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INOVANCE
汇川技术

Inovance Robot Selection Guide



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FORWARD, ALWAYS PROGRESSING

Robot Product Family

6-Axis Robot

IRS311-3 Series	P 3	IR-R4 Series	P 5	IR-R4H (hollow wrist)	P 7	IRS311-7 Series	P 9	IR-R11 Series	P 11	IR-R10 Series	P 13	IR-R20 Series	P 15	IR-R50 Series	P 17	IR-R60/80 Series	P 19
																	
Load 3 kg		Load 4 kg		Load 4 kg		Load 7 kg		Load 10 kg / 11.3 kg		Load 10 kg		Load 20 kg / 10 kg		Load 50 kg		Load 60 kg / 80 kg	
Arm length 638 mm		Arm length 560.6 mm		Arm length 545.7 mm		Arm length 717 mm / 911 mm		Arm length 1101.6 mm / 901.9 mm		Arm length 1422 mm		Arm length 1723 mm / 2045 mm		Arm length 2500 mm		Arm length 2109 mm	
Model IRS311-3-60TS5		Model IR-R4-56S5		Model IR-R4H-54S5		Model IRS311-7-70TS5 IRS311-7-90TS5		Model IR-R11-90S5 IR-R10-110S5		Model IR-R10-140S5-B1		Model IR-R20-170S5-B1 IR-R10-200S5-B1		Model IR-R50-250S7		Model IR-R60-210S5 IR-R80-210S5	

SCARA Robot

IR-S4 Series	P 21	IR-S7 Series	P 23	IR-S10 Series	P 25	IR-S20 Series	P 27	IR-GS20 Series	P 29	IR-S50 Series	P 31	IR-TS4 Series	P 33	IR-TS5 Series	P 35
															
Load 4 kg		Load 7 kg		Load 10 kg		Load 20 kg		Load 20 kg		Load 50 kg		Load 4 kg		Load 5 kg	
Arm length 400 mm		Arm length 500 mm / 600 mm / 700 mm		Arm length 600 mm / 700 mm / 800 mm		Arm length 800 mm / 1000 mm		Arm length 800 mm / 1000 mm		Arm length 1200 mm		Arm length 350 mm		Arm length 550 mm	
Model IR-S4-40Z15S3		Model IR-S7-50Z20S3 IR-S7-60Z20S3 IR-S7-70Z20S3		Model IR-S10-60Z20S3 IR-S10-70Z20S3 IR-S10-80Z20S3		Model IR-S20-80Z42S3 IR-S20-100Z42S3		Model IR-GS20-80Z42S3 IR-GS20-100Z42S3		Model IR-S50-120Z40S3-B1		Model IR-TS4-35Z15S3		Model IR-TS5-55Z15S3	
															
Load 8 kg		Load 8 kg													
Arm length 620 mm		Arm length 500 mm													
Model IR-C8-62Z20S3-A1		Model IRS11-8-50TS5													

6-Axis Robot

IRS311-3 Series

Agile robots featuring high speed, repeatability and power, enabling flexible manufacturing with high precision at high speed.

Scope of Application

Handling, sorting, dispensing, and assembly in industries including 3C (Computer, Communication, Consumer Electronics) and automobile.

Features

Load	3 kg
Arm length	638 mm
Repeatability	±0.02 mm
IP rating	IP40 (IP67 optional)



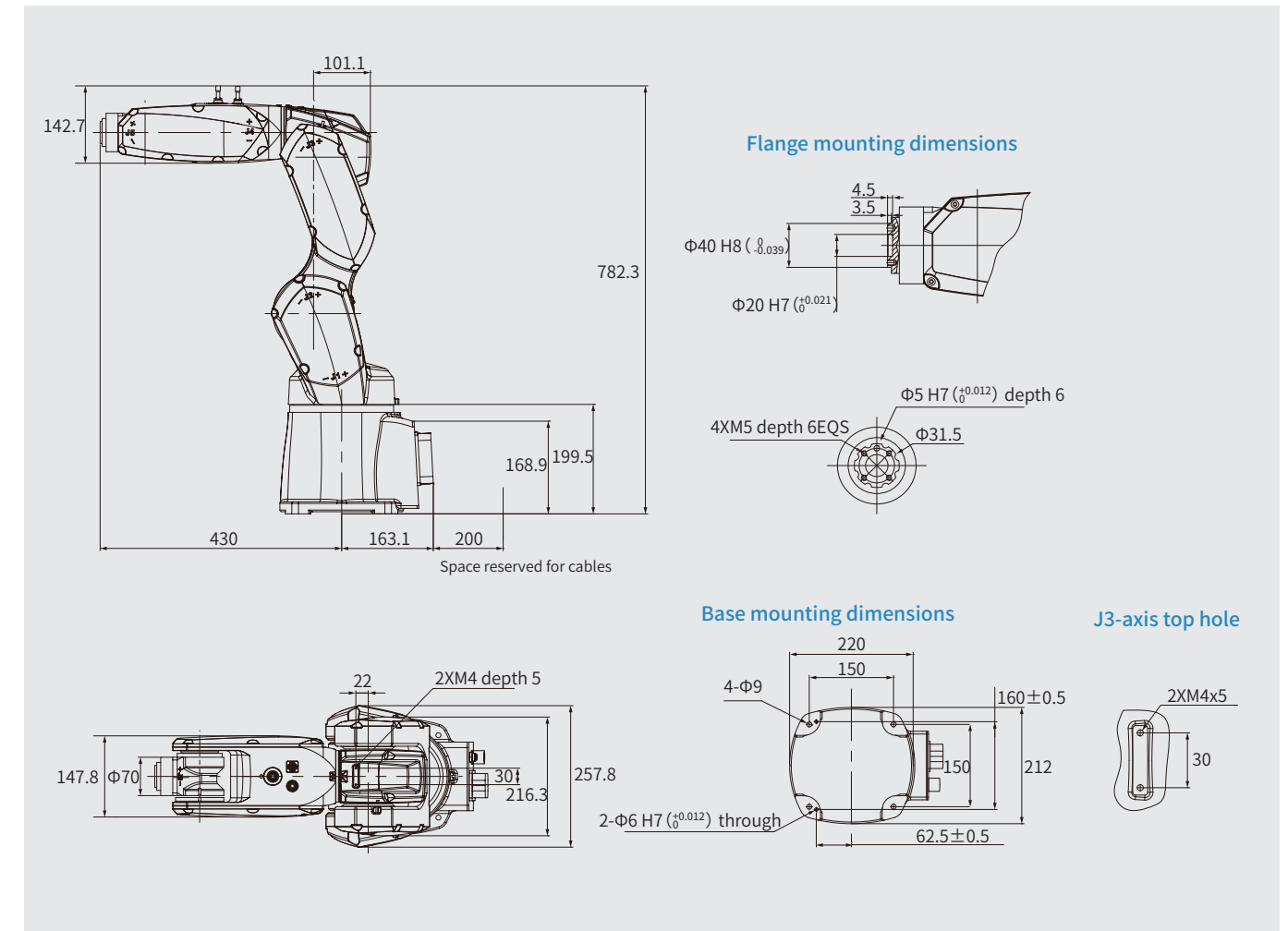
Technical Data

Item	IRS311-3-60TS5	
Maximum reach	638 mm	
Maximum wrist load	3 kg	
IP rating	IP40 (IP67 optional)	
Repeatability	±0.02 mm	
Weight	35 kg	
Maximum speed	J1	440° /s
	J2	420° /s
	J3	500° /s
	J4	600° /s
	J5	600° /s
	J6	900° /s
Maximum motion range	J1	-170° to +170°
	J2	-145° to +78°
	J3	-71° to +173°
	J4	-200° to +200°
	J5	-120° to +120°
	J6	-360° to +360°
Maximum power	1.4 kW	
Customer connections	Wiring ¹	12 signal lines, 30 V, 0.5 A
	Air ²	Φ6 mm x 2, 0.59 MPa
Operating conditions	Ambient temperature	0° C to 45° C
	Relative humidity	5% to 95% RH (non-condensing)
Matching controller	IRCB500 drive-control integrated controller	
Mounting mode	Floor mounted	

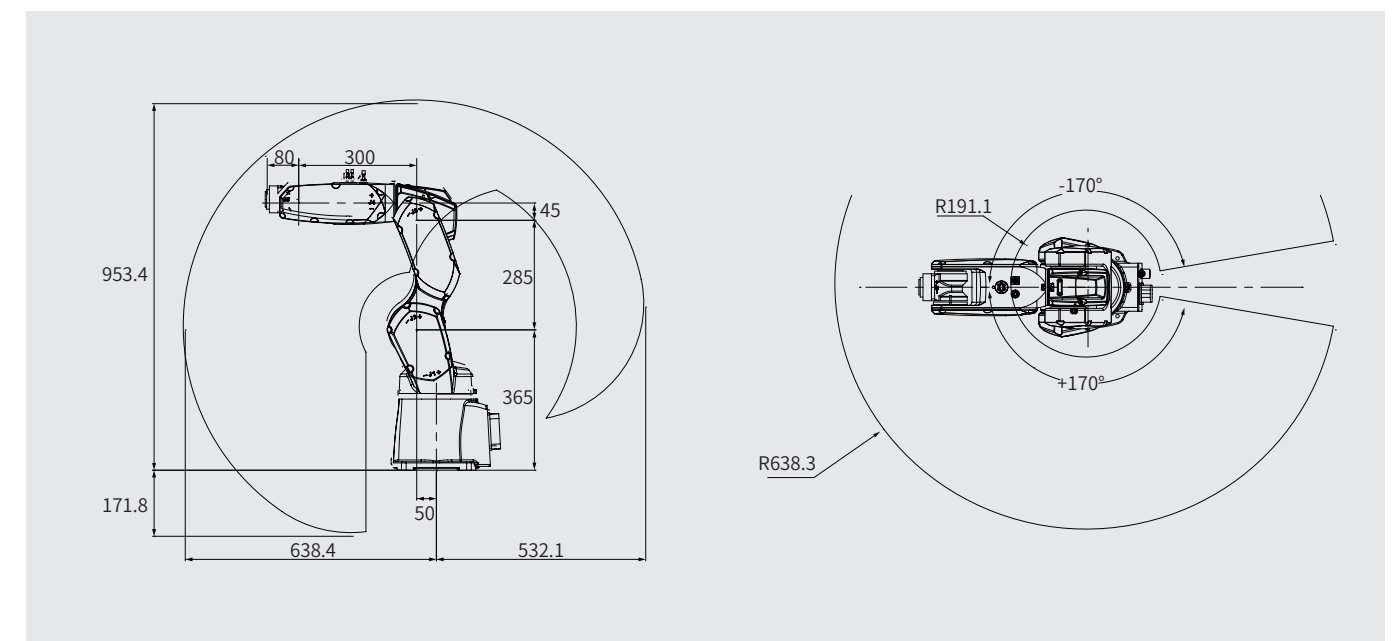
*1: Aviation connectors on fore arm and I/O cables on base of IRS311-3 series robots are optional. For details, contact Inovance technical support.

