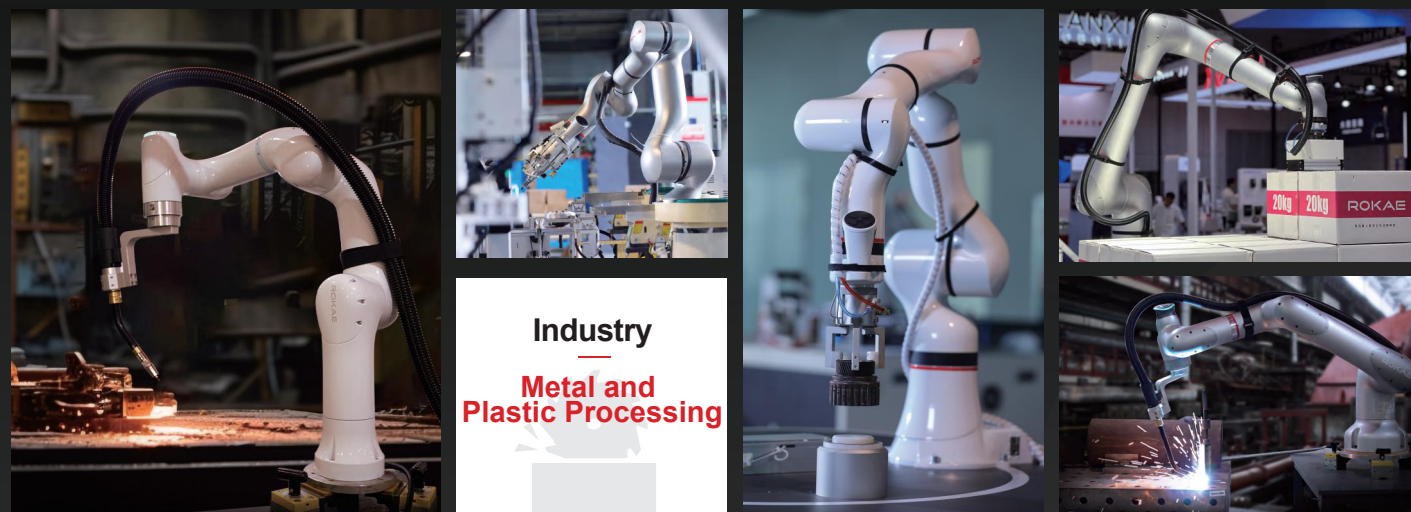


Industry
3C and
Semiconductor



Industry
Metal and
Plastic Processing

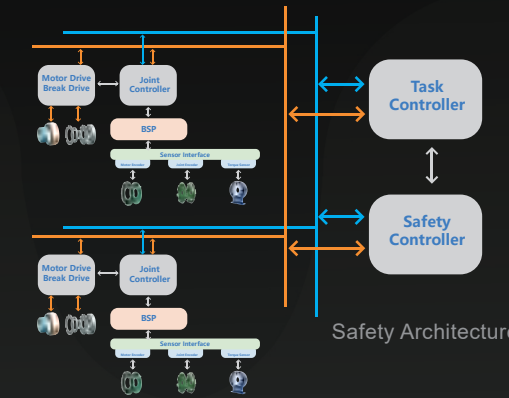
Commercial Services / Healthcare / Research and Education



A Powerful Yet Flexible All-Rounder

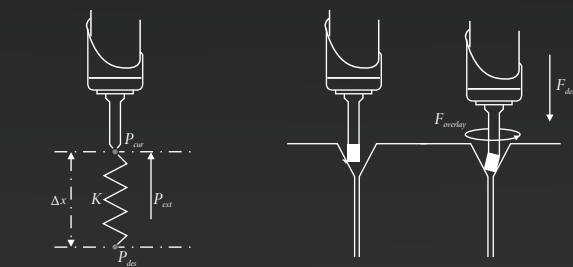
Extreme Safety

- 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 $\pm 0.1\text{mm}$ when power on and off, powered by suction contracting brake and dynamic feedforward compensation



