		
	Axis 5	+135° to -135°		
	Axis 6	+360° to -360°		
Maximum speed	Axis 1	245°/s		
	Axis 2	245°/s		
	Axis 3	290°/s		
	Axis 4	435°/s		
	Axis 5	450°/s		
	Axis 6	705°/s		
Operating temperature		0℃ to +45℃		
Storage temperature		-10℃ to +55℃		
IP rating		IP67		
Mounting method		Floor，Ceiling		
Noise level		≤75dB(A)		
Weight		About 117 kg	About 115 kg	About 112 kg
AIR		1-Φ8+2-Φ6，8bar		
Signal		24 channels（30V，0.5A）		
Average power consumption in ISO scenarios		0.63kW		

NB25 Series

Broader Applications

- Longer reach than products of the same class helps easily address a wide range of automation requirements

Faster Speed

- ROKAE self-developed control system maximizes production efficiency while ensuring the service life

Higher Payload

- A 25% increase in payload over the previous model on average
- High inertia motion characteristics optimized for high inertia and fast beat applications

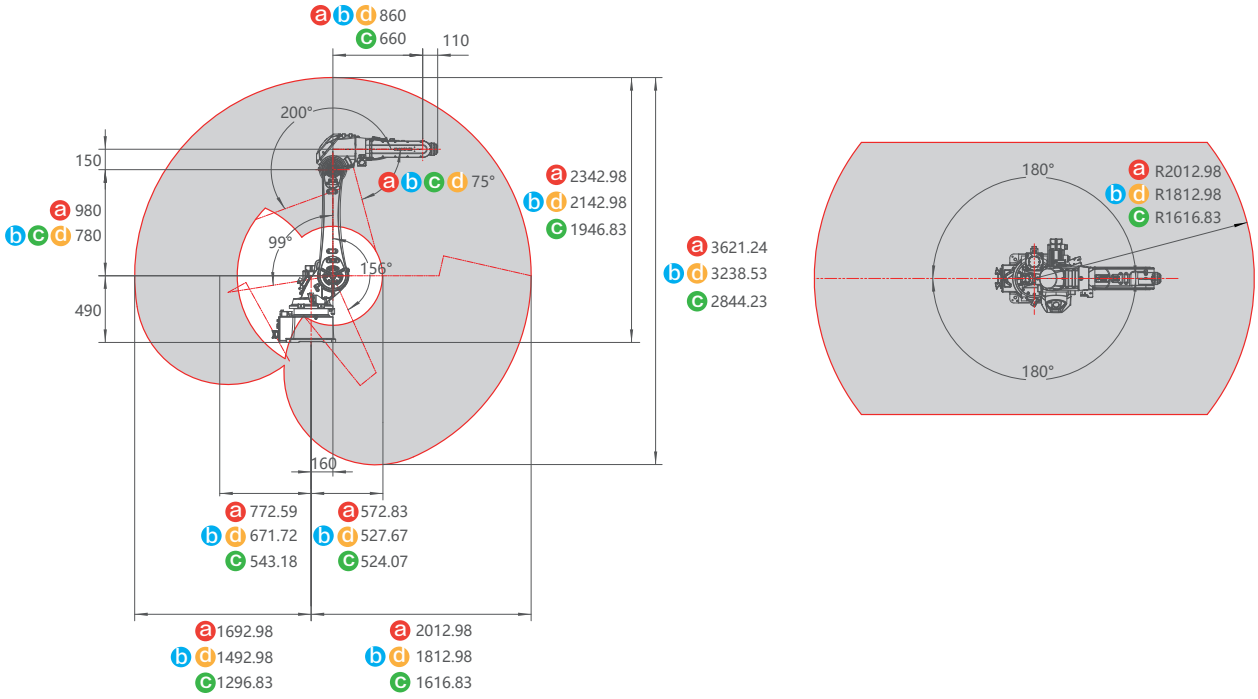
Stronger Protection

- IP67 high protection rating of wrists allows working in extreme environments thanks to the newly optimized sealing design

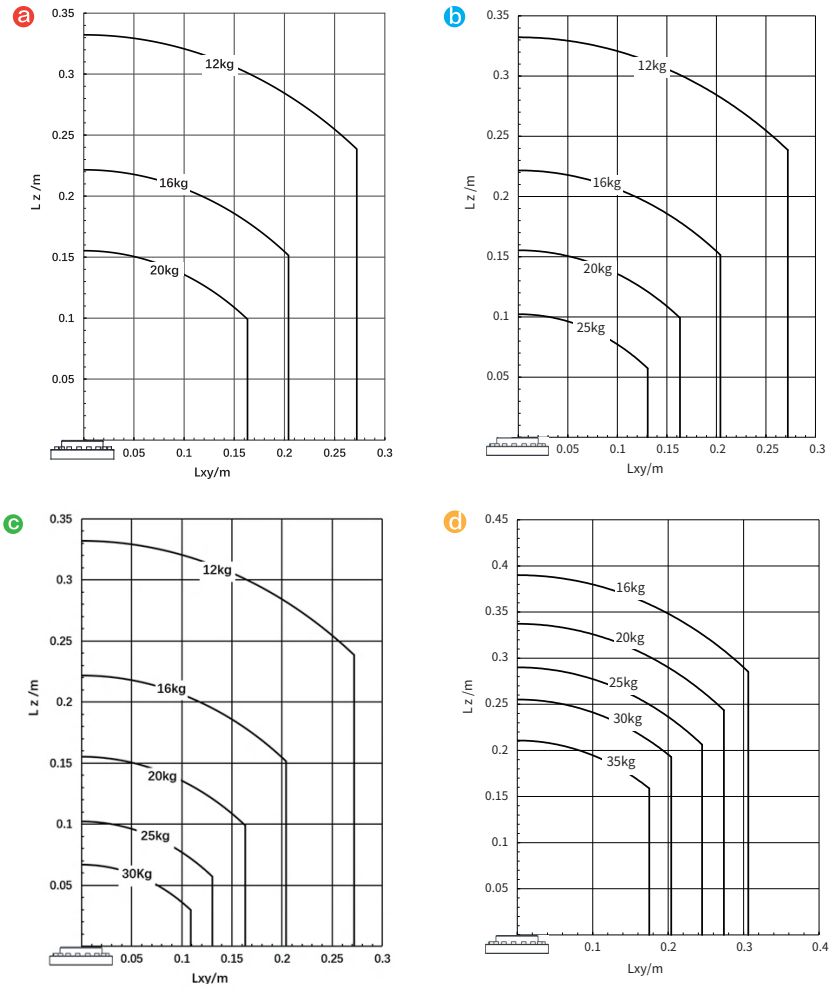
Photovoltaic typesetting | Loading and unloading | Sorting | Deburring | Assembly | Inspection

Working range (Dimensions: mm)

a NB25-20/2.0 b NB25-25/1.8 c NB25-30/1.6 d NB25-35/1.8

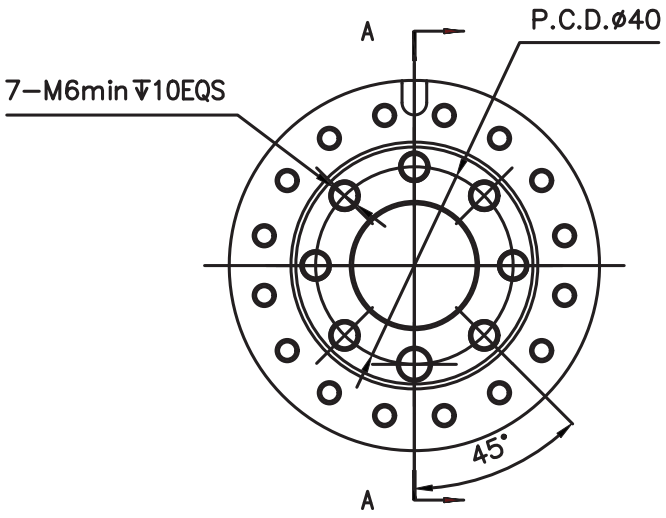


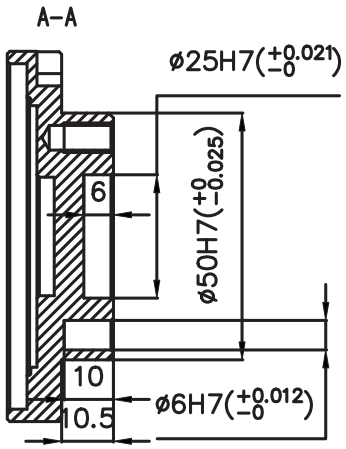
Wrist load curve



Output flange (Dimensions: mm)