*2: IRS311-3 series robots can be configured with up to two optional solenoid valves. For details, contact Inovance technical support.

Mounting Dimensions(mm)



Motion Range (mm)



6-Axis Robot

IR-R4 Series

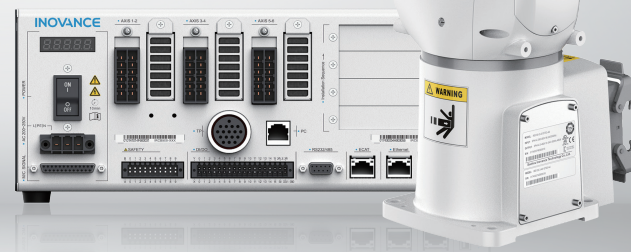
Robots featuring compact structure, with overall height and structural height reaching a new level in the industry, and short cycle time to adapt to a range of application scenarios.

Scope of Application

Handling and loading/unloading in 3C industry; handling in the photovoltaic industry; and assembly and dispensing.

Features

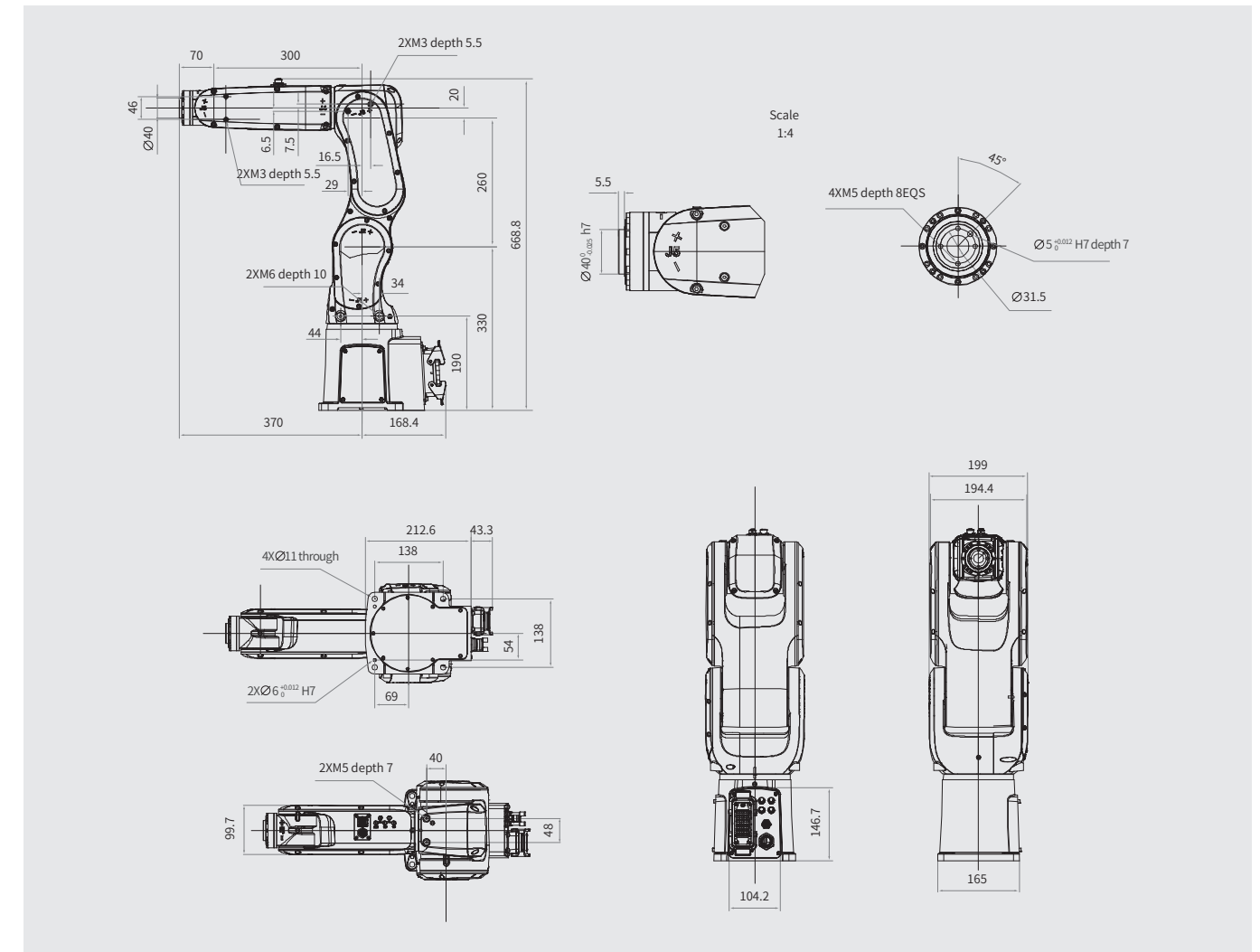
Load	4 kg
Arm length	560.6 mm
Repeatability	±0.01 mm
IP rating	IP40 (IP67 optional)



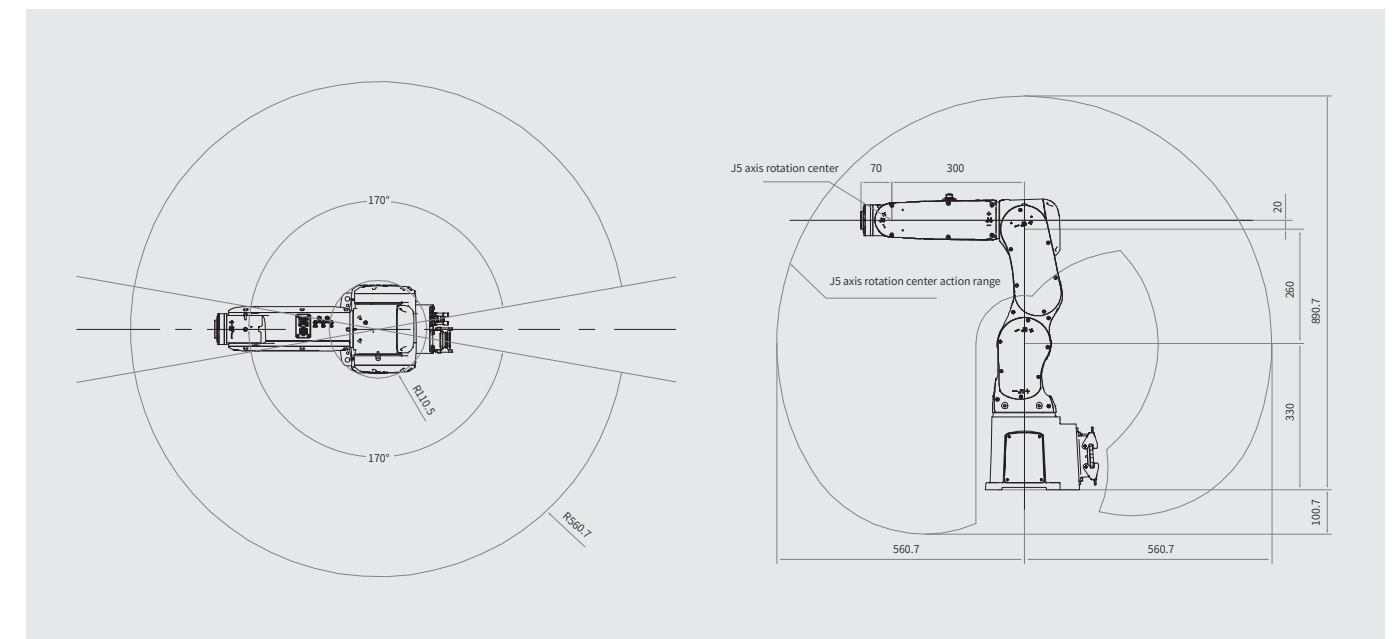
Technical Data

Model		IR-R4-56S5
Structural style	Vertical axis cascading structure	
Number of Axes	6 axes	
Maximum reach	560.6 mm	
Repeatability	±0.01 mm	
Maximum load	4 kg	
Axis Motion Velocity	J1	460° /s
	J2	460° /s
	J3	520° /s
	J4	560° /s
	J5	560° /s
	J6	900° /s
Axis Motion Range	J1	±170°
	J2	-120° to +110°
	J3	-69° to +205°
	J4	±190°
	J5	±120°
	J6	±360°
Allowed wrist torque	J4	8.86 Nm
	J5	8.86 Nm
	J6	4.9 Nm
Allowed wrist inertia	J4	0.2 kgm ²
	J5	0.2 kgm ²
	J6	0.067 kgm ²
Environment	Operating ambient temperature	0° C to 45° C
	Ambient humidity	5% to 95% RH (non-condensing)
	Maximum Temperature Gradient	1.5° C/min
IP rating	IP40 (IP67 optional)	
Weight	24 kg	

Mounting Dimensions(mm)



Motion Range(mm)



6-Axis Robot

IR-R4H (hollow wrist)

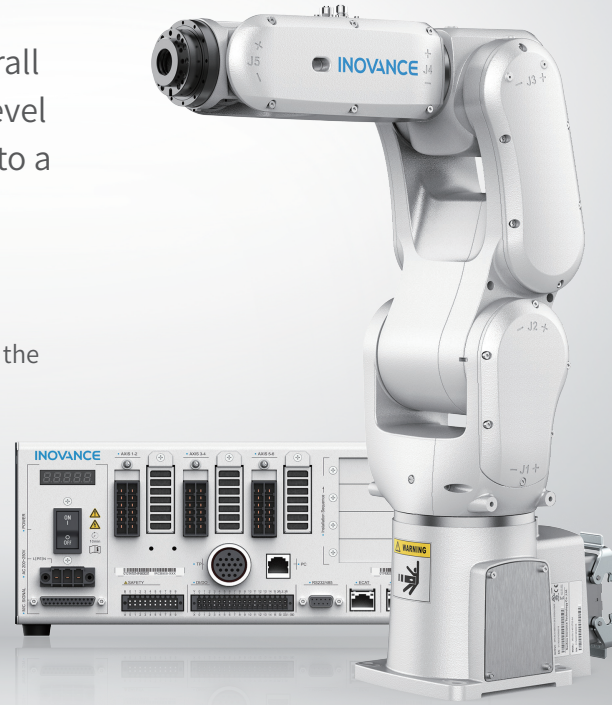
Robots featuring compact structure, with overall height and structural height reaching a new level in the industry, and short cycle time to adapt to a range of application scenarios.

