

INTELLIGENT MANUFACTURING EXPERT

STOCK CODE 688165

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**EFORT**

**EFORT**

Creating intelligent robot intelligently, liberating human productivity.



# EFORT ROBOT SELECTION GUIDE

埃夫特机器人产品选型手册

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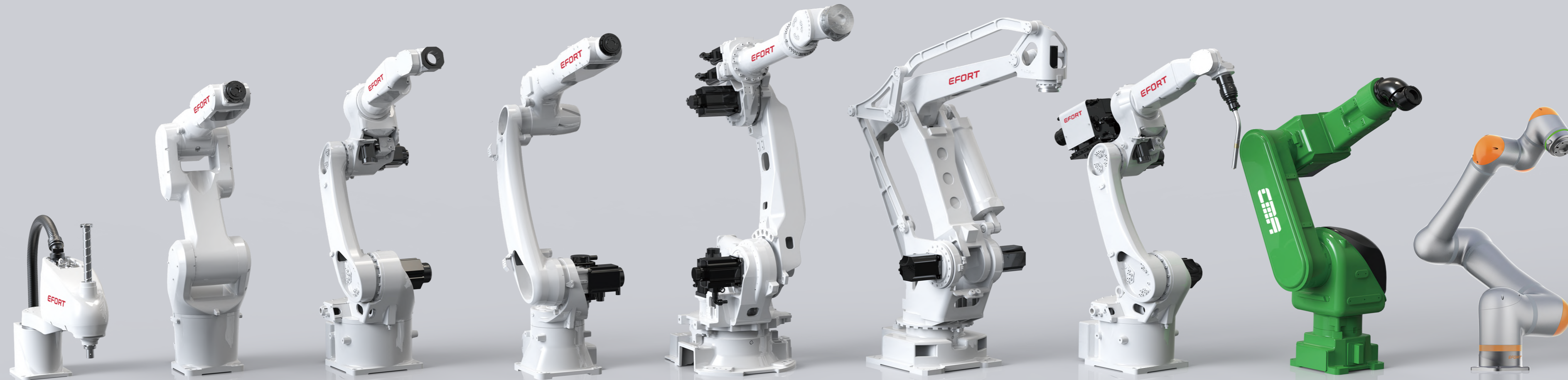
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# EFORT ROBOT FAMILIES