ⓐ NB25-20/2.0 ⓑ NB25-25/1.8 ⓒ NB25-30/1.6 ⓓ NB25-35/1.8





Specifications

Model		NB25-20/2.0	NB25-25/1.8	NB25-30/1.6	NB25-35/1.8
DOF		6	6	6	6
Reach		2,013 mm	1,813 mm	1,617 mm	1,813 mm
Repeatability		±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Payload		20 kg	25 kg	30 kg	35 kg
Range of motion	Axis 1	-180° to +180°			-180° to +180°
	Axis 2	-99° to +156°			-99° to +156°
	Axis 3	-200° to +75°			-200° to +75°
	Axis 4	-180° to +180°			-180° to +180°
	Axis 5	-135° to +135°			-135° to +135°
	Axis 6	-360° to +360°			-360° to +360°
Maximum speed	Axis 1	204°/s			204°/s
	Axis 2	186°/s			186°/s
	Axis 3	182°/s			182°/s
	Axis 4	492°/s			310°/s
	Axis 5	450°/s			360°/s
	Axis 6	705°/s			444°/s
Operating temperature		0℃ to +40℃			
Storage temperature		-10℃ to +55℃			
IP rating		IP65 (Wrist IP67)			
Mounting method		Floor, Ceiling			
Noise level		≤75 dB(A)			
Weight		About 264 kg	About 256 kg	About 252 kg	About 256 kg
AIR		2-Φ8, 8bar			
Signal		24 channels (30V, 0.5A)			
Average power consumption in ISO scenarios		1.5kW			

NB25h 系列

High Rigidity Design

- Quasi-hypoid-gear for higher joint rigidity, ideal for high-rigidity operational scenarios.

Large Hollow Wrist

- 57mm large hollow diameter for easier cabling and more convenient deployment.

High Precision, Long Lifespan

- Smooth quasi-hypoid gear meshing ensures better precision retention, longer lifespan, and lower maintenance costs.

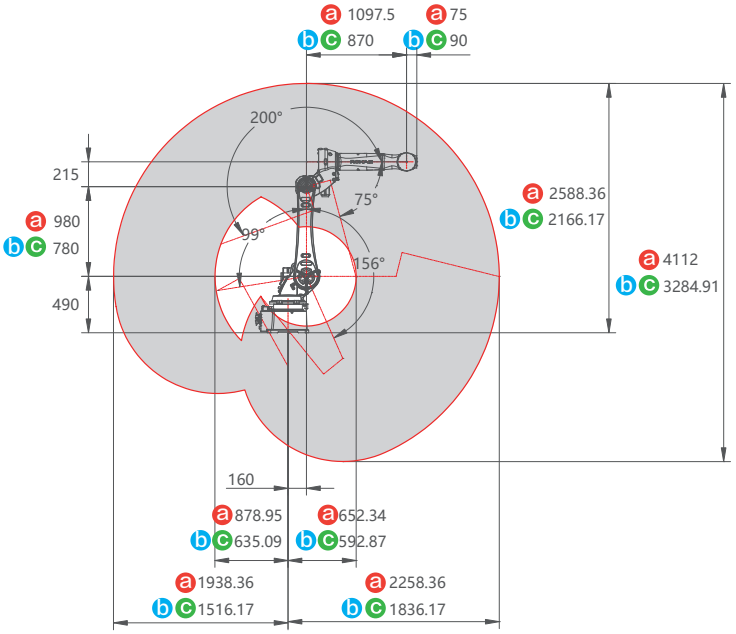
High Protection Ratings

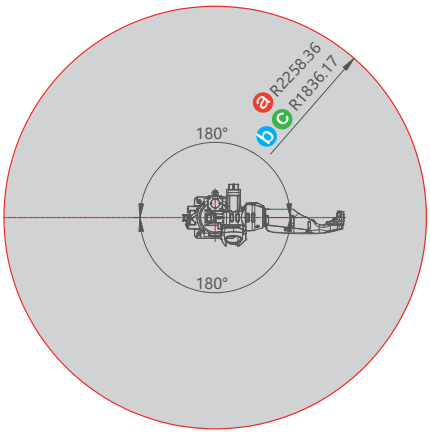
- IP67-wrist and IP65-body are designed to handle harsh environments with ease.

Grinding
Welding
Solar panel layup
Handling/loading and unloading
Sorting
Gluing
Deburring
Assembly
Inspection

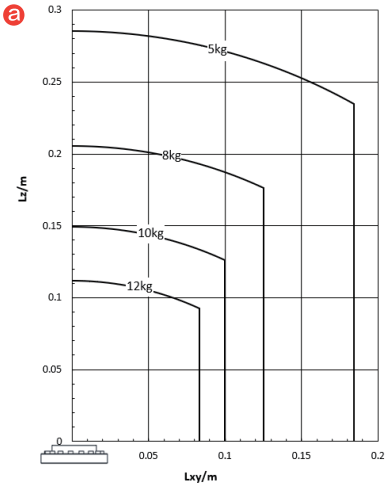
Working range (Dimensions: mm)

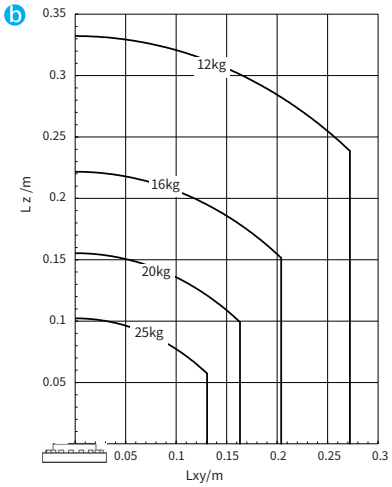
a NB25h-12/2.2 b NB25h-25/1.8 c NB25h-35/1.8

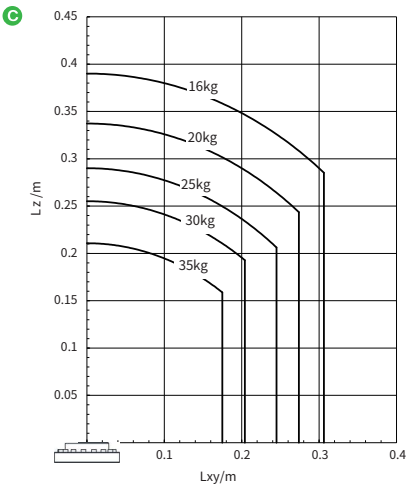




Wrist load curve

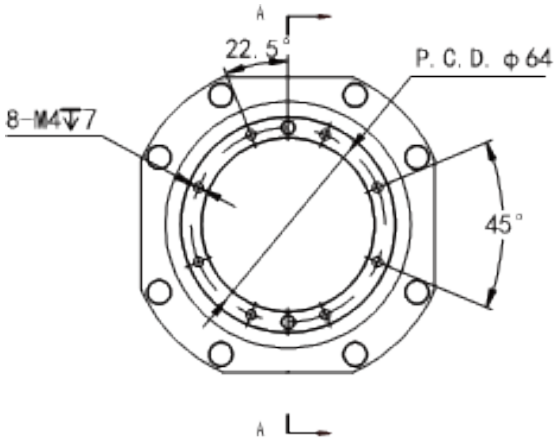


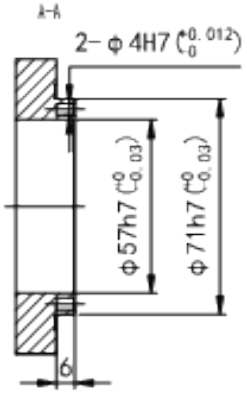


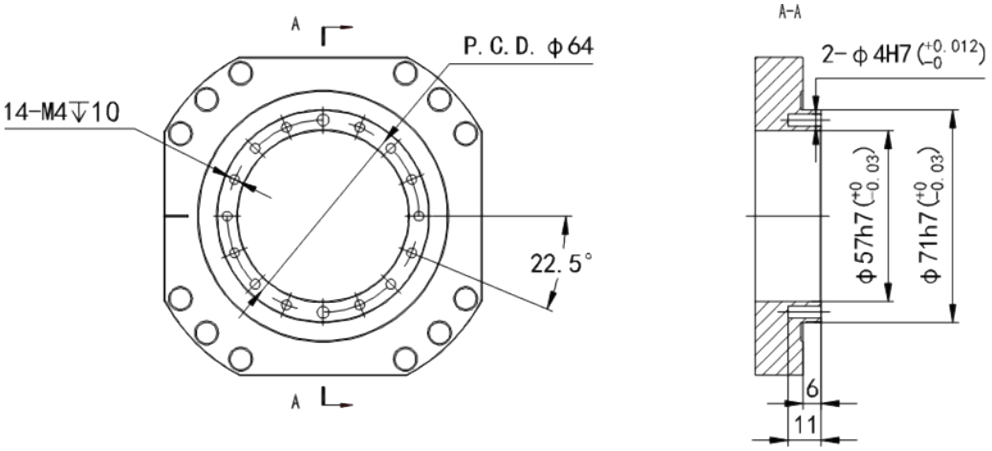


Output flange (Dimensions: mm)