Scope of Application

Handling and loading/unloading in 3C industry; handling in the photovoltaic industry; and assembly and dispensing.

Features

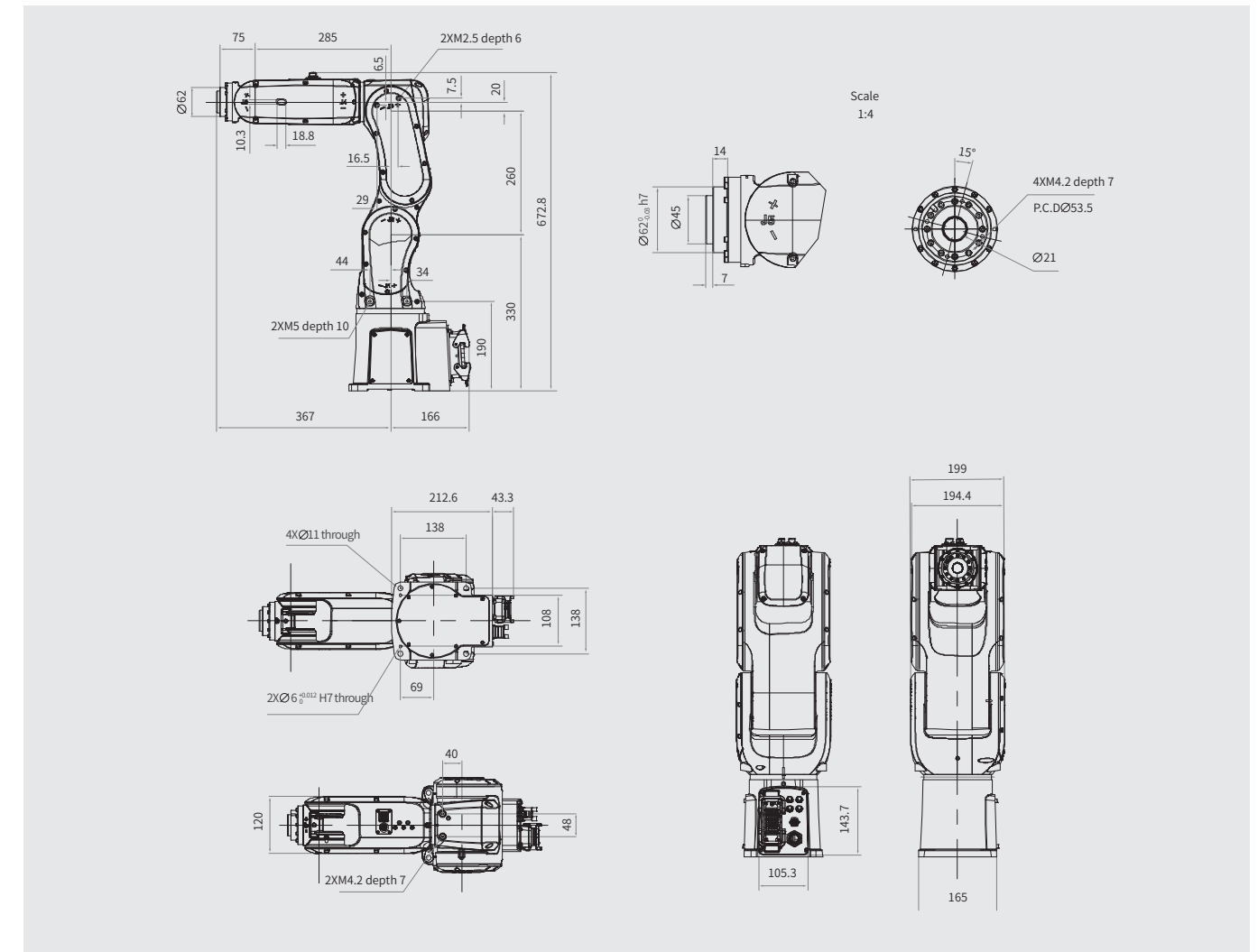
Load	4 kg
Arm length	545.7 mm
Repeatability	±0.02 mm
IP rating	IP40 (IP67 optional)



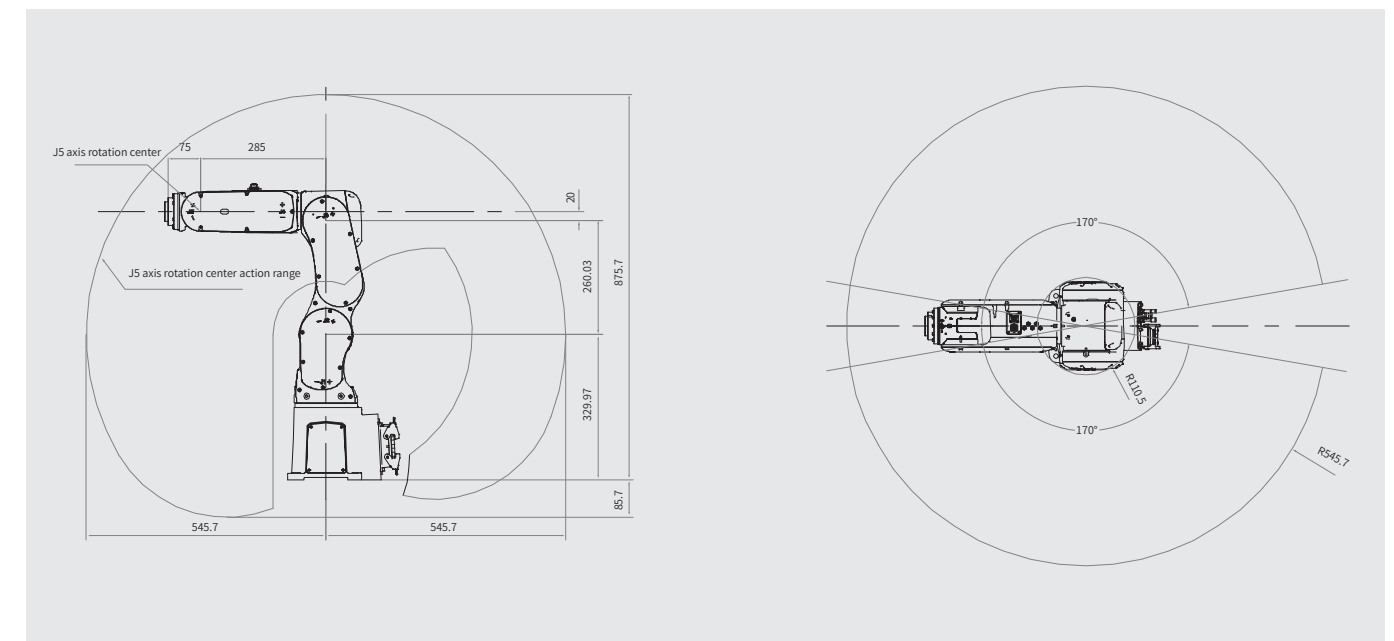
Technical Data

Model		IR-R4H-54S5
Structural style	Vertical axis cascading structure	
Number of Axes	6 axes	
Maximum reach	545.7 mm	
Repeatability	±0.02 mm	
Maximum load	4 kg	
Axis Motion Velocity	J1	460° /s
	J2	460° /s
	J3	520° /s
	J4	560° /s
	J5	560° /s
	J6	900° /s
Axis Motion Range	J1	±170°
	J2	-120° to +110°
	J3	-65° to +195°
	J4	±190°
	J5	±120°
	J6	±360°
Allowed wrist torque	J4 Axis	8.86 Nm
	J5	8.86 Nm
	J6	4.9 Nm
	J4	0.2 kgm ²
Allowed wrist inertia	J5	0.2 kgm ²
	J6	0.067 kgm ²
	Environment	
Operating ambient temperature	0° C to 45° C	
Ambient humidity	5% to 95% RH (non-condensing)	
Maximum Temperature Gradient	1.5° C/min	
IP rating	IP40 (IP67 optional)	
Weight	24.5 kg	

Mounting Dimensions(mm)



Motion Range(mm)



6-Axis Robot

IRS311-7 Series

Highly compact, rigid, flexible and agile robots featuring hollow wrist structure to simplify the wiring process and prevent the production environment from being affected by abrasion of wiring pipes.

Scope of Application

Assembly, labeling, SMT, dispensing, material insertion, soldering, sorting, grinding, polishing, and more.

