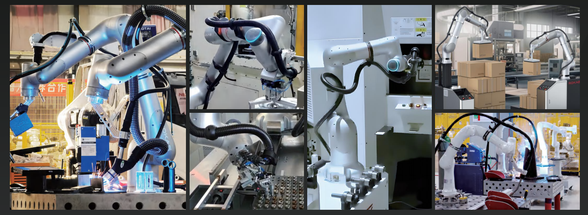
Electronics / New Energy



Metal Fabrication / General Industry



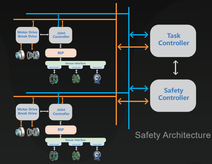
Commercial Services / Healthcare / Research and Education



A Powerful Yet Flexible All-Rounder

Extreme Safety

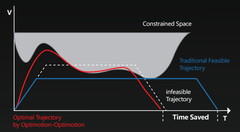
- Sensitivity improved by 10 times thanks to the collision detection by torque sensors
- More than 21 TÜV functional safety features, meets functional safety standards: ISO 13849-1, ISO 10218-1/PL d, Cat. 3; ISO 15066
- Dual-channel redundant monitoring of sensor information and an independently certified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



Safety Architecture

Superior Performance

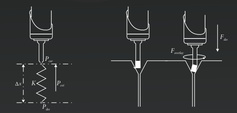
- Cutting-edge motion control technologies for industrial robots: OptiMotion, TrueMotion, and SyncMotion
- First-class robot path accuracy supported by dynamic feedforward compensation and dynamic modeling based on over 2000 parameters
- Payload capacity increased by 20% thanks to the customized motor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



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

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New-Generation
Flexible Collaborative Robot

A Partner You can Rely on in Production



TROY Cobots
4000-988-557
www.Troysupply.com

Mate

Is changing the way all industries produce

The xMate series is a new generation of flexible collaborative robots independently developed. It features an advanced built-in torque sensors in every joint and an industrial-grade control system, delivering enhanced safety, deployment flexibility, lightweight, and ease of use in human-robot interaction.

To address diverse industry requirements, the **TR and TSR series** are launched. Leveraging cutting-edge technol-ogy and a comprehensive product portfolio, these robots expand applications into broader scenarios, becoming a reliable partner in human production and daily life.

Automotive and Auto Parts

TROY INTELLIGENT


TR7-7/0.98


TR12-12/1.4


TR12-20/1.4


TR18-18/1.0


TR20-20/1.8


TR20-25/1.8-5


TR20-17/2.0-5


TR35-35/2.2


TR35-45/1.9


TSR3-3/0.7


TSR4-4/0.9


SR5-5/0.9

Specifications

Payload	7 kg	12 kg	20 kg	18 kg	20 kg	25 kg	17 kg	35 kg	45 kg	3 kg	4 kg	5 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	705 mm	919 mm	919 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	About 13.8 kg	About 16.5 kg	About 16.5 kg
Degrees of freedom	6	6	6	6	6	5	5	6	6	6	6	6
MTBF	> 80000 h*	> 80000h*	> 80000h*	> 80000h*	> 80000h*	> 80000h*	> 80000h*	——	——	>80000h	>80000h	>80000h
Power supply	48VDC	48VDC	48VDC	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	Direct teaching control and graphical interface	Direct teaching control and graphical interface	Direct teaching control and graphical interface

Performance

Typical Power	300 w	500 w	500 w	600 w	1000 w	900 w	600 w	——	——	160 w	225 w	225 w
Safety	Over 21 adjustable safety features including collision detection,virtual walls, and collaboration mode. (Optional for models 35kg and above)									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		
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
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	——	——	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		——	——	0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/rad		0~3000N/m, 0~300Nm/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		±0.05 mm		±0.03 mm		±0.03 mm		±0.03 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
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	±360°	180°/s	±360°	180°/s	±360°	180°/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	-155°~ +140°	180°/s	-160°~ +150°	180°/s	-160°~ +150°	180°/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	-175°~ +135°	180°/s	-170°~ +140°	180°/s	-170°~ +140°	180°/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	±360°	180°/s	±360°	180°/s	±360°	180°/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	±360°	180°/s	±360°	180°/s	±360°	180°/s
Axis 6	±360°	240°/s	±360°	240°/s	±360°	200°/s	±360°	180°/s	±360°	234°/s	——	——	——	——	±360°	228°/s	±360°	228°/s	±360°	180°/s	±360°	180°/s	±360°	180°/s
Maximum speed at tool end	⩽3.2 m/s		⩽3.0 m/s		⩽3.0 m/s		⩽3.0 m/s		⩽3.5 m/s		⩽3.5 m/s		⩽4.0 m/s		⩽6.0 m/s		⩽6.0 m/s		⩽1.5 m/s		⩽2.0 m/s		⩽2.0 m/s	

Physical properties

IP rating	IP67	IP67	IP54
ISO cleanroom class	5	5	5
Noise	⩽ 70 dB(A)	⩽ 85 dB(A)	⩽ 70 dB(A)
Operating ambient temperature	0°C~50°C	0°C~40°C	0°C~50°C
Humidity	⩽ 93% RH (non-condensing)	⩽ 93% RH (non-condensing)	⩽ 93% RH (non-condensing)
Robot installation	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
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)	One 100-megabit Ethernet port with RJ45 interface on the connection base
Tool I/O power supply	12V/24V 1A (rated)	12V/24V 1A (rated)	(1) 12V/24V 1A (2) 5V 1.5A

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.







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.



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