a







Specifications

Model		NB25h-12/2.2	NB25h-25/1.8	NB25h-35/1.8
DOF		6	6	6
Reach		2,258 mm	1,836 mm	1,836 mm
Repeatability		±0.04 mm	±0.03 mm	±0.04 mm
Payload		12 kg	25 kg	35 kg
Range of motion	Axis 1	-180° to +180°	-180° to +180°	-180° to +180°
	Axis 2	-99° to +156°	-99° to +156°	-99° to +156°
	Axis 3	-200° to +75°	-200° to +75°	-200° to +75°
	Axis 4	-215° to +215°	-215° to +215°	-215° to +215°
	Axis 5	-225° to +225°	-225° to +225°	-225° to +225°
	Axis 6	-450° to +450°	-450° to +450°	-450° to +450°
Maximum speed	Axis 1	200°/s	200°/s	180°/s
	Axis 2	185°/s	185°/s	180°/s
	Axis 3	180°/s	180°/s	180°/s
	Axis 4	430°/s	430°/s	420°/s
	Axis 5	460°/s	430°/s	360°/s
	Axis 6	730°/s	730°/s	450°/s
Operating temperature		0℃ to +40℃	0℃ to +40℃	0℃ to +40℃
Storage temperature		-10℃ to +55℃	-10℃ to +55℃	-10℃ to +55℃
IP rating		IP65 (Wrist IP67)	IP65 (Wrist IP67)	IP65 (Wrist IP67)
Mounting method		Floor, Ceiling	Floor, Ceiling	Floor, Ceiling
Noise level		≤75 dB(A)	≤75 dB(A)	≤75 dB(A)
Weight		About 276 kg	About 272 kg	About 273 kg
AIR		2-Φ12, 8bar	2-Φ12, 8bar	2-Φ12, 8bar
Signal		2-12 channels (30V, 0.5A)	2-12 channels (30V, 0.5A)	2-12 channels (30V, 0.5A)

NB80 Series

Broader Applications

- Highest payload and longest reach among products of the same class helps easily address a wide range of automation needs

Higher Payload

- High inertia motion characteristics optimized for high inertia applications

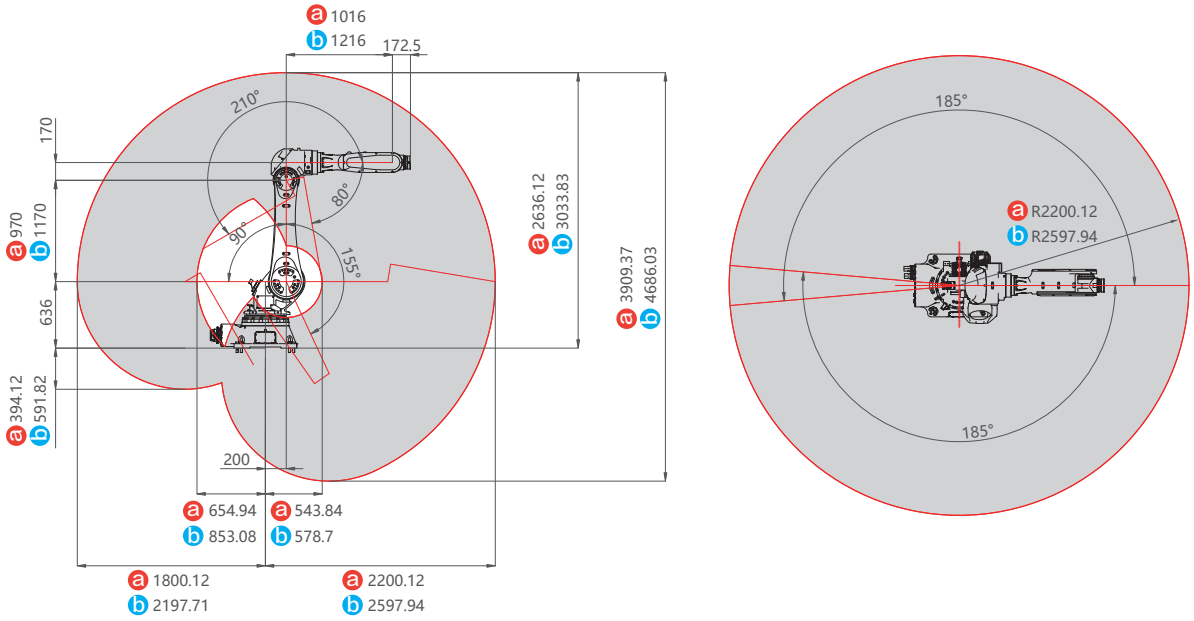
Stronger Protection

- Higher protection level against even the most demanding environments

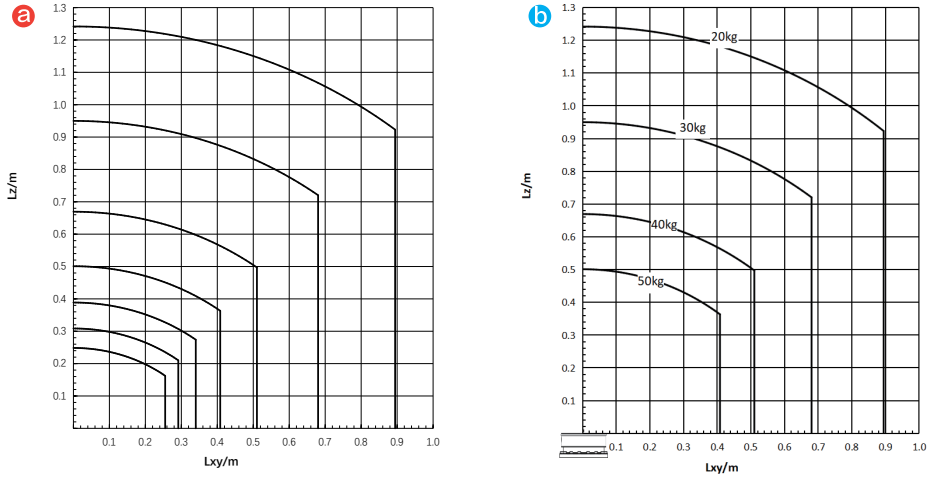
Weld | Gluing | Polish | Handling | Loading and unloading

Working range (Dimensions: mm)

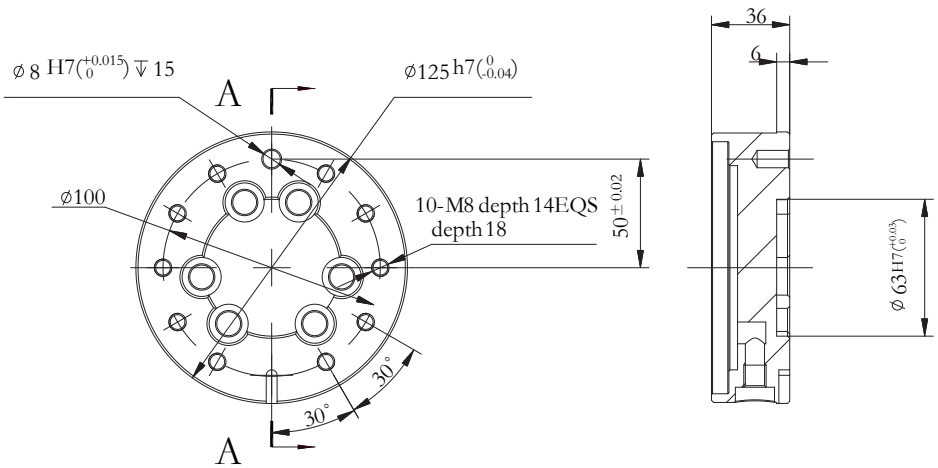
a NB80-80/2.2 b NB80-50/2.6



Wrist load curve



Output flange (Dimensions: mm)



Specifications

Model		NB80-80/2.2	NB80-50/2.6
DOF		6	6
Reach		2,200 mm	2,598 mm
Repeatability		±0.06 mm	±0.08 mm
Payload		80 kg	50 kg
Range of motion	Axis 1	-185° to +185°	-185° to +185°
	Axis 2	-90° to +155°	-90° to +155°
	Axis 3	-210° to +80°	-210° to +80°
	Axis 4	-200° to +200°	-200° to +200°
	Axis 5	-130° to +130°	-130° to +130°
	Axis 6	-360° to +360°	-360° to +360°
Maximum speed	Axis 1	170°/s	170°/s
	Axis 2	145°/s	180°/s
	Axis 3	170°/s	180°/s
	Axis 4	285°/s	285°/s
	Axis 5	285°/s	285°/s
	Axis 6	285°/s	360°/s
Operating temperature		0°C to 45°C	0°C to 45°C
Storage temperature		-10°C to +55°C	-10°C to +55°C
IP rating		IP65 (Wrist IP67)	IP65 (Wrist IP67)
Mounting method		Floor, Ceiling	Floor, Ceiling
Weight		About 635 kg	About 645 kg
AIR		2-Φ12, 8bar	2-Φ12, 8bar
Signal		24 channels (30V, 0.5A)	24 channels (30V, 0.5A)
Average power consumption in ISO scenarios		2.1kW	2.1kW