Features

Load	7 kg
Arm length	717 mm / 911 mm
Repeatability	±0.02 mm / ±0.03 mm
IP rating	IP65



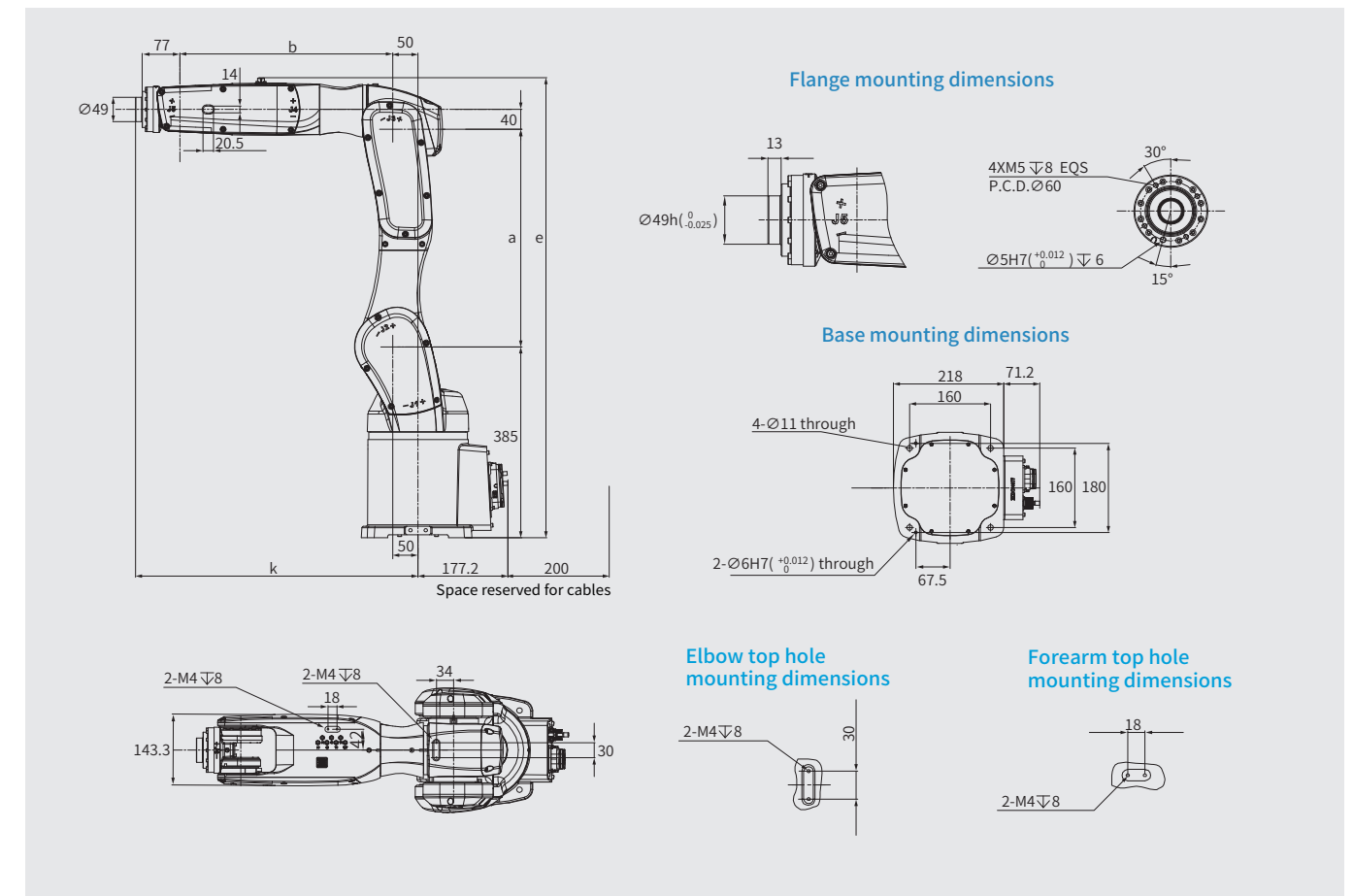
Technical Data

Item		IRS311-7-70TS5	IRS311-7-90TS5
Maximum reach		717 mm	911 mm
Maximum wrist load		7 kg	7 kg
IP rating		IP65	IP65
Repeatability		±0.02 mm	±0.03 mm
Weight		38 kg	40 kg
Maximum speed	J1	450° /s	300° /s
	J2	380° /s	280° /s
	J3	520° /s	360° /s
	J4	550° /s	550° /s
	J5	550° /s	550° /s
	J6	1000° /s	620° /s
Maximum motion range	J1	-170° to +170°	-170° to +170°
	J2	-135° to +80°	-125° to +80°
	J3	-70° to +190°	-70° to +190°
	J4	-190° to +190°	-190° to +190°
	J5	-120° to +120°	-120° to +120°
	J6	-360° to +360°	-360° to +360°
Maximum power		1.7 kW	1.7 kW
Customer connections	Wiring ^{*1}	12 signal lines, 30 V, 0.5 A	12 signal lines, 30 V, 0.5 A
	Air ^{*2}	Φ4 mm x 2, 0.59 MPa	Φ4 mm x 2, 0.59 MPa
Operating conditions	Ambient temperature	0° C to 45° C	0° C to 45° C
	Relative humidity	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)
Matching controller		IRCB500 drive-control integrated controller	
Mounting mode		Floor mounted	

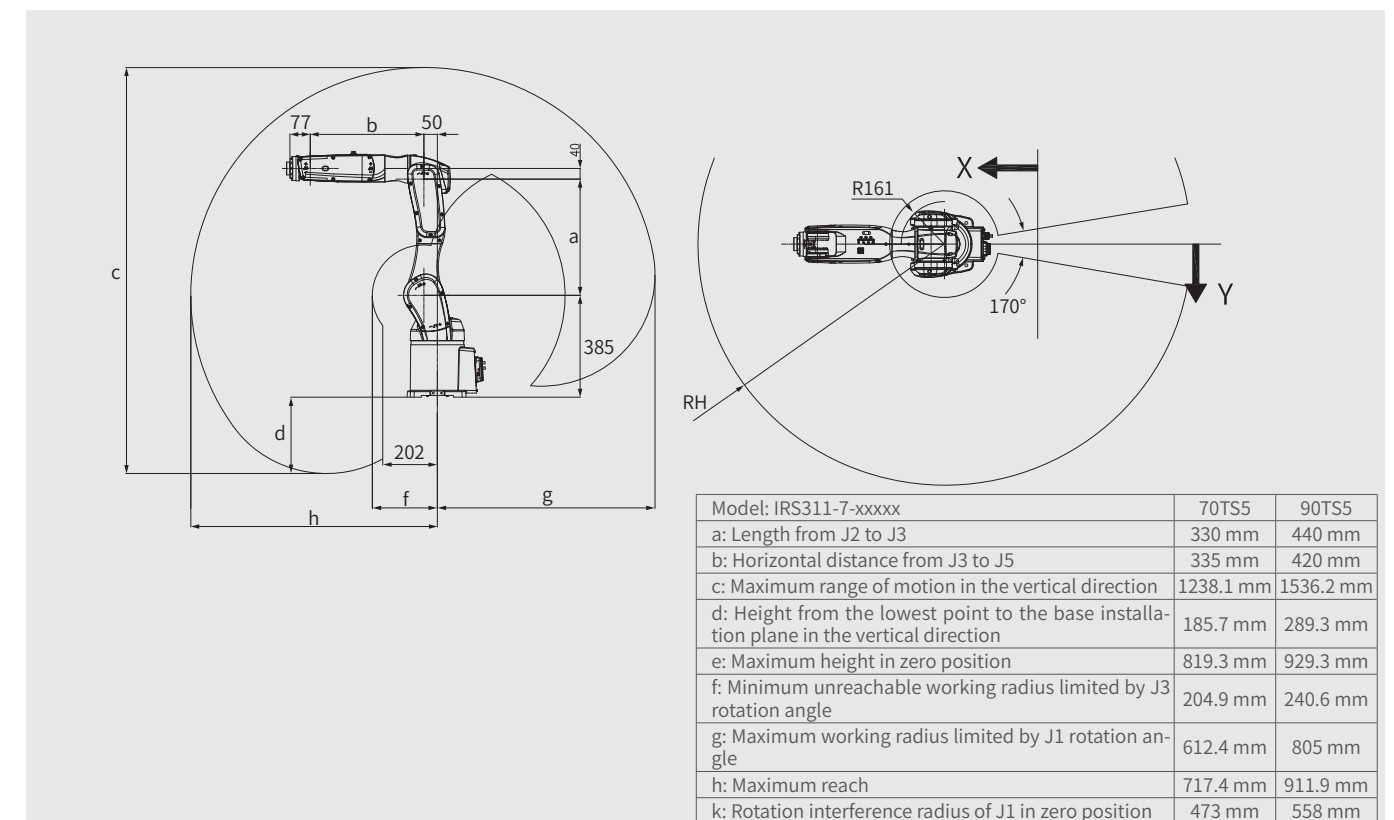
*1: Aviation connectors on fore arm and I/O cables on base of IRS311-7 series robots are optional. For details, contact Inovance technical support.

*2: IRS311-7 series robots can be configured with up to two optional solenoid valves. For details, contact Inovance technical support.

Mounting Dimensions(mm)



Motion Range(mm)



6-Axis Robot

IR-R11 Series

Robots featuring compact structure, with overall height and structural height reaching a new level in the industry, and short cycle time to adapt to a range of application scenarios.

Scope of Application

Handling and loading/unloading in 3C industry; handling in the photovoltaic industry; and assembly and dispensing.