Compliant Flexibility

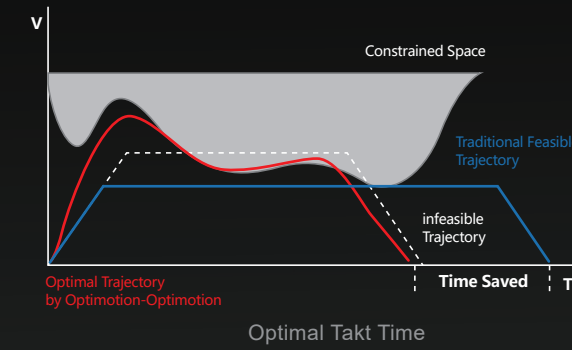
- Powerful yet flexible robot control based on patented unified force-position hybrid control framework
- Force control task efficiency improved by over 3 times through highly dynamic force control
- Fine grinding and precision assembly with no extension required thanks to built-in joint sensors and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



Impedance Control Controlled Force Assembling

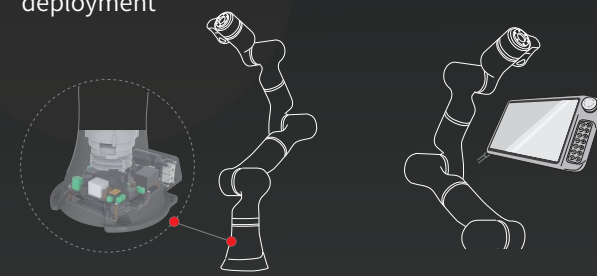
Superior Performance

- 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



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

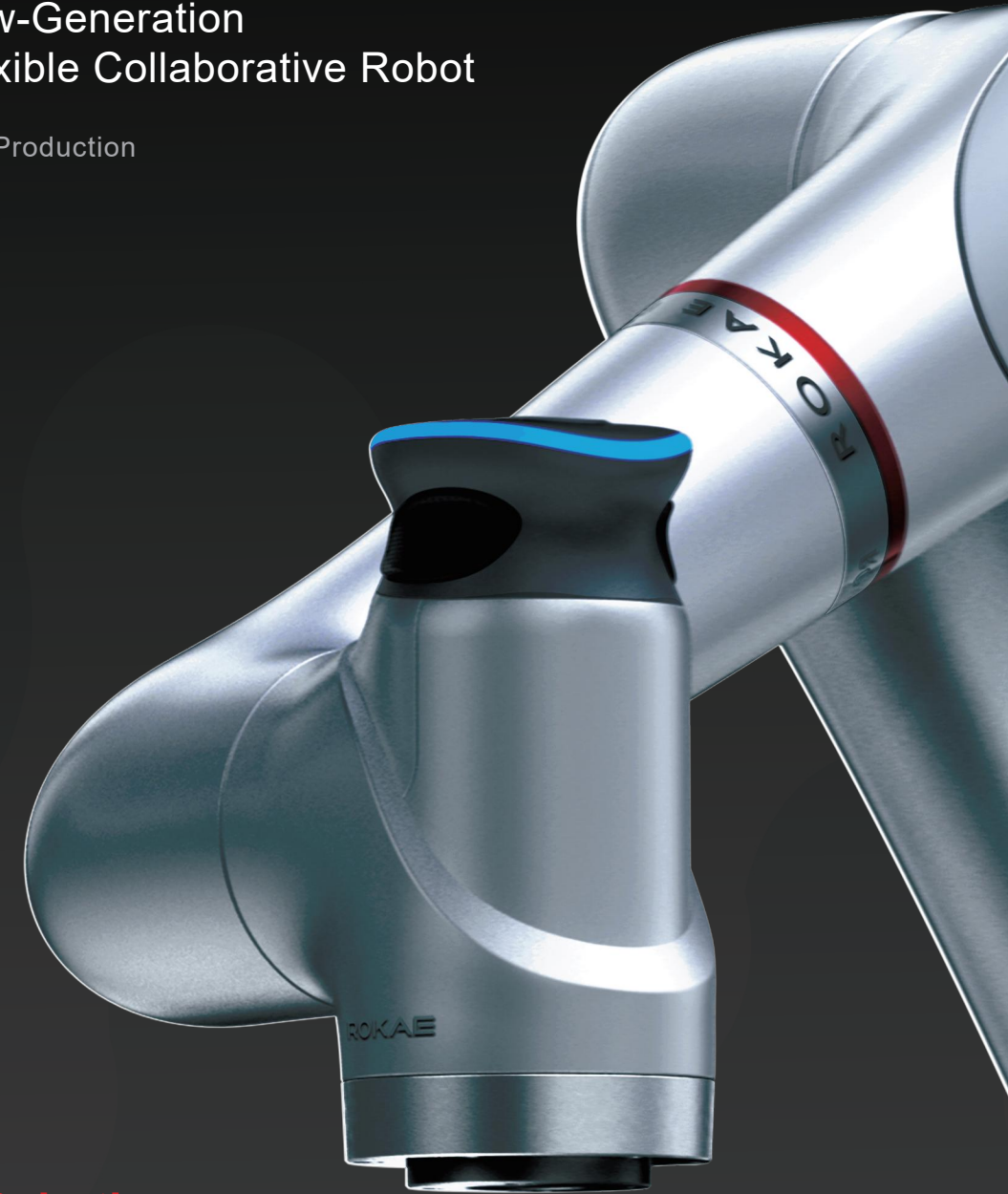


Better Protection

ROKAE

xMate New-Generation Flexible Collaborative Robot

A Partner You can Rely on in Production



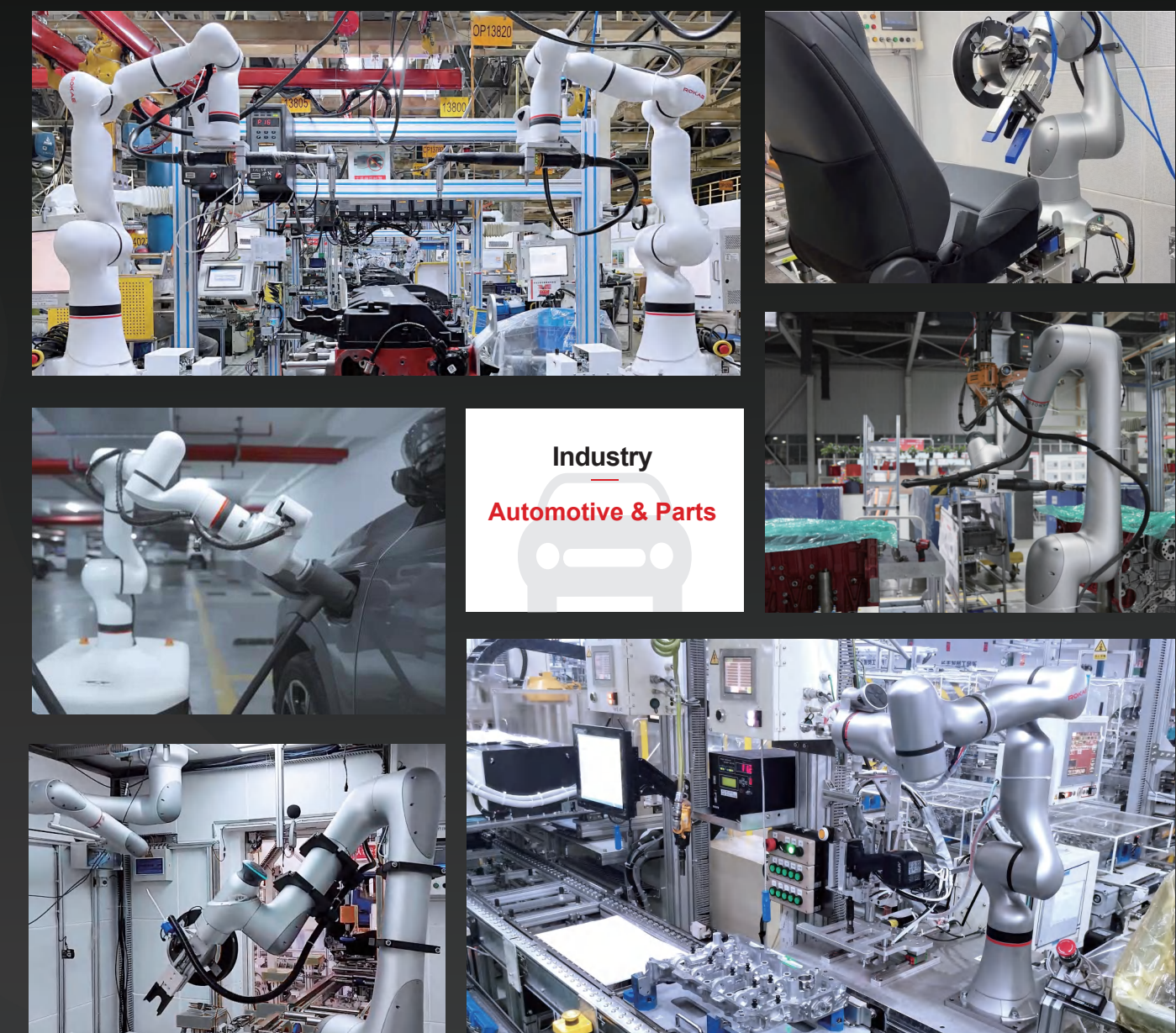
xMate

Is changing the way all industries produce

The xMate series is a new generation of flexible collaborative robots independently developed by ROKAE. It features a cabinet-free design with a built-in torque sensor in every joint, leading the market in safety, deployment flexibility, lightweight, and ease of use.

For the needs of different industries, xMate has launched **CR, CR-C, SR, SR-C series** to unlock more robotic application scenarios with more disruptive and innovative technical features. It has now become a powerful partner you can rely on in production.

Industrial Applications



Industry
Automotive & Parts



ROKAE Robotics

400-010-8700
www.rokae.com
sales@rokae.com



Specifications

Payload	3 kg	4 kg	3 kg	4 kg	5 kg	7 kg	12 kg	18 kg	20 kg	7 kg	12 kg	18 kg	20 kg	25 kg	17 kg									