NB220 Series

Large load

- Payload of 220 kg, with greater operating capacity under the same working conditions

Long arm span

- Reach of 3200 mm, cope with more application needs easily

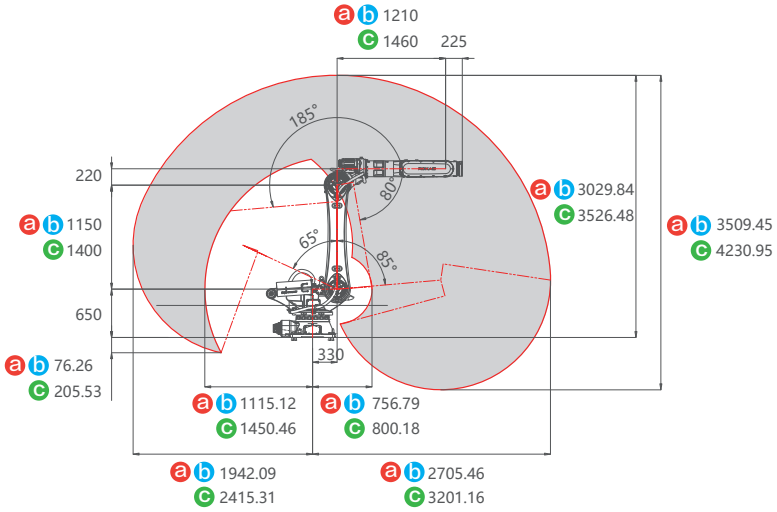
More reliable

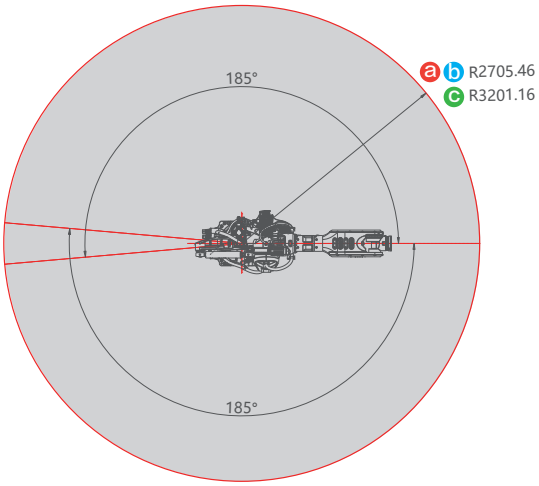
- The whole machine IP65, wrist IP67 protection, deal with harsh environment freely

Weld | Gluing | Polish | Handling | Loading and unloading

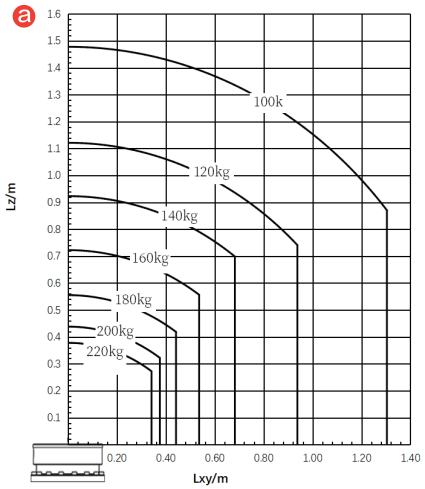
Working range (Dimensions: mm)

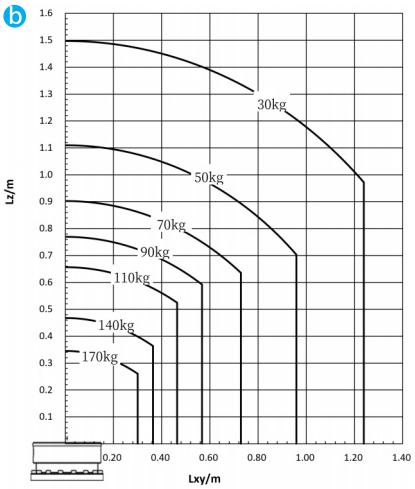
a NB220-220/2.7 b NB220-170/2.7 c NB220-150/3.2

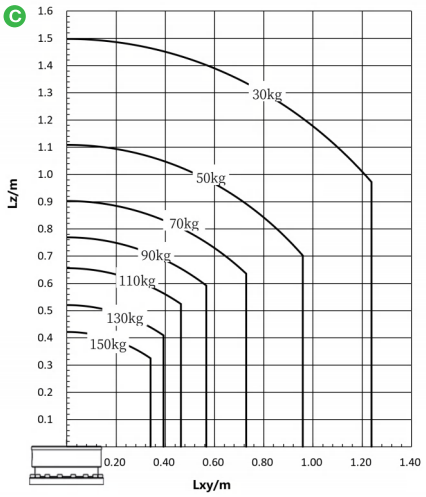




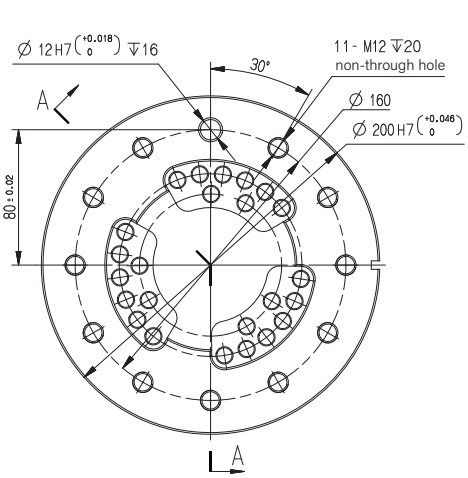
Wrist load curve

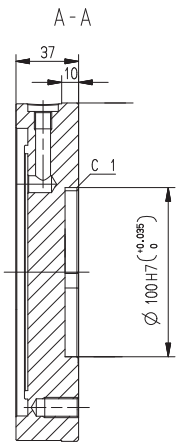






Output flange (Dimensions: mm)





Specifications

Model		NB220-220/2.7	NB220-170/2.7	NB220-150/3.2
DOF		6	6	6
Reach		2,705 mm	2,705 mm	3,201 mm
Repeatability		±0.07 mm	±0.07 mm	±0.08 mm
Payload		220 kg	170 kg	150 kg
Range of motion	Axis 1	-185° to +185°	-185° to +185°	-185° to +185°
	Axis 2	-65° to +85°	-65° to +85°	-65° to +85°
	Axis 3	-185° to +80°	-185° to +80°	-185° to +80°
	Axis 4	-200° to +200°	-200° to +200°	-200° to +200°
	Axis 5	-130° to +130°	-130° to +130°	-130° to +130°
	Axis 6	-360° to +360°	-360° to +360°	-360° to +360°
Maximum speed	Axis 1	120°/s	130°/s	130°/s
	Axis 2	110°/s	115°/s	115°/s
	Axis 3	110°/s	120°/s	120°/s
	Axis 4	150°/s	180°/s	180°/s
	Axis 5	150°/s	180°/s	180°/s
	Axis 6	220°/s	260°/s	260°/s
Operating temperature		0 to 45℃		
Storage temperature		-10℃ to +55℃		
IP rating		IP65 (Wrist IP67)		
Mounting method		Floor		
Weight		About 1,138 kg	About 1,138kg	About 1,165 kg
AIR		2-Φ12，8bar		
Signal		24 channels (30V，0.5A)		
Average power consumption in ISO scenarios		2.6kW		

xCore

New-Generation xCore Control System

All robots of ROKAE share a common control platform, providing extensive controller interfaces and powerful network solutions, which can realize the automation of complex systems in a simple, safe, and efficient way so that your robot can be put into operation quickly and easily.

Self-developed core technologies to create a unified controller platform

- Industry-leading motion control technologies: OptiMotion, TrueMotion, SyncMotion, and SafeMotion, to give full play to the performance of the body
- Dynamic modeling based on over 2000 parameters and dynamic feedforward compensation

More Efficient

- Meets functional safety standards: ISO 13849-1, ISO 10218-1/PL d, Cat. 3; ISO 15066
- Independent RSC safety controller
- More than 21 TÜV functional safety features

Safer

- Covering mainstream fieldbus and industrial Ethernet, including: Modbus RTU, CC-Link, PROFIBUS, DeviceNet, PROFINET, ModbusTCP, CC-Link IE Fieldbus Basic, EtherNetIP, and EtherCAT
- Extensive and high-powered RCI and SDK secondary development interfaces, with the underlying fully open

More Open

- Equipped with process kits for stacking, tray, laser welding, Photovoltaic typesetting, photovoltaic inserts, flower basket handling,etc.