Features

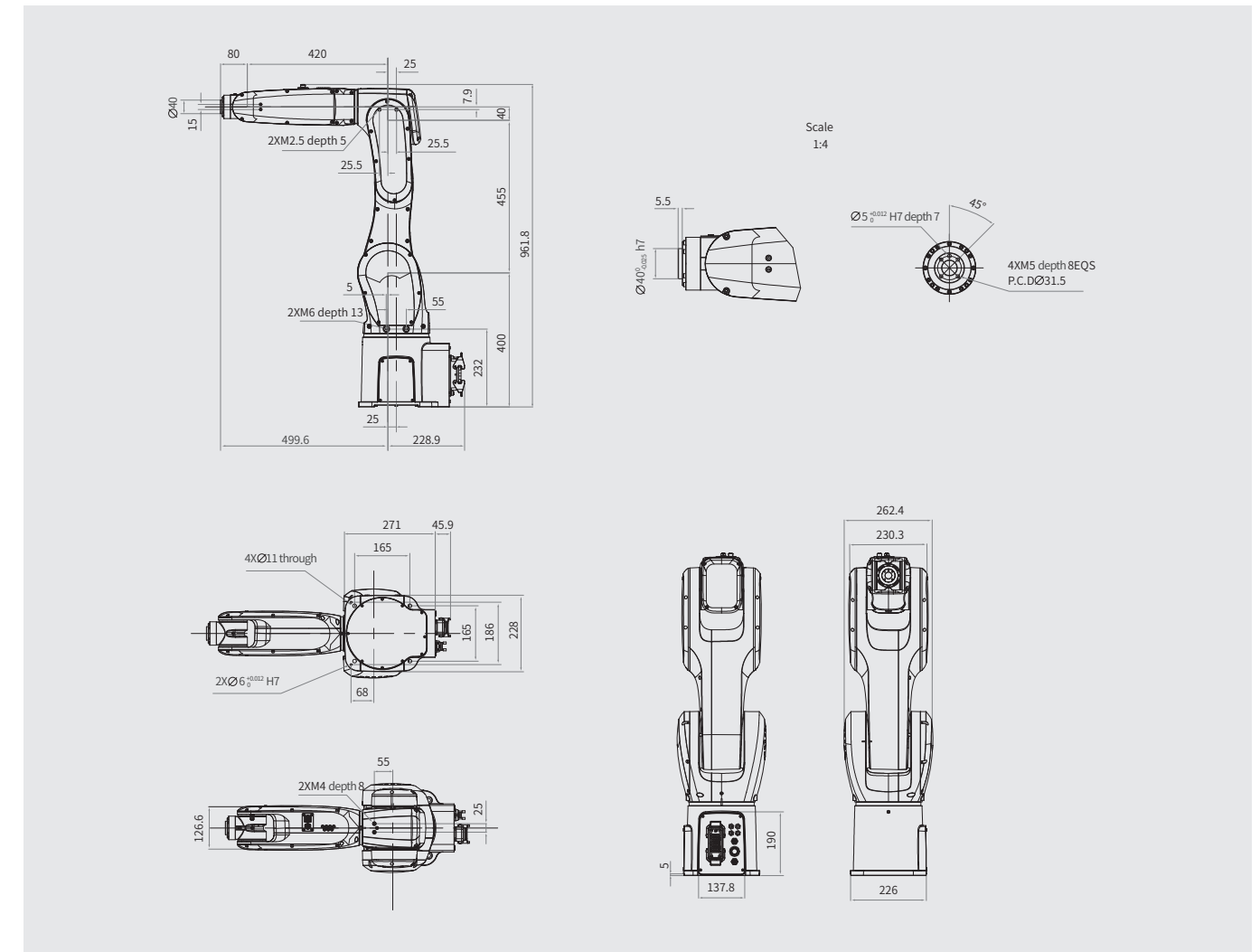
Load	10 kg / 11.3 kg
Arm length	1101.6 mm / 901.9 mm
Repeatability	±0.02 mm
IP rating	IP40 (IP67 optional)



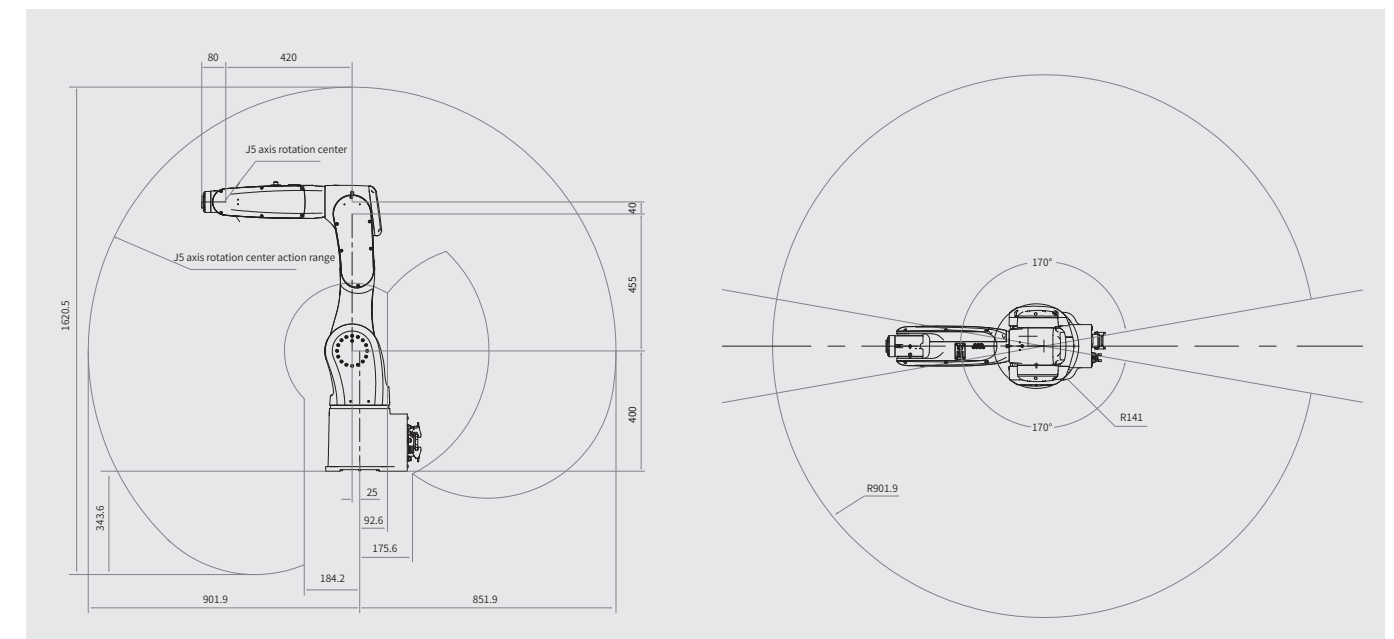
Technical Data

Model	IR-R10-110S5	IR-R11-90S5	
Structural style	Vertical axis cascading structure	Vertical axis cascading structure	
Number of Axes	6 axes	6 axes	
Maximum reach	1101.6 mm	901.9 mm	
Repeatability	±0.02 mm	±0.02 mm	
Maximum load	10 kg	11.3 kg	
Axis Motion Velocity	J1	300° /s	300° /s
	J2	225° /s	225° /s
	J3	330° /s	330° /s
	J4	450° /s	450° /s
	J5	420° /s	420° /s
	J6	720° /s	720° /s
Axis Motion Range	J1	±170°	±170°
	J2	+100° to -135°	+100° to -135°
	J3	-66° to +210°	-66° to +210°
	J4	±190°	±190°
	J5	±125°	±125°
	J6	±360°	±360°
Allowed wrist torque	J4 Axis	18.59 Nm	20.45 Nm
	J5	18.59 Nm	20.45 Nm
	J6	9.8 Nm	10.8 Nm
Allowed wrist inertia	J4	0.6 kgm ²	0.6 kgm ²
	J5	0.6 kgm ²	0.6 kgm ²
	J6	0.2 kgm ²	0.2 kgm ²
Environment	Operating ambient temperature	0° C to 45° C	0° C to 45° C
	Ambient humidity	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)
	Maximum Temperature Gradient	1.5° C/min	1.5° C/min
IP rating	IP40 (IP67 optional)	IP40 (IP67 optional)	
Weight	47 kg	45 kg	

Mounting Dimensions(mm)



Motion Range(mm)



6-Axis Robot

IR-R10 Series

Aesthetically designed robots with high motion speed and rigidity, together with dedicated motor and controller, providing customers with cost-effective solutions.

Scope of Application

Handling, machine loading/unloading, dispensing, deburring, grinding, polishing, welding, and more.

Features

Load	10 kg
Arm length	1422 mm
Repeatability	±0.05 mm
IP rating	IP65 (IP67 for wrist)