埃夫特机器人家族

**EFORT**  
INTELLIGENT MANUFACTURING EXPERT



「SCARA」

「MINI」

「SMALL PAYLOADS」

「MEDIUM PAYLOADS」

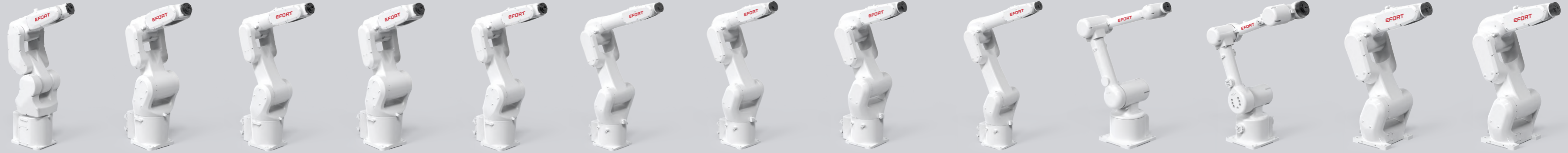
「LARGE PAYLOADS」

「PALLETIZING」

「WELDING」

「PAINTING」

「COLLABORATIVE」



<b>Model</b>		<b>ER3-600</b>	<b>ER8-700H</b>	<b>ER8-900H</b>	<b>ER10-700</b>	<b>ER10-900</b>	<b>ER8-1300</b>	<b>ER10-1100</b>	<b>ER12-900</b>	<b>ER12-1400</b>	<b>ER10-3-900</b>	<b>ER10-4-900</b>	<b>ER16-3-900</b>	<b>ER16-4-900</b>
Controlled axes		6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	3 Axes	4 Axes	3 Axes	4 Axes
Max. payload on wrist		3 kg	8 kg	8 kg	10 kg	10 kg	8 kg	10 kg	12 kg	12 kg	10 kg	10 kg	16 kg	16 kg
Repeatability		±0.02 mm	±0.02 mm	±0.02 mm	±0.02 mm	±0.02 mm	±0.03 mm	±0.025 mm	±0.02 mm	±0.03 mm	±0.05 mm	±0.05 mm	±0.03 mm	±0.03 mm
Robot weight		27 kg	41 kg	43 kg	41 kg	43 kg	80 kg	78 kg	75 kg	90 kg	30 kg	35 kg	56 kg	58 kg
Reach		593 mm	712 mm	910 mm	712 mm	910 mm	1291 mm	1142 mm	944 mm	1391 mm	860 mm	860 mm	944 mm	944 mm
Robot IP grade		IP40	IP65	IP65	IP65 / IP67(Wrist)	IP65 / IP67(Wrist)	IP65 / IP67(Wrist)	IP65 / IP67(Wrist)	IP65 / IP67(Wrist)	IP65 / IP67(Wrist)	IP54	IP54	IP65	IP65
Cabinet IP grade		IP20	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20	IP20	IP20 / IP54(Optional)	IP20 / IP54(Optional)
Installation		Floor, Upside-down, Wall	Floor, Upside-down	Floor, Upside-down	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Upside-down	Upside-down	Upside-down	Upside-down
Maximum speed	J1	400°/ sec	380°/ sec	330°/ sec	330°/ sec	300°/ sec	230°/ sec	230°/ sec	245°/ sec	200°/ sec	300°/ sec	300°/ sec	245°/ sec	245°/ sec
	J2	300°/ sec	330°/ sec	280°/ sec	300°/ sec	255°/ sec	190°/ sec	225°/ sec	225°/ sec	180°/ sec	320°/ sec	320°/ sec	265°/ sec	265°/ sec
	J3	520°/ sec	420°/ sec	360°/ sec	400°/ sec	330°/ sec	240°/ sec	330°/ sec	330°/ sec	220°/ sec	380°/ sec	380°/ sec	400°/ sec	400°/ sec
	J4	500°/ sec	500°/ sec	500°/ sec	450°/ sec	450°/ sec	500°/ sec	500°/ sec	500°/ sec	400°/ sec	/	600°/ sec	/	600°/ sec
	J5	530°/ sec	450°/ sec	450°/ sec	420°/ sec	420°/ sec	420°/ sec	420°/ sec	420°/ sec	420°/ sec	/	/	/	/
	J6	840°/ sec	720°/ sec	720°/ sec	600°/ sec	600°/ sec	720°/ sec	720°/ sec	720°/ sec	600°/ sec	/	/	/	/
Motion range	J1	±170°	±170°	±170°	±170°	±170°	±170°	±170°	±170°	±170°	±130°	±130°	+100°/-130°	+100°/-130°
	J2	+85°/-135°	+100°/-135°	+100°/-135°	+100°/-135°	+100°/-135°	+100°/-130°	+100°/-130°	+100°/-130°	+100°/-130°	+250°/-69°	+250°/-69°	+193°/-75°	+193°/-75°
	J3	+185°/-65°	+200°/-66°	+200°/-75°	+200°/-66°	+200°/-75°	+193°/-75°	+193°/-75°	+193°/-75°	+193°/-75°	±130°	±130°	±120°	±120°
	J4	±190°	±190°	±190°	±190°	±190°	±190°	±190°	±190°	±190°	/	±360°	/	±360°
	J5	±130°	±130°	±130°	±130°	±130°	±120°	±120°	±120°	±120°	/	/	/	/
	J6	±360°	±360°	±360°	±360°	±360°	±360°	±360°	±360°	±360°	/	/	/	/