Easier to Use

- Integrating robot vision software xVision
- Extensive high-dynamic force control command set

More Intelligent

- Unified control system for collaborative and industrial robots, with perfect balance of safety, ease of use and high performance

More Unified

Control systems

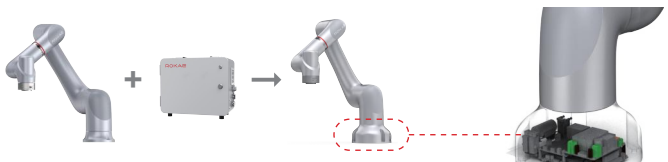
Collaborative Robots



Controller

Name	xMate Control Cab (MCC)	xMate Control Cab Mix(MCCM)	LightCab
Applicable models	CR Series models below 35kg, SR Series	CR Series models 35kg and above	SR Series
IP rating	IP54		IP20
Operating ambient temperature	0°C~50°C		0°C~50°C
Humidity	⩽93% RH (Non-condensing)		⩽93% RH (Non-condensing)
Input power	Single-phase 90V～264VAC, 47-63Hz; Single-phase 180V～264VAC, 47-63Hz (CR20 Series)	110V~260V AC, 50~60Hz	48VDC
Dimensions	450 mm×250 mm×350 mm	480 mm×325 mm×360 mm	228.5 mm x 180 mm x 88 mm
Weight*	About 15 kg		About 2.4 kg
General digital IO	16 inputs and 16 outputs (standard)		4 Digital outputs, 4 Digital inputs
Safety IO	5 safety inputs, 4 safety outputs (all dual-redundant channels)		2 safety inputs,1 safety outputs
Communication	RS232*1; Gigabit Ethernet RJ45*1;USB3.0*2; HDMI*1; EtherCAT*1		2 channels Ethernet,Ethercet
Optional extension	General Digital I/O module; Analog I/O module; Incremental encoder signal acquisition module, etc.		General Digital I/O module; Analog I/O module; Incremental encoder signal acquisition module, etc.

*Note: There will be some differences in the weight of the control cabinet in different configurations.



Robot-Integrated Controller

Controller	Built-in controller	
Applicable models*	CR7,CR12,CR18,CR20	SR3,SR4
Operator interface	Notebook/PAD/Drag Interactive Module	
Safety protection device	1 handheld enable / 1 handheld emergency stop	
Communication protocols	TCP/IP 1000Mbit, Modbus TCP, Profinet, Ethernet/IP, DeviceNet, CC-Link, CC-Link IE Field Basic	
External control interface	Highly dynamic external control; low-level force/position control; robot model library and API	
Input power	48VDC	
Base I/O ports	4 Digital outputs, 4 Digital inputs, 2 safety input, 1 safety output	
Base communication interface	1 channel Ethernet	2 channels Ethernet
Base output power supply	24V, 1.5A	24V, 1.5A

*Note: Integrated controller inside the robot body is an option.

Industrial Robot




Controller

	XBC5M	XBC5	XBC5E	XBC6M
Dimensions (W×D×H)	448mm x 446mm x 268mm	522mm x 408mm x 425mm	690mm× 514mm× 835mm	420mm × 317mm × 120 mm
Weight	28kg	35kg	102kg	10kg
Standard I/O	Input:16; Output:16	Input:16; Output:16	Input:16; Output:16	Input:16; Output:16
IP rating	IP40	IP54	IP54	IP54
Power supply	230VAC, voltage fluctuation within -15% to +10%, frequency variation within ±2%	230VAC or 3 x 380VAC(3L+N+PE)*1, voltage fluctuation within -15% to +10%, frequency variation within ±2%	3x380VAC(3L+PE); voltage fluctuation within-10%-10%, frequency variation within ±2%	230VAC, voltage fluctuation within -15% to +10%, frequency variation within ±2%
Typical scenario Average power consumption	0.22kW (NB4 series) 0.52kW (XB7 series)	0.22kW (NB4 series) 0.52kW (XB7 series) 0.63kW (NB12 series) 1.5kW (NB25 series)	2.1kW (NB80 series) 2.6kW (NB220 series)	0.22kW (NB4 series) 0.52kW (XB7 series)
Operating temperature	0°C to +45°C	0°C to +45°C	0°C to +45°C	0°C to +50°C
Storage temperature	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C	-10°C to +55°C
Maximum humidity for operation/storage	⩽ 80% (non-condensing)	⩽ 95% (non-condensing)	⩽95%, (non-condensing)	⩽80%, (non-condensing)

*1: 3x380VAC power supply for NB12 Series, NB25 Series,and 230VAC power supply for the rest.

Teach Pendant

Name	xPad2
Dimensions	290 mm×190 mm×80 mm
Weight	840 g
Cable length	5 m/7 m/15 m/22 m
Display	10.1-in LCD with a resolution of 1,920×1,200
IP rating	IP54

Configuration of Collaborative Robot

Options		Description
xPad2 Teach Pendant		Standard for CR series, optional for SR series
Length of Teach Pendant cable		5 m is standard, 7 m/10 m/15 m/22 m/30 m are optional.
I/O expansion module	I/O external expansion module	Optional, supporting the expansion of NPN and PNP digital I/O, and the expansion of voltage type and current type analog I/O, up to 64-way expansion
	Laser welding IO expansion module	Optional, applicable to laser welding scene control laser, providing 8 DI, 8 DO, 4 AO (1 way of 24 V, 3 ways of 10 V), and 1-way relay
Communication extension module	EtherNet/IP external expansion module	Optional, through which the robot can support EtherNet/IP protocol
	DeviceNet external expansion module	Optional, through which the robot can support DeviceNet protocol
	CC-Link expansion module	Optional, through which the robot can support CC-Link protocol
Power cord, 220 V AC	Chinese standard plug	Standard for each model (cable length of 2 m)
	British standard plug	Optional for SR series (cable length of 3 m, 3*1.0 mm²); optional for CR series (cable length of 3 m, 3*1.5 mm²)
	European standard plug	Optional for SR series (cable length of 3 m, 3*1.0 mm²); optional for CR series (cable length of 3 m, 3*1.5 mm²)
	American standard plug	Optional for SR series (cable length of 3 m, 3*1.31 mm²); optional for CR series (cable length of 3 m, 3*2.08 mm²)
	Brazilian standard plug	Optional for CR/SR series (cable length of 3 m, 3*1.5 mm²)
Power cord, 48 V DC		Optional, with cable length of 0.2 m
DC-DC power module		Optional, stably converting the input DC voltage into 48 V voltage
Handheld emergency stop and enabling device		Optional for CR series and SR series
End effector Ethernet cable plug		Adapting to SR end effector 100-megabit Ethernet port
Tablet kit		Optional, including tablet, silicone protective case, 10-m data cable, and RJ45 interface adapter
Calibration tool of laser tracker		Optional, applicable to vision-guided applications
SDK software package		Optional for each model, with secondary development interface for robots, supporting C++/C#/Python/Java
RokaeStudio off-line programming software		Optional for each model

Configuration of Industrial Robot

Options		Description
IP67 enhanced package		IP67 enhanced package not standard for each model
		IP67 enhanced package is optional for NB4 series,XB7 and XB7L
Length of relay cable		3 m is standard for NB4 series, XB7, XB7L, and 5 m, 10 m, and 15 m are optional
		5 m is standard for NB12, NB25 series, and 10 m and 15 m are optional
		8 m is standard for NB80 series and NB220 series, and 15 m and 25 m are optional
Flexibility of relay cable		Non-flexible cable is standard for each model, with flexible cable as an option
Heavy-duty connector of relay cable		Body end straight is standard for each model, with body end elbow as an option
Body I/O connector		Straight connector is standard for NB25, with elbow connector as an option
		Elbow connector is standard for NB4 series, XB7 series, and NB12 series
		Straight connector is standard for NB80 series and NB220 series
Body I/O cable		Cable of 1.5 m length is optional
Length of Teach Pendant cable		5 m is standard for each model, with 7 m, 15 m, and 22 m as options
xCore control system		Adapting to XBC5 series controller and xPad2 Teach Pendant
I/O type		Self-developed I/O is standard for XBC5 series controller, which can satisfy both PNP and NPN
Number of I/O		16-way input and 16-way output is standard, with 32-way input and 32-way output as an option
Communication		Profinet communication and EtherNet/IP communication are optional for each model; and CC-Link communication is optional for XBC5 series controller
Software functions	Collision detection	Optional for each model
	Multi-task	Optional for each model
Calibration of absolute positioning accuracy		Optional for each model
RokaeStudio off-line programming		Optional for each model
Interface language		Chinese is standard, with English as an option
Power cord plug		Chinese standard plugs are standard for NB4 series, XB7 series, with European standard plugs as options
Length of power cord		5 m is standard for NB4 series, XB7 series, with 10 m as an option
		10 m is standard for NB12 series and NB25 series
		8 m is standard for NB80 series and NB220 series
Outlet direction		Rear outlet is standard for NB4-4/0.47, and NB4h-4/0.58, with bottom outlet as an option. The rest of them out from the back, and all of them have only one mode of outlet