Reach	705 mm	919 mm	705 mm	919 mm	919 mm	988 mm	1,434 mm	1,062 mm	1,798 mm	988 mm	1,434 mm	1,062 mm	1,798 mm	1,798 mm	2,047 mm									
Weight	About 15 kg (including built-in controller)	About 17.5 kg (including built-in controller)	About 13.8 kg	About 16.5 kg	About 16.5 kg	About 27 kg (including built-in controller)	About 43 kg (including built-in controller)	About 40 kg (including built-in controller)	About 75 kg (including built-in controller)	About 25 kg	About 41 kg	About 38 kg	About 71 kg	About 69 kg	About 71 kg									
Degrees of freedom	6	6	6	6	6	6	6	6	6	6	6	6	6	5	5									
MTBF	> 80000 h	> 80000 h	> 80000 h	> 80000 h	> 80000 h	> 80000 h	> 80000 h	> 80000 h	> 80000 h	> 80000 h*	> 80000 h*	> 80000 h*	> 80000 h*	> 80000 h*	> 80000 h*									
Power supply	90-264VAC, 47-63Hz/48VDC				48VDC				Single-phase 90-264VAC, frequency 47-63Hz / 48VDC				Single-phase 180V - 264VAC, frequency 47-63Hz / 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	160w	225w	225w	300w	500w	600w	1000w	300w	500w	600w	1000w	900w	600w													
Safety	Over 21 adjustable safety features including collision detection,virtual walls, and collaboration mode.								Over 21 adjustable safety features including collision detection,virtual walls, and collaboration mode.								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								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								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	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
Force measurement 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	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