<b>Model</b>		<b>ER15-1400</b>	<b>ER20-1100</b>	<b>ER12H-1600</b>	<b>ER12H-2000</b>	<b>ER15H-1400</b>	<b>ER12-2100</b>	<b>ER25-1600</b>	<b>ER25-1800</b>	<b>ER25-2300</b>	<b>ER25-2700</b>
Controlled axes		6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes
Max. payload on wrist		15 kg	20 kg	12 kg	12 kg	15 kg	12 kg	25 kg	25 kg	25 kg	25 kg
Repeatability		±0.03 mm	±0.03 mm	±0.03 mm	±0.03 mm*	±0.03 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm
Robot weight		150 kg	145 kg	170 kg	190 kg	165 kg	186 kg	202 kg	204 kg	315 kg	375 kg
Reach		1420 mm	1143 mm	1604 mm	2025 mm	1479 mm	2051 mm	1665 mm	1850 mm	2295 mm	2701 mm
Robot IP grade		IP65 / IP67(Wrist)	IP65 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54
Cabinet IP grade		IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP20 / IP54(Optional)
Installation		Floor, Upside-down, Wall, Angle	Floor, Upside-down, Wall, Angle	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down	Floor, Upside-down
Maximum speed	J1	260°/ sec	260°/ sec	265°/ sec	220°/ sec	265°/ sec	220°/ sec	220°/ sec	220°/ sec	190°/ sec	190°/ sec
	J2	255°/ sec	255°/ sec	255°/ sec	180°/ sec	255°/ sec	180°/ sec	180°/ sec	180°/ sec	190°/ sec	150°/ sec
	J3	210°/ sec	210°/ sec	270°/ sec	210°/ sec	270°/ sec	200°/ sec	200°/ sec	200°/ sec	200°/ sec	200°/ sec
	J4	450°/ sec	450°/ sec	450°/ sec	420°/ sec	450°/ sec	360°/ sec	360°/ sec	360°/ sec	350°/ sec	400°/ sec
	J5	450°/ sec	450°/ sec	450°/ sec	420°/ sec	450°/ sec	420°/ sec	360°/ sec	360°/ sec	360°/ sec	400°/ sec
	J6	600°/ sec	600°/ sec	700°/ sec	700°/ sec	700°/ sec	600°/ sec	410°/ sec	410°/ sec	410°/ sec	400°/ sec
Motion range	J1	±170°	±170°	±170°	±170°	±170°	±170°	±170°	±170°	±173°	±173°
	J2	+90°/-160°	+83°/-160°	+85°/-150°	+77°/-160°	+85°/-150°	+77°/-160°	+77°/-160°	+77°/-160°	+105°/-141°	+70°/-150°
	J3	+175°/-85°	+175°/-85°	+175°/-85°	+175°/-85°	+175°/-85°	+165°/-85°	+165°/-85°	+165°/-85°	+200°/-78°	+147°/-90°
	J4	±190°	±190°	±190°	±190°	±190°	±190°	±190°	±190°	±190°	±190°
	J5	±130°	±130°	±190° <sup>(The connect outside robot body.)</sup> ±140° <sup>(The connect inside robot body.)</sup>	±190° <sup>(The connect outside robot body.)</sup> ±140° <sup>(The connect inside robot body.)</sup>	±190° <sup>(The connect outside robot body.)</sup> ±140° <sup>(The connect inside robot body.)</sup>	±120°	±130°	±130°	±130°	±130°
	J6	±360°	±360°	±450° <sup>(The connect outside robot body.)</sup> ±220° <sup>(The connect inside robot body.)</sup>	±450° <sup>(The connect outside robot body.)</sup> ±220° <sup>(The connect inside robot body.)</sup>	±450° <sup>(The connect outside robot body.)</sup> ±220° <sup>(The connect inside robot body.)</sup>	±360°	±360°	±360°	±360°	±360°

\* The repeated positioning accuracy follows the measurement results of ISO 9283 Performance Specification and Test Methods for Industrial Robots, and the average accuracy results obtained on multiple robots at constant ambient temperature.



<b>Model</b>		<b>ER35-1800</b>	<b>ER35-1900</b>	<b>ER35-2700</b>	<b>ER50-2700</b>	<b>ER50-1900</b>	<b>ER50-2100</b>	<b>ER70-2100</b>
Controlled axes		6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes	6 Axes
Max. payload on wrist		35 kg	35 kg	35 kg	50 kg	50 kg	50 kg	70 kg
Repeatability		±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.05 mm	±0.06 mm	±0.06 mm
Robot weight		240 kg	275 kg	610 kg	615 kg	326 kg	610 kg	610 kg
Reach		1851 mm	1875 mm	2711 mm	2750 mm	1855 mm	2146 mm	2146 mm
Robot IP grade		IP54	IP54 / IP67(Wrist)	IP54	IP54	IP54	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)
Cabinet IP grade		IP20 / IP54(Optional)	IP20 / IP54(Optional)	IP54	IP54	IP20 / IP54(Optional)	IP54	IP54
Installation		Floor, Upside-down	Floor, Upside-down	Floor	Floor	Floor, Upside-down	Floor	Floor
Maximum speed	J1	220°/ sec	190°/ sec	190°/ sec	180°/ sec	190°/ sec	170°/ sec	190°/ sec
	J2	180°/ sec	190°/ sec	190°/ sec	180°/ sec	190°/ sec	170°/ sec	150°/ sec
	J3	200°/ sec	200°/ sec	180°/ sec	165°/ sec	200°/ sec	170°/ sec	186°/ sec
	J4	350°/ sec	350°/ sec	350°/ sec	300°/ sec	300°/ sec	270°/ sec	300°/ sec
	J5	350°/ sec	350°/ sec	270°/ sec	225°/ sec	270°/ sec	270°/ sec	280°/ sec
	J6	410°/ sec	400°/ sec	400°/ sec	360°/ sec	400°/ sec	365°/ sec	400°/ sec
Motion range	J1	±170°	±173°	±180°	±180°	±173°	±180°	±180°
	J2	+77°/-160°	+105°/-141°	+70°/-135°	+70°/-135°	+105°/-141°	+70°/-130°	+70°/-130°
	J3	+156°/-85°	+200°/-78°	+170°/-80°	+170°/-80°	+200°/-78°	+175°/-80°	+175°/-80°
	J4	±190°	±190°	±200°	±200°	±190°	±360°	±360°
	J5	±130°	±130°	±120°	±120°	±120°	±115°	±115°
	J6	±360°	±360°	±360°	±360°	±360°	±450°	±450°