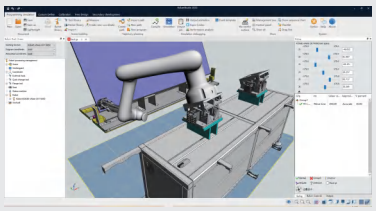
RokaeStudio

Robot Offline Programming and Simulation Software

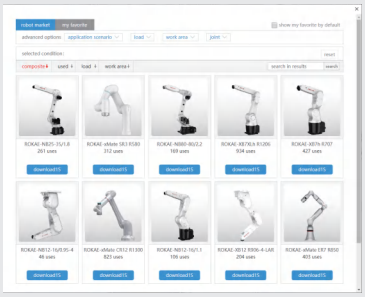
Core function

One-stop solution for robot application problems

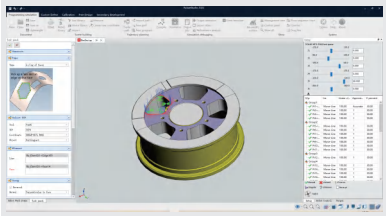
Project design



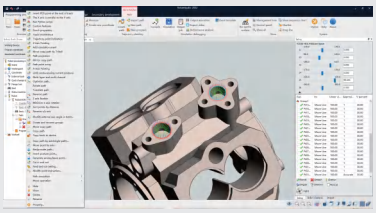
model selection



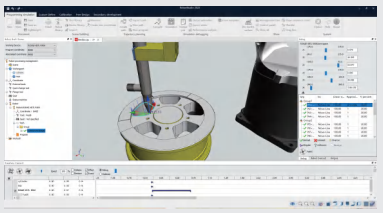
trajectory generation



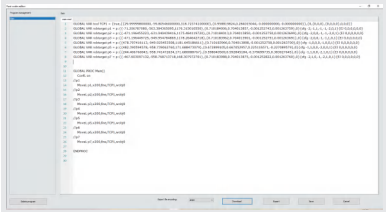
trajectory optimization



simulation debugging



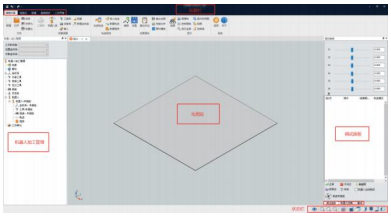
code generation



Positive features

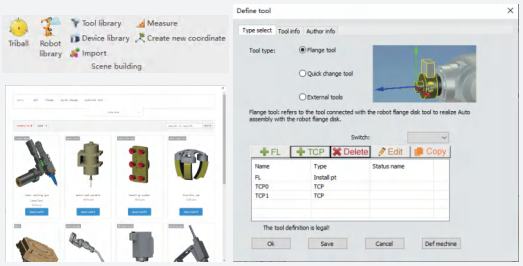
01 Simpler operation interface

- Simple and easy-to-use interface, with clear and smooth UI layout, allowing users to operate it with ease



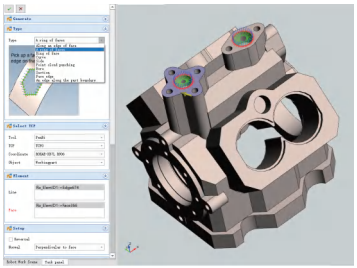
02 More open scenario building

- Provide rich cloud-based resource libraries of robots, equipment, tools, etc., covering all models of ROKAE industrial robots and collaborative robots, as well as commonly used tools.
- Support the import and customization of devices such as rails, parts, and state machines, which can easily cope with more complex application scenarios.



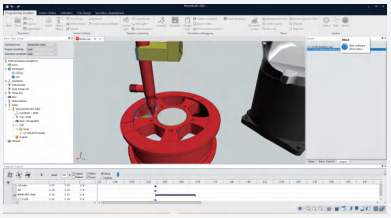
03 More flexible trajectory generation

- Support multiple trajectory generation methods. For different complex models, users can extract their complex features in terms of point, line, and surface, and the algorithm can accurately identify model features to quickly generate the trajectory of a robot, solving problems of time-consuming and inaccurate manual teaching of point position.



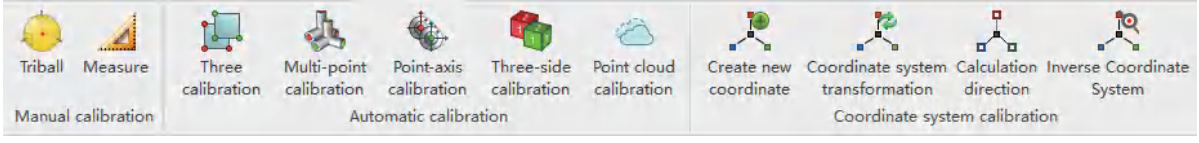
04 More realistic simulation effects

- Support collision detection during real-time simulation, which can simulate and detect collisions of the robot with surrounding parts and facilities during movement, and alert the user in advance by highlighting lines and outputting collision information, so as to nip the accidents in the bud.
- Support action simulation of devices such as robots, parts, and state machines in the scenarios and control the devices to perform different actions through custom events, so as to achieve the real effect of handling, polishing and other scenarios, thus meeting the various project requirements.



05 More accurate program generation

- Support various calibration methods such as three-point calibration, point-axis calibration, and three-plane calibration, which can avoid positional deviation to the maximum extent.
- The robot trajectory set by RokaeStudio can be directly exported to the robot control system as a motion program, so that the user can simply calibrate some point positions to run the program without any complicated operations.

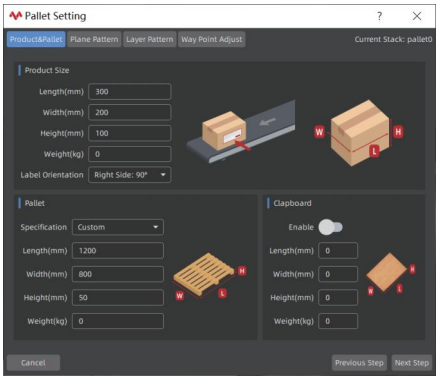


Stacking Process Kit

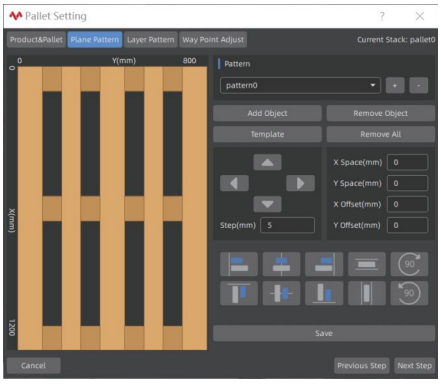
Core function

Easy-to-use and wizard-style stacking process kit

Stacking process	Up to 100 stacking processes can be created.
Stacking tool set	Each stacking process has only one stacking tool set (stacking tool frame, stacking work object frame). RL project tool data can be imported into the stacking tool.
Stack pattern	Available patterns include block, brick, and pin wheel. Custom patterns are supported
Plane pattern	Up to 100 plane patterns can be created for each stacking process.
Number of work objects	Up to 200 work objects can be created for each plane pattern.
Number of layers	Up to 50 layers can be created for each stack.



Dimension setting

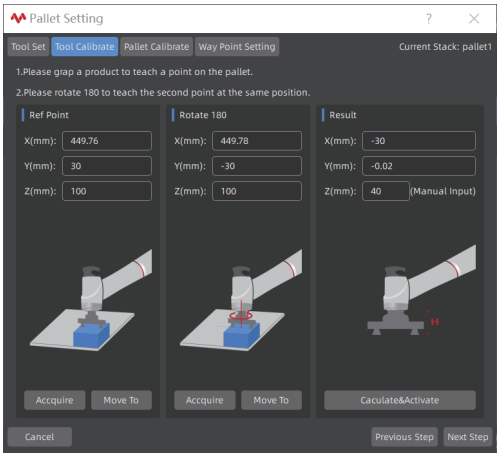


Stacking pattern setting

Positive features

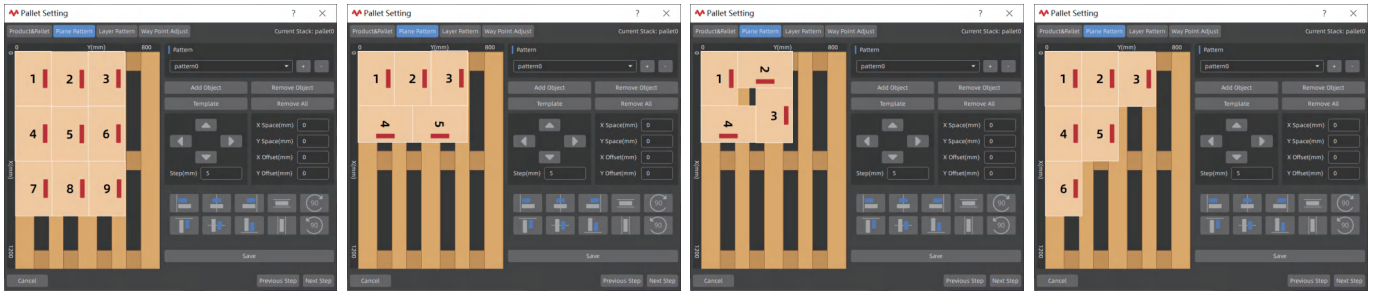
Friendly HMI device

- **Comfortable operation**
  with multi-touch Teach Pendant that supports tablet navigation modes such as swipe and bimanualness.
- **Clear interface**
  which can be used normally after simple setting on the graphical parameter interface.
- **Explicit layout**
  allowing the stacking program to be completed by following the wizard steps.
- **Easy programming**
  allowing for quick programming with code-assisted programming or graphical commands.