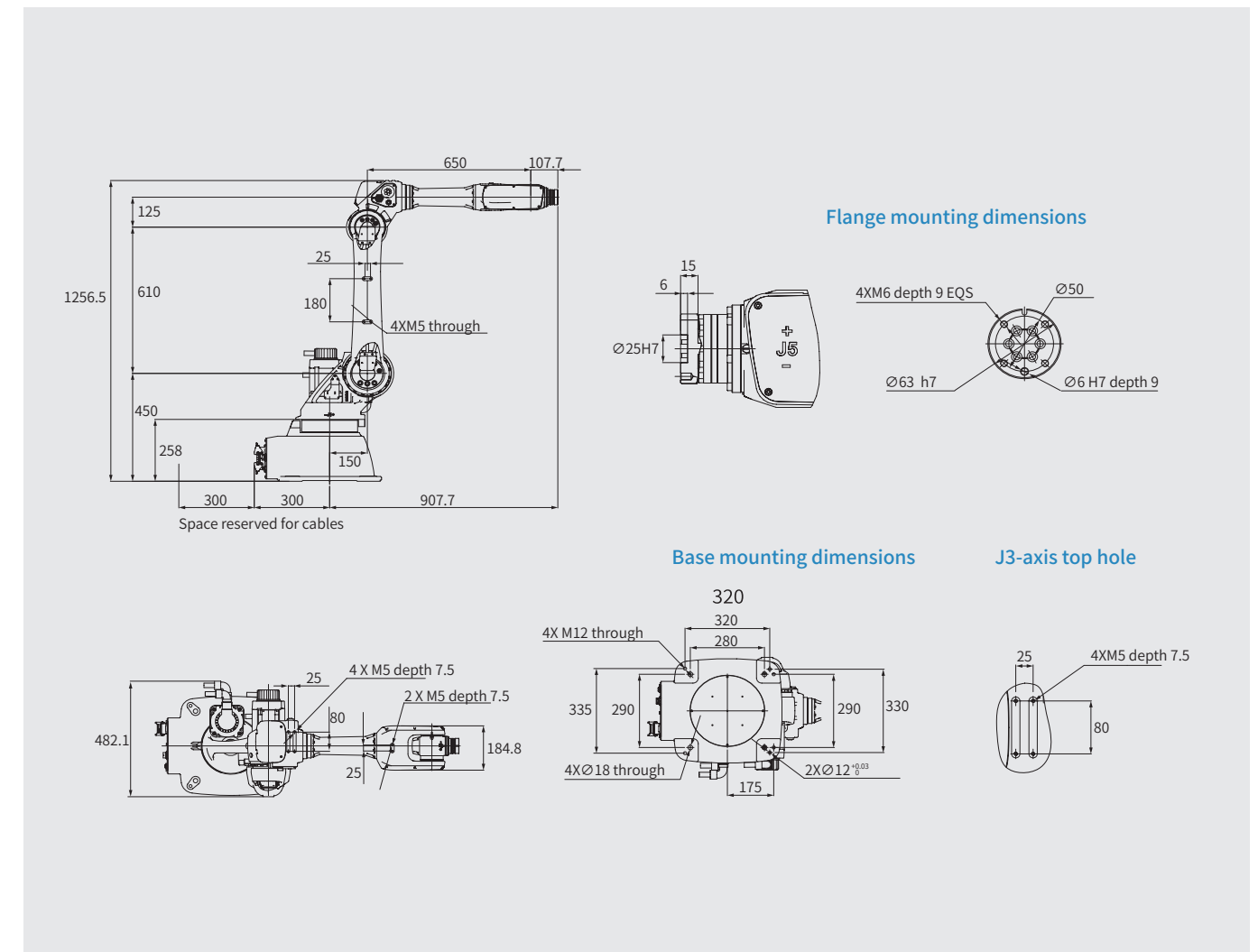


Technical Data

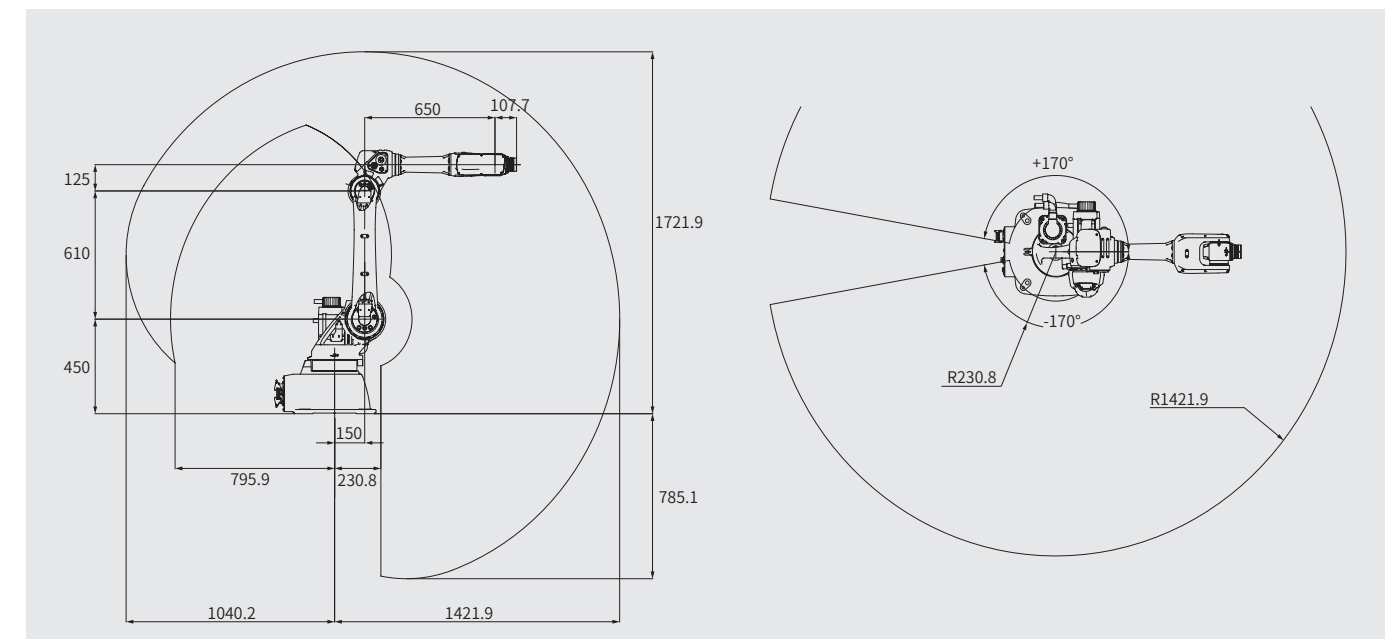
Item		IR-R10-140S5-B1
Maximum reach		1422 mm
Maximum wrist load		10 kg
IP rating		IP65 (IP67 for wrist)
Repeatability		±0.05 mm
Weight		130 kg
Maximum speed	J1	200° /s
	J2	200° /s
	J3	200° /s
	J4	375° /s
	J5	375° /s
	J6	600° /s
Maximum motion range	J1	-170° to +170°
	J2	-160° to +60°
	J3	-80° to +160°
	J4	-180° to +180°
	J5	-140° to +140°
	J6	-360° to +360°
Maximum power		3.65 kW
Customer connections	Wiring ¹	18 signal lines, 30 V, 0.5 A
	Air	Φ8 mm x 1, 0.59 MPa
Operating conditions	Ambient temperature	0° C to 45° C
	Relative humidity	5% to 95% RH (non-condensing)
Matching controller		IRCB500 high-protection drive-control integrated controller
Mounting mode		Floor mounted

*1: Aviation connectors on fore arm and I/O cables on base of IR-R10 series robots are optional. For details, contact Inovance technical support.

Mounting Dimensions(mm)



Motion Range(mm)



6-Axis Robot

IR-R20 Series

Easy-to-use and reliable robots featuring compact structure, high handling capacity and repeatability.

Scope of Application

Handling, loading/unloading, stamping, assembly, grinding, polishing, and more.

Features

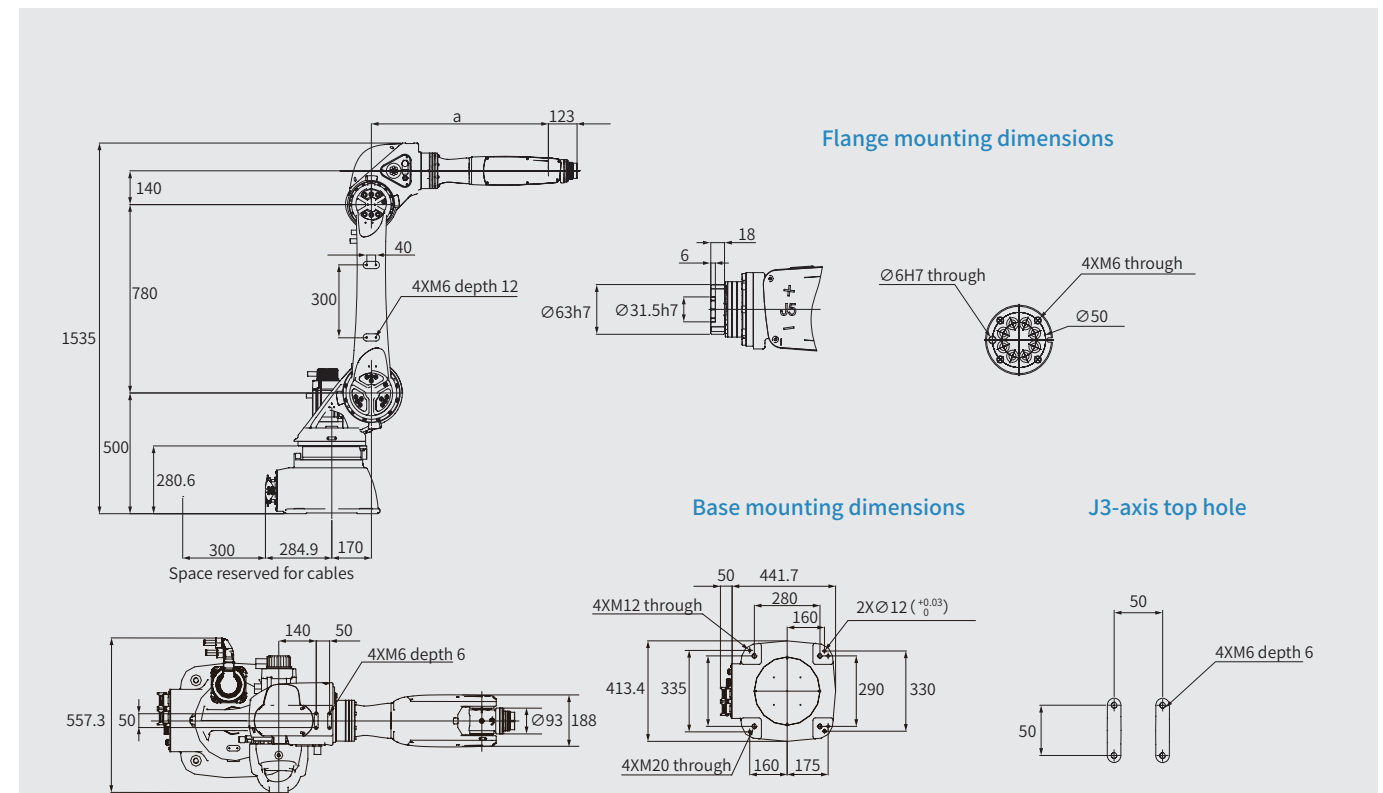
Load	20 kg / 10 kg
Arm length	1723 mm / 2045 mm
Repeatability	±0.05 mm
IP rating	IP65 (IP67 for wrist)