COLLABORATIVE



WELDING



PALLETIZING



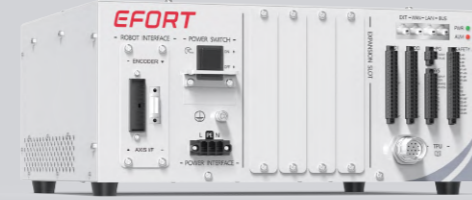
PAINTING



Model		ECR5	ARC10-1600	ARC12-1400	ARC12-2000	ER15-4-1600	ER130-4-2800	ER180-4-3200	GR630-1900	GR680-2700	GR6100-3800	GR6160-3200
Controlled axes		6 Axes	6 Axes	6 Axes	6 Axes	4 Axes	4 Axes	4 Axes	6 Axes	6 Axes	6 Axes	6 Axes
Max. payload on wrist		5 kg	10 kg	12 kg	12 kg	15 kg	130 kg	180 kg	3 kg	8 kg	10 kg	16 kg
Repeatability		±0.03 mm	±0.03 mm	±0.03 mm	±0.03 mm	±0.07 mm	±0.1 mm	±0.1 mm	±1 mm	±0.2 mm	±0.2 mm	±0.15 mm
Robot weight		20.5 kg	170 kg	165 kg	190 kg	180 kg	970 kg	1350 kg	400 kg	450 kg	950 kg	600 kg
Reach		928 mm	1604 mm	1479 mm	2025 mm	1625 mm	2816 mm	3160 mm	1929 mm	2715 mm	3750 mm	3240 mm
Robot IP grade		IP54	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54 / IP67(Wrist)	IP54 / IP65(Wrist)	IP54 / IP65(Optional)	IP54 / IP65(Optional)	IP65	IP65	IP65	IP65
Cabinet IP grade		IP40	IP54	IP54	IP54	IP20 / IP54(Optional)	IP54	IP54	IP52	IP54	IP54	IP54
Installation		Floor, Upside-down, Wall, Angle	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor, Upside-down, Wall	Floor	Floor	Floor	Floor, Upside-down	Floor, Upside-down, Wall(Optional)	Floor, Upside-down	Floor
Maximum speed	J1	150°/sec	265°/sec	265°/sec	220°/sec	175°/sec	110°/sec	104°/sec	120°/sec	150°/sec	130°/sec	140°/sec
	J2	150°/sec	255°/sec	255°/sec	180°/sec	165°/sec	110°/sec	104°/sec	120°/sec	145°/sec	150°/sec	140°/sec
	J3	150°/sec	270°/sec	270°/sec	210°/sec	155°/sec	105°/sec	104°/sec	120°/sec	150°/sec	150°/sec	165°/sec
	J4	180°/sec	450°/sec	450°/sec	420°/sec	330°/sec	330°/sec	210°/sec	540°/sec	500°/sec	600°/sec	500°/sec
	J5	180°/sec	450°/sec	450°/sec	420°/sec	/	/	/	540°/sec	500°/sec	600°/sec	350°/sec
	J6	180°/sec	700°/sec	700°/sec	700°/sec	/	/	/	540°/sec	720°/sec	720°/sec	900°/sec
Motion range	J1	±180°	±170°	±170°	±170°	±165°	±180°	±180°	±120°	±175°	±155°	±180°
	J2	±180°	+85°/-150°	+85°/-150°	+77°/-160°	+40°/-85°	+42°/-85°	+40°/-86°	±70°	+80°/-150°	+75°/-145°	+70°/-135°
	J3	±160°	+175°/-85°	+175°/-85°	+175°/-85°	+100°/-70°	+85°/-55°	+60°/-52°	+60°/-45°	+125°/-80°	+105°/-75°	+175°/-80°
	J4	±180°	±190°	±190°	±190°	±360°	±360°	±360°	±360°	±360°	±360°	±360°
	J5	±180°	±190° <sup>(The connect outside robot body.)</sup> ±140° <sup>(The connect inside robot body.)</sup>	±190° <sup>(The connect outside robot body.)</sup> ±140° <sup>(The connect inside robot body.)</sup>	±190° <sup>(The connect outside robot body.)</sup> ±140° <sup>(The connect inside robot body.)</sup>	/	/	/	±360°	±360°	±360°	±120°
	J6	±360°	±450° <sup>(The connect outside robot body.)</sup> ±220° <sup>(The connect inside robot body.)</sup>	±450° <sup>(The connect outside robot body.)</sup> ±220° <sup>(The connect inside robot body.)</sup>	±450° <sup>(The connect outside robot body.)</sup> ±220° <sup>(The connect inside robot body.)</sup>	/	/	/	±360°	±360°	±360°	±360°
	J2+J3	/	/	/	/	-90°≤(J2+J3)≤+15°	-115°<(J2+J3)<+20°	-106°<(J2+J3)<+23°	/	/	/	/