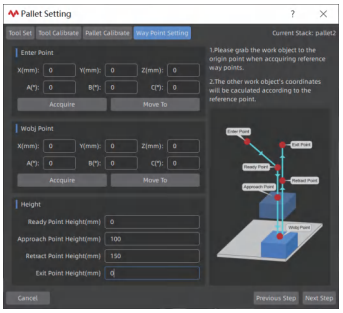
Rich stack pattern

- Provide typical templates for stack pattern, such as block, brick, and pin wheel.
- Meet the needs of customers for customizing the stack pattern based on actual scenarios.



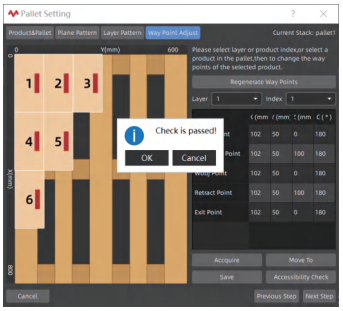
Flexible stacking path

- Simple path design, allowing all target work objects on the tray to be processed by only setting representative positions, such as approach point, reference work object point, and retract point.
- Safe path planning, which divides the entire stacking path into an approach path and a retract path, so as to avoid collisions during movement.
- The stacking paths for each work object in each layer can be set individually to meet the different path requirements in different scenarios.



Comprehensive accessibility check

- The presence of unreachable points in the complete stacking path can be automatically detected and checked before being put into operation.
- All path points on the tray can be tested run, and the corresponding parameters can be adjusted according to the actual trajectory.



Tray Process Kit

Up to **100** tray processes can be created.

The stacking pattern of robot can be customized: **in parallel pattern, S-shaped pattern, etc.**

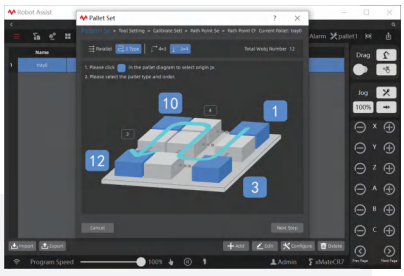
16 plane patterns can be provided for each tray process.

Up to **999** work objects can be supported by each plane pattern.

Core function

Developed specifically for solutions of machine tool charging and discharging

01 Easy to use

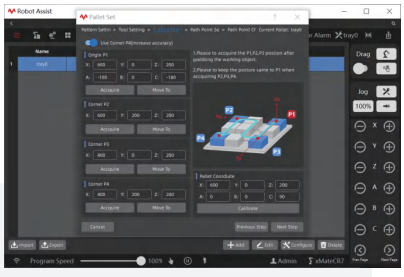


- Support graphical parameter setting and programming, with all target work objects on a tray can be processed with a minimum of code (4 dots) or graphical commands, allowing quick operation by general employees.

02 Efficient and stable

- Adopt advanced motion control algorithms and technologies to realize high-speed and high-accuracy positioning control, and ensure efficient and stable charging and discharging process.

03 Flexible



- Provide rich parameter settings and configuration options, which can be customized by users based on specific application scenarios.

04 Safe and reliable

- Provide various safety protections at software and hardware levels, to effectively avoid accidents during the operation of robot.

Intelligent Welding Process Package

Graphical programming
5-minute mastery

Built-in process expert library
5-second quick access

Core functionality

Solves the tedious direct teaching problem, reduces user entry barrier

Product Highlights

Open Functional Modules

- **Groove Adaptation, Flexible and Effortless**
  ① Simply record the corresponding points through direct teaching to automatically adjust and optimize the welding path, intelligently adapting to irregular grooves.
  ② Use the "Input Surface" function to address groove angle deviations caused by machining errors, automatically calibrating the groove angles.

- **Path Memory, Power Failure Recovery**
  ① In case of unexpected situations, welding can be paused with a single operation to ensure safety.
  ② Upon restart, the system automatically resumes at the previous welding point, eliminating the need for repositioning.
  ③ Automated Interruption: In multi-pass welding, by setting "Pause Time," the system automatically pauses, simplifying slag removal and other maintenance tasks, enabling unattended high-efficiency operations.

- **Multi-Pass Welding, Seam Fine-Tuning**
  ① The system autonomously plans multi-pass paths with simple and clear logic.
  ② Whether minor adjustments or significant changes, the seam fine-tuning function handles them effortlessly.
  ③ For full-penetration welds, even if root cleaning causes changes in groove dimensions, the "Reload Path" function adjusts the multi-pass welding trajectories accordingly.

- **Rich Oscillation Patterns, Customizable Settings**
  ① Supports bow-shaped, Z-shaped, triangular, inverted triangular, and other oscillation patterns to meet diverse application requirements.
  ② Allows setting of amplitude, frequency, dwell time, and angle, enabling personalized oscillation configurations.
  ③ Supports both individual and batch modification of process parameters, enhancing parameter adjustment efficiency.

Rich Oscillation Patterns

01

For Medium to Thick Plate Welding, six commonly used oscillation patterns are designed to meet the needs of most scenarios.

02

For Vertical Weld Seam Welding, each oscillation pattern can have its own set of process parameters, providing excellent openness.

03

For Complex Multi-Pass Welding Scenarios, each set of parameters can be modified in batches or individually, offering high adjustment efficiency.

Oscillation Patterns

- **Bow Oscillation** — Vertical Weld Seam Upward Welding
- **Z-Shaped Oscillation** — Covering Flat Weld Seam Applications
- **Bell-Shaped Oscillation** — Swinging Along the Groove Direction
- **Crescent-Shaped Oscillation** — Suitable for Filling/Capping
- **Positive Triangle Oscillation** — Groove Vertical Weld Base
- **Inverted Triangle Oscillation** — Groove Vertical Weld Base with Gap

Applicable Types: **Flat groove, vertical groove, horizontal groove, arc groove, and conventional corner weld seams.**