Relative accuracy of force control	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm	0.5N	0.1Nm
Adjustable range of Cartesian stiffness	0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		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		±0.03 mm		±0.03 mm		±0.02 mm		±0.03 mm		±0.03 mm		±0.05 mm		±0.02 mm		±0.03 mm		±0.03 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	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°	180°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s
Axis 2	-135°~ +130°	180°/s	-135°~ +135°	180°/s	-155°~ +140°	180°/s	-160°~ +150°	180°/s	-160°~ +150°	180°/s	±360°	180°/s	±170°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s	±360°	120°/s
Axis 3	-175°~ +135°	180°/s	-170°~ +140°	180°/s	-175°~ +135°	180°/s	-170°~ +140°	180°/s	-170°~ +140°	180°/s	±360°	234°/s	±360°	180°/s	±165°	180°/s	±170°	120°/s	±360°	234°/s	±360°	180°/s	±165°	180°/s	±170°	120°/s	±165°	120°/s	±165°	120°/s
Axis 4	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	240°/s	±360°	234°/s	±360°	180°/s	±360°	180°/s	±360°	240°/s	±360°	234°/s	±360°	180°/s	±360°	180°/s	±360°	234°/s	±360°	234°/s
Axis 5	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	240°/s	±360°	240°/s	±360°	180°/s	±360°	180°/s	±360°	240°/s	±360°	240°/s	±360°	180°/s	±360°	180°/s	±360°	234°/s	±360°	234°/s
Axis 6	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s	±360°	240°/s	±360°	240°/s	±360°	180°/s	±360°	180°/s	±360°	240°/s	±360°	240°/s	±360°	180°/s	±360°	180°/s	±360°	234°/s	±360°	234°/s
Maximum speed at tool end	≤1.5m/s		≤2.0m/s		≤1.5m/s		≤2.0m/s		≤2.0m/s		≤3.2m/s		≤3.0m/s		≤3.0m/s		≤3.5m/s		≤3.2m/s		≤3.0m/s		≤3.0m/s		≤3.5m/s		≤3.5m/s		≤4.0m/s	