\* The repeated positioning accuracy follows the measurement results of ISO 9283 Performance Specification and Test Methods for Industrial Robots, and the average accuracy results obtained on multiple robots at constant ambient temperature.





Model		C-Cabinet	S-Cabinet	M-Cabinet
Main power supply	Rated voltage	Single AC220V±10%	Single/Three-phase AC220V±10%	Three-phase AC380V±10%
	Rated frequency	50/60 Hz	50/60 Hz	50/60 Hz
	Power capacity	Max.2.5 kVA	Max.5 kVA	Max.12 kVA
I/O	Rated voltage	DC24 V	DC24 V	DC24 V
	Type	PNP/NPN optional	PNP/NPN optional	PNP/NPN optional
	DI	16 standard, Maximum extension to 64	16 standard, Maximum extension to 64	16 standard, Maximum extension to 80
	DO	16 standard, Maximum extension to 64	16 standard, Maximum extension to 64	16 standard, Maximum extension to 80
Communication Protocol	LAN network port	For TCP/IP, Modbus TCP Slave, Ethernet/IP Slave	For TCP/IP, Modbus TCP Slave, Ethernet/IP Slave	For TCP/IP, Modbus TCP Slave, Ethernet/IP Slave
	WAN network port	For TCP/IP, Modbus TCP Slave, Ethernet/IP Slave	For TCP/IP, Modbus TCP Slave, Ethernet/IP Slave	For TCP/IP, Modbus TCP Slave, Ethernet/IP Slave
	EtherCAT network port	For expansion of external axes, expansion of gateway modules, expansion of remote IO modules	For expansion of external axes, expansion of gateway modules, expansion of remote IO modules	For expansion of external axes, expansion of gateway modules, expansion of remote IO modules
	F-Bus network port(Optional)	For EtherCAT Slave, PROFINET Slave	For EtherCAT Slave, PROFINET Slave	For EtherCAT Slave, PROFINET Slave
	CAN network port(Optional)	For CANopen, DeviceNet protocol, adaptation for welding machine communication	For CANopen, DeviceNet protocol, adaptation for welding machine communication	For CANopen, DeviceNet protocol, adaptation for welding machine communication
	RS232 network port (Optional)	For serial communication	For serial communication	For serial communication
	IP grade	IP20	IP20 / IP54	IP54
Cabinet size (width×depth×height)		319×377×175 (mm)	IP20:430×437×188 (mm)	700×577×1045 (mm)
			IP54:440×606×229 (mm)	
Cabinet weight		10 kg	IP20:17.4 kg	125 kg
			IP54:28 kg	
Extension axes	Extension cadinet-IP20	/	Single-phase AC220V±10%, up to 2 extension axes, supported motor power: 1kW, 2kW	/
	Extension cadinet-IP54	/	Three-phase AC380V±10%, up to 4 extension axes, supported motor power: 1kW, 2kW, 3kW, 5kW	Three-phase AC380V±10%, up to 3 extension axes, supported motor power: 1kW, 3kW, 5kW, 5.5kW

*EFORT*



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