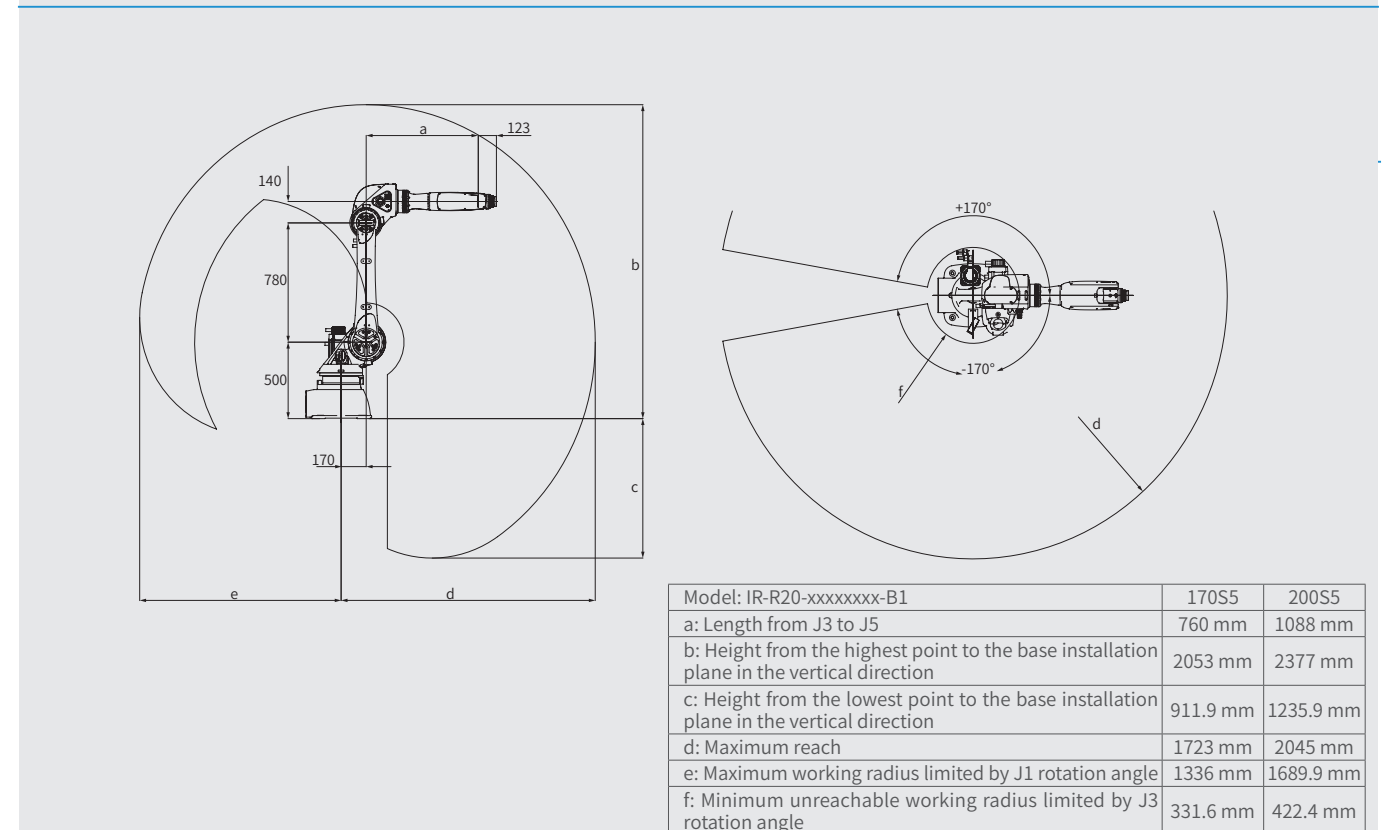
Technical Data

Item	IR-R20-170S5-B1	IR-R10-200S5-B1
Maximum reach	1723 mm	2045 mm
Maximum wrist load	20 kg	10 kg
IP rating	IP65 (IP67 for wrist)	IP65 (IP67 for wrist)
Repeatability	±0.05 mm	±0.05 mm
Weight	240 kg	245 kg
Maximum speed	J1	190° /s
	J2	175° /s
	J3	200° /s
	J4	400° /s
	J5	360° /s
	J6	610° /s
Maximum motion range	J1	-170° to +170°
	J2	-155° to +80°
	J3	-75° to +160°
	J4	-180° to +180°
	J5	-140° to +140°
	J6	-360° to +360°
Maximum power	6.2 kW	6.2 kW
Customer connections	Wiring	18 signal lines, 30 V, 0.5 A
	Air	Φ8 mm x 1, 0.59 MPa
Operating conditions	Ambient temperature	0° C to 45° C
	Relative humidity	5% to 95% RH (non-condensing)
Matching controller	IRCB500 high-protection drive-control integrated controller	
Mounting mode	Floor mounted	

Mounting Dimensions(mm)



Motion Range(mm)



6-Axis Robot

IR-R50 Series

Robots featuring high precision, compact structure, high repeatability and flexible mounting, enabling optimal production line layout and increased production capacity and efficiency.

Scope of Application

Assembly, material handling, loading/unloading, grinding, polishing, deburring, dispensing, packaging, laser cutting, and more.

Features

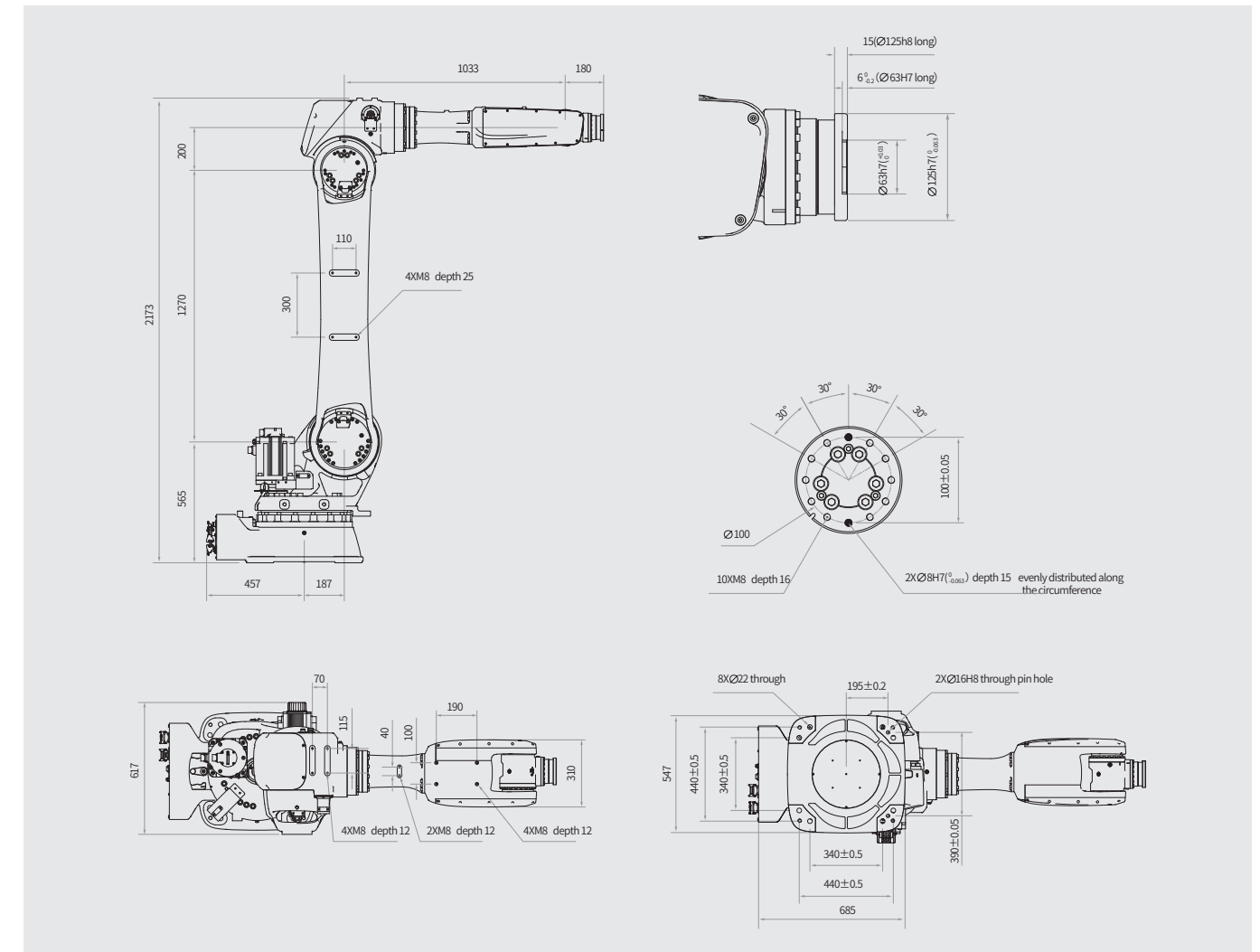
Load	50 kg
Arm length	2500 mm
Repeatability	±0.07 mm
IP rating	Body: IP65, wrist: IP67



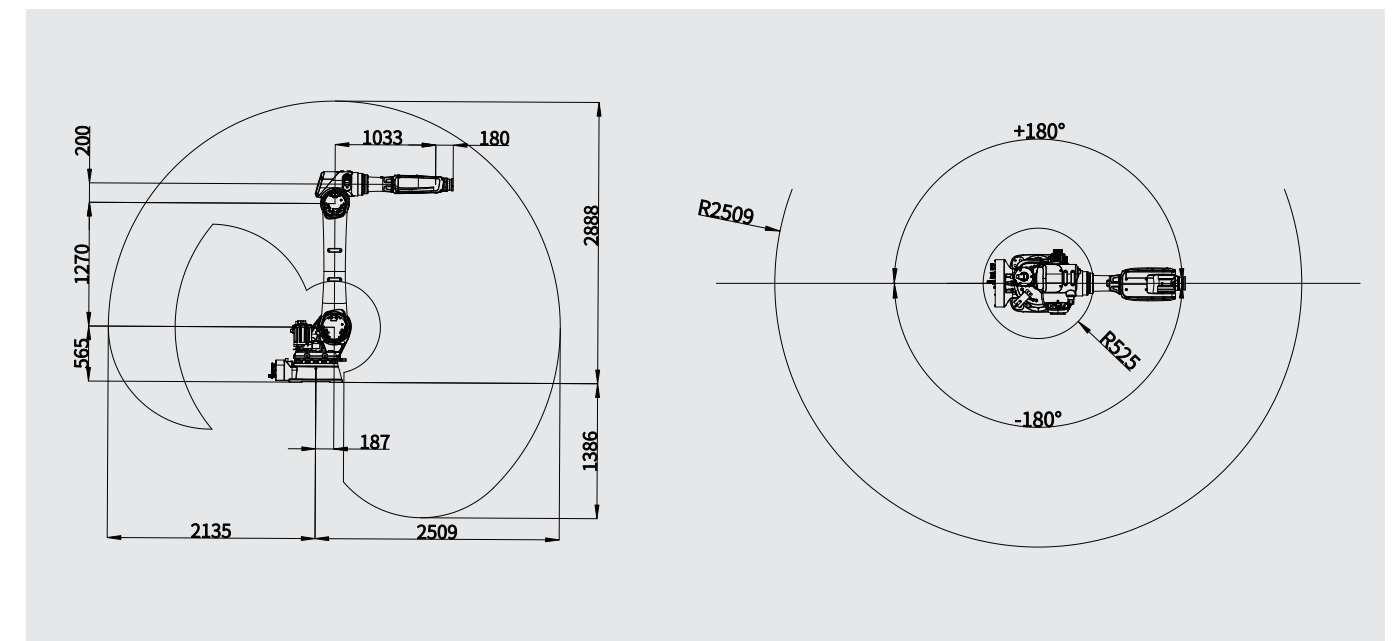
Technical Data

Model		IR-R50-250S7
Structural style		Vertical axis cascading structure
Number of Axes		6 axes
Maximum reach		2500 mm
Repeatability		±0.07 mm
Maximum load		50 kg
Axis Motion Velocity	J1	175°/S
	J2	150°/S
	J3	175°/S
	J4	250°/S
	J5	250°/S
	J6	355°/S
Axis Motion Range	J1	±180°
	J2	-135° to +90°
	J3	-80° to +170°
	J4	±190°
	J5	±125°
	J6	±360°
Allowed wrist torque	J4	206 Nm
	J5	206 Nm
	J6	127 Nm
Allowed wrist inertia	J4	28 kgm ²
	J5	28 kgm ²
	J6	11 kgm ²
Environment	Operating ambient temperature	0° C to 45° C
	Ambient humidity	5% to 95% RH (non-condensing)
	Maximum Temperature Gradient	1.5° C/min
IP rating		Body: IP65, wrist: IP67
Weight		690 kg