Physical properties

	SR series	SR-C series	CR series	CR-C series
IP rating	IP54	IP54	IP54	IP67
ISO cleanroom class	5	5	5	5*
Noise	≤ 70 dB(A)	≤ 70 dB(A)	≤ 70 dB(A)	≤ 70 dB(A)
Robot installation	At any angle	At any angle	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	2 Digital outputs, 2 Digital inputs, 2 Analog inputs	2 Digital outputs, 2 Digital inputs, 2 Analog inputs
Tool communication interface	One 100-megabit Ethernet port with RJ45 interface on the connection base	One 100-megabit Ethernet port with RJ45 interface on the connection base	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	(1) 12V/24V 1A (2) 5V 1.5A	(1) 12V/24V 1A (2) 5V 1.5A	12V/24V 1A (rated)	12V/24V 1A (rated)
Operating ambient temperature	0°C~50°C	0°C~50°C	0°C~50°C	0°C~50°C
Humidity	≤ 93% RH (non-condensing)	≤ 93% RH (non-condensing)	≤ 93% RH (non-condensing)	≤ 93% RH (non-condensing)
Base I/O ports	4 Digital outputs, 4 Digital inputs	4 Digital outputs, 4 Digital inputs	4 Digital outputs, 2 safety input, 1 safety output	—
Base communication interface	2 channels Ethernet	—	1 channel Ethernet	—
Base output power supply	24V, 1.5A	—	24V, 1.5A	—

Control System

Controller	Built-in controller (SR, CR series)
Operator interface	Notebook/PAD/Interactive Panel
Safety protection device	1 handheld enable / 1 handheld emergency stop
Direct teaching control	Drag mode: Cartesian space/joint space; teaching mode: point position/continuous trajectory
Highly dynamic force control	Impedance control of Cartesian/joint space; motion planning for force control search
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

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



SR-C series - Control cabinet

Name	LightCab
IP rating	IP20
Operating ambient temperature	0°C~50°C
Humidity	≤93% RH (Non-condensing)
Dimensions	228.5mm x 180mm x 88mm
Weight	About 2.4 kg
User IO	4 Digital outputs, 4 Digital inputs
Communication	2 channels Ethernet
Power output	24V, 1.5A



CR-C series - Control cabinet

Name	xMate Control Cab (Abbreviated as MCC)
IP rating	IP54
Operating ambient temperature	0°C~50°C
Humidity	≤93% RH (Non-condensing)
Dimensions	450mm x 250mm x 350mm
General digital IO	16 inputs and 16 outputs (standard)
Safety IO	5 safety inputs, 4 safety outputs (all dual-redundant channels)
Communication	RS232*1; Gigabit Ethernet RJ45*1;USB3.0*2; HDMI*1; EtherCAT*1

Please refer to the corresponding product manual for more details



1. Considering the upgrade of the product, the actual parameters of the product shall be subject to the corresponding hardware installation manual 2. *Note: If you have any questions about the status of product certification, please contact the manufacturer.