Simple Parameter Settings

01

Minimalist Program Display Interface

02

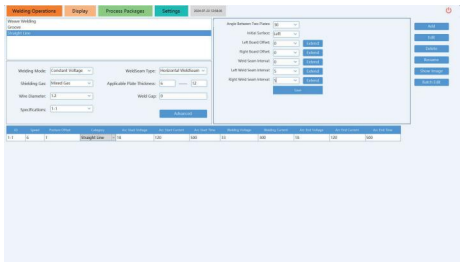
Swift Program Recall and Loading

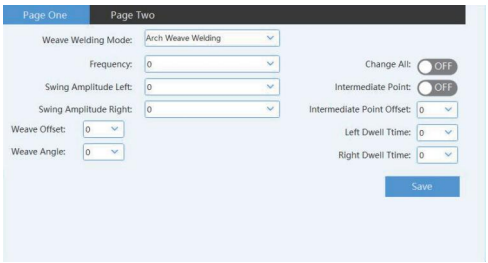
03

Support for Restarting After Arc Interruption and Path Memory

04

Simulated Hand Tack Welding Support in Welder Module





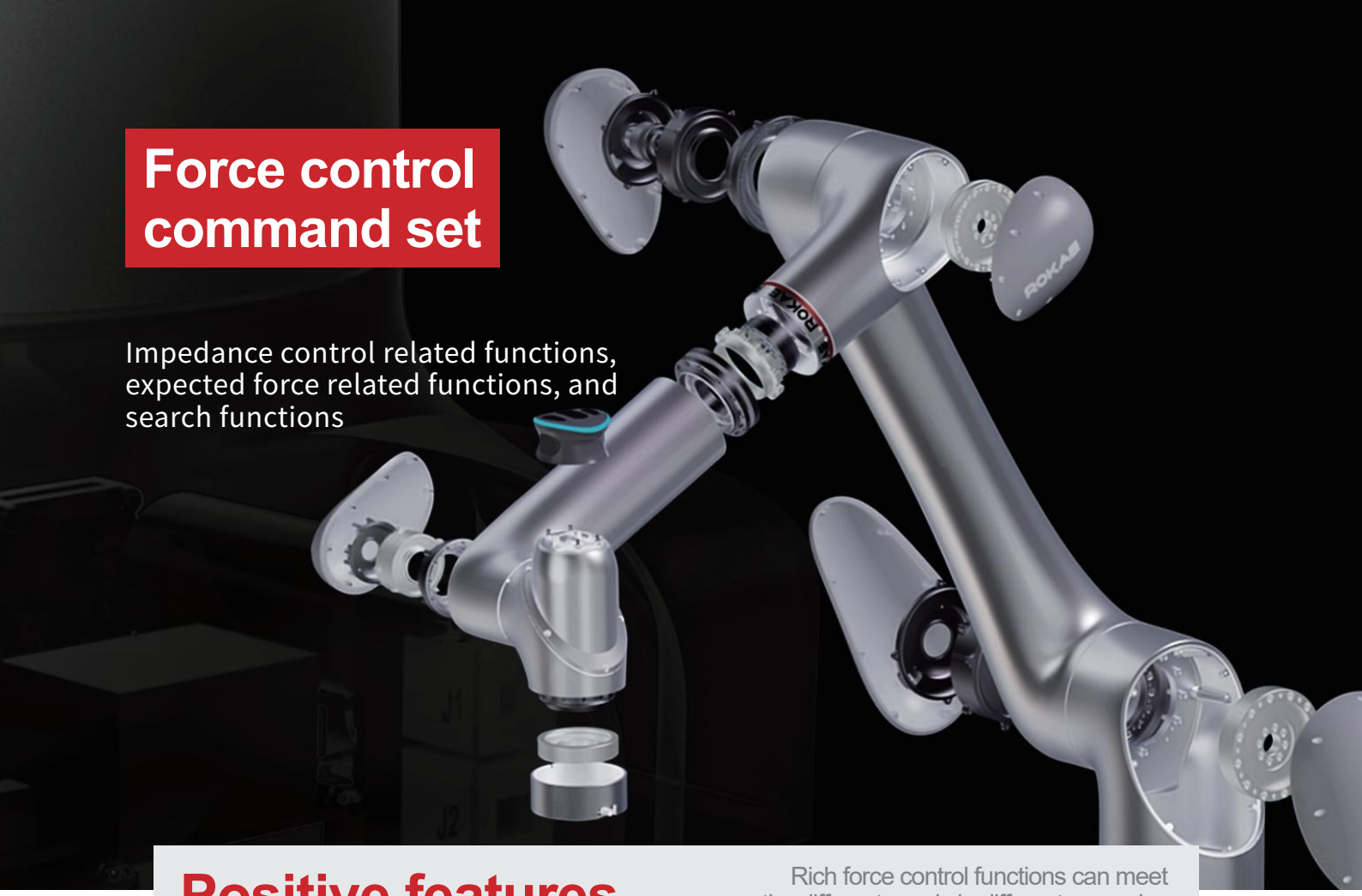
Programming Logic: Process First, Then Programming

① Determine Welding Process → ② Pre-set / Load Process → ③ Graphical Programming → ④ Initiate Welding

Simulate Welding

Force control command set

Impedance control related functions, expected force related functions, and search functions



Positive features

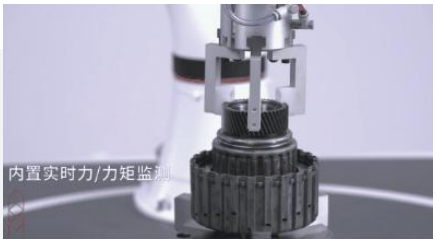
Rich force control functions can meet the different needs in different scenarios

01 Friendly HMI device

- Simple and clear interface, which enables to select and set the corresponding commands and parameters simply through the HMI interface.
- Easy programming, which enables quick realization of the required force control functions with simple statements.

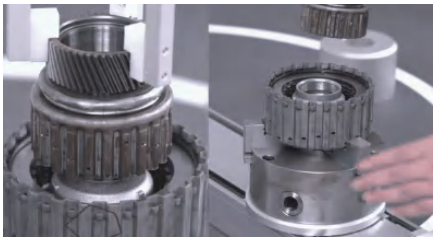
02 Rich force control types

- Support robot base frame, world frame, tool frame, and work object frame
- Support joint impedance and Cartesian impedance control



03 Perfect parameter setting

- Allow freely setting the impedance stiffness and damping parameters within a safe range, so as to adjust the corresponding impedance control effect;
- Allow setting the user's desired force, which can be combined with motion commands for applications such as force-controlled polishing and massage;
- Allow combination with the contact force judgment commands to realize applications such as point-touch high-voltage switches.

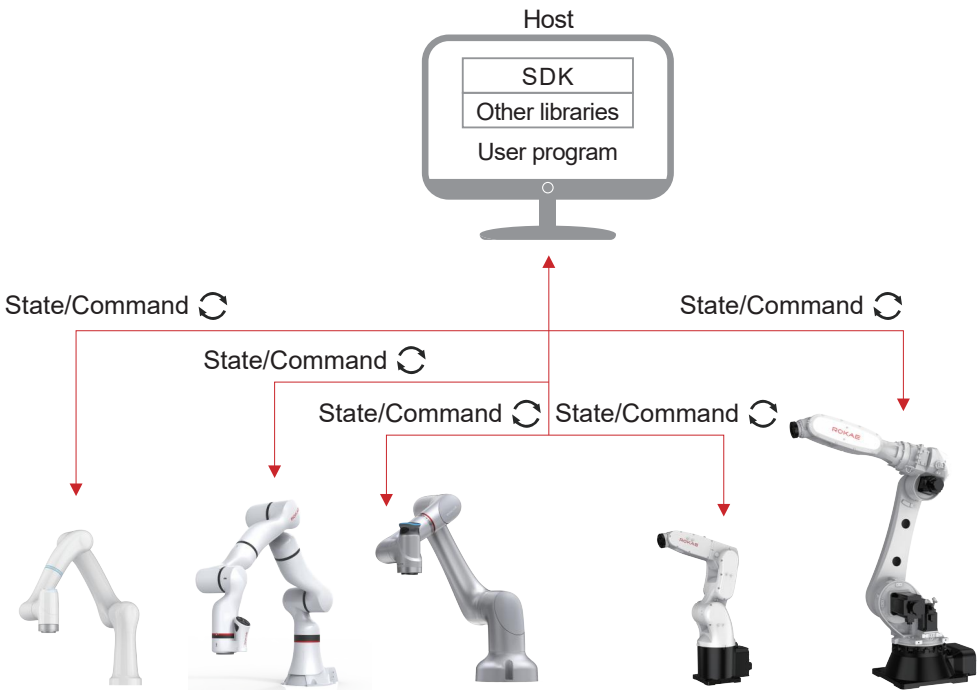


04 Efficient search and contact force judgment

- Advanced motion planning with force control & search function, allowing robots to sense real-time changes in force, so as to effectively cope with the situations such as uncertain work environments, large part tolerances, and complex assembly manipulations.

RCI/SDK
secondary development interface

Provide more underlying, more flexible and high-powered robot control interfaces to users with certain programming and development skills.



Positive features

- Support real-time control and state acquisition for robots of 1 kHz;
- With extensive programming languages and operating systems;

Core function

Supported programming languages:

C++ / C# / Python / Java

Supported operating system:

Ubuntu / Windows / Android

Non-real-time control functions:

- Basic motion: MoveAbsJ, MoveL, MoveJ, MoveC, etc.;
- Robot communication: digital and analog IO, register read/write;
- RL projects: query and execution;
- Direct teaching control and path playback (collaborative robots);
- Others: clear alarms, query controller logs, etc.

Real-time control function packages:

- Joint space position control
- Cartesian space position control
- Joint space impedance control
- Cartesian space impedance control
- Direct torque control

ROKAE Ecosystem

Gathering powerful peripherals and application kits in the robotics industry, ROKAE work with upstream and downstream players to build a sound ecosystem and provide one-stop solutions for you.

6 categories of ecosystem extensions and 100+ eco-system partners

Camera
Grip pawl
Screw machine
Grinding tool
AGV
Welding machine

ROKAE +

Laser welding
Grinding
Stacking
Assembly
Gluing
Deburring
Sorting
Packaging
Loading and unloading
Labelling
Lnspection
Cutting
Massage

Service 360° Worry-free Service

On call **24** hours a day, **7** days a week

Appearing at customer site within **48** hours

Effective usage of robot as primary goal

Nationwide coverage of **5** standard accessory warehouses

ROKAE Academy

Industry-leading portfolio of training courses

Professional robot training devices

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