Mounting Dimensions(mm)



Motion Range(mm)



6-Axis Robot

IR-R60/80 Series

Robots featuring compact structure, high repeatability and flexible mounting, enabling optimal production line layout and increased production capacity and efficiency.

Scope of Application

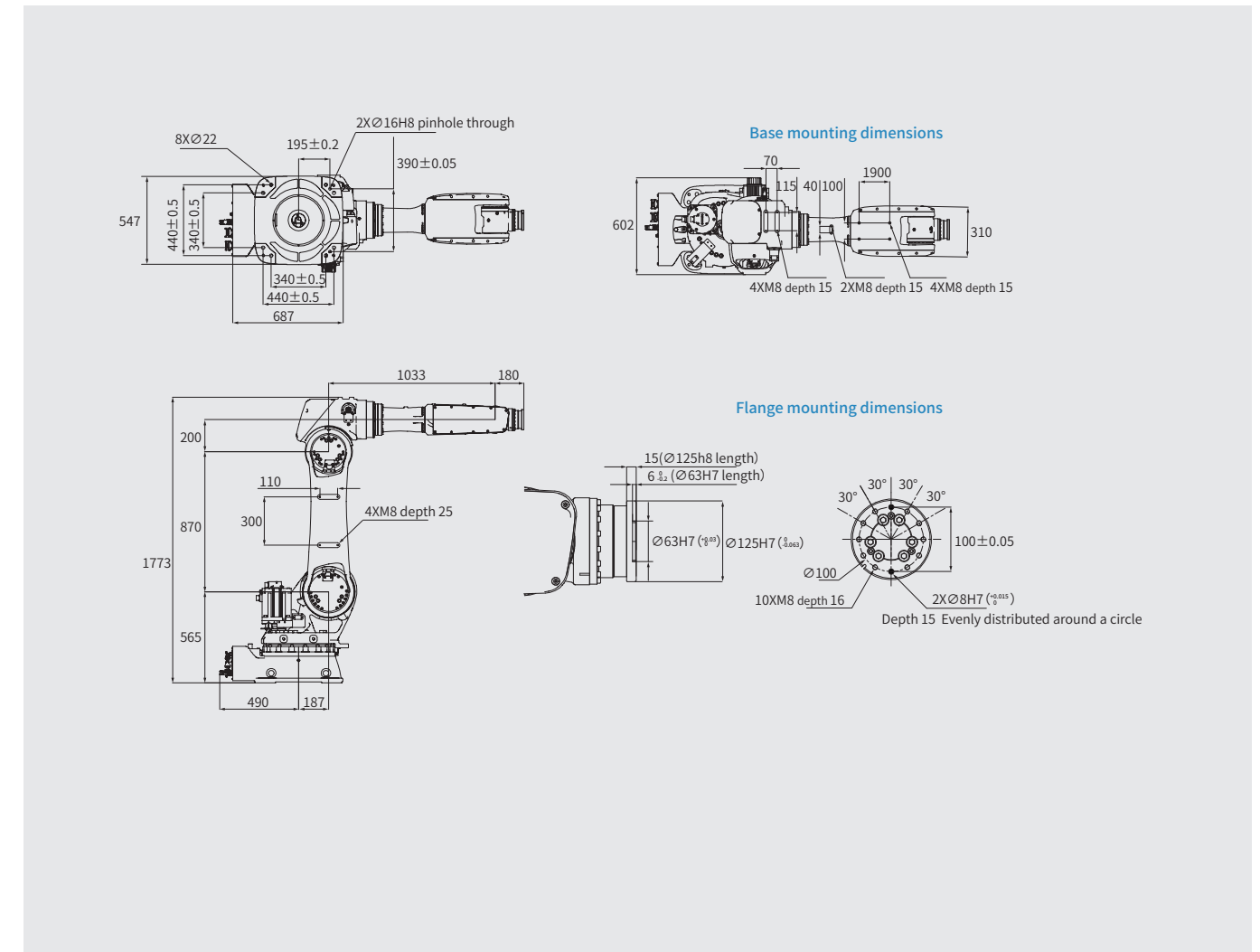
Assembly, material handling, loading/unloading, grinding, polishing, deburring, dispensing, packaging, laser cutting, and more.

Features

Load	60 kg / 80 kg
Arm length	2109 mm
Repeatability	±0.07 mm
IP rating	IP65 (IP67 for wrist)



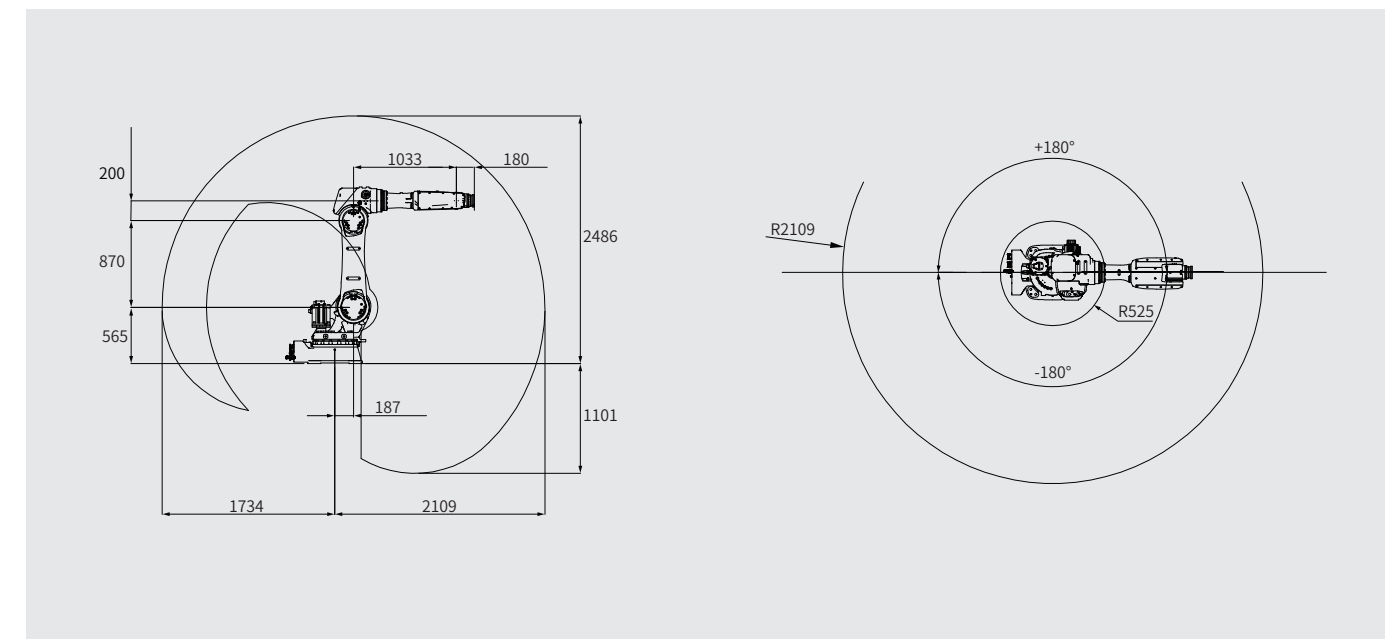
Mounting Dimensions(mm)



Technical Data

Item		IR-R60-210S5	IR-R80-210S5
Maximum reach		2109 mm	2109 mm
Maximum wrist load		60 kg	80 kg
IP rating		IP65 (IP67 for wrist)	IP65 (IP67 for wrist)
Repeatability		±0.07 mm	±0.07 mm
Weight		680 kg	680 kg
Maximum speed	J1	175° /s	175° /s
	J2	175° /s	140° /s
	J3	175° /s	160° /s
	J4	250° /s	230° /s
	J5	250° /s	230° /s
	J6	355° /s	355° /s
Maximum motion range	J1	±180°	±180°
	J2	-135° to +90°	-135° to +90°
	J3	-80° to +170°	-80° to +170°
	J4	±190°	±190°
	J5	±125°	±125°
	J6	±360°	±360°
Maximum power		19 kW	19 kW
Customer connections	Wiring	24 signal lines, 30 V, 0.5 A	24 signal lines, 30 V, 0.5 A
	Air	Φ12 mm x 1, 0.59 MPa	Φ12 mm x 1, 0.59 MPa
Operating conditions	Ambient temperature	0° C to 45° C	0° C to 45° C
	Relative humidity	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)
Matching controller		IRCB100 high-protection controller	
Mounting mode		Floor mounted	

Motion Range(mm)



SCARA Robot

IR-S4 Series

Robots with enhanced load capacity and multiple arm length options, suitable for large load applications in various industries.

Scope of Application

Assembly and dispensing in 3C industry, lithium battery industry, photovoltaic industry, and display industry.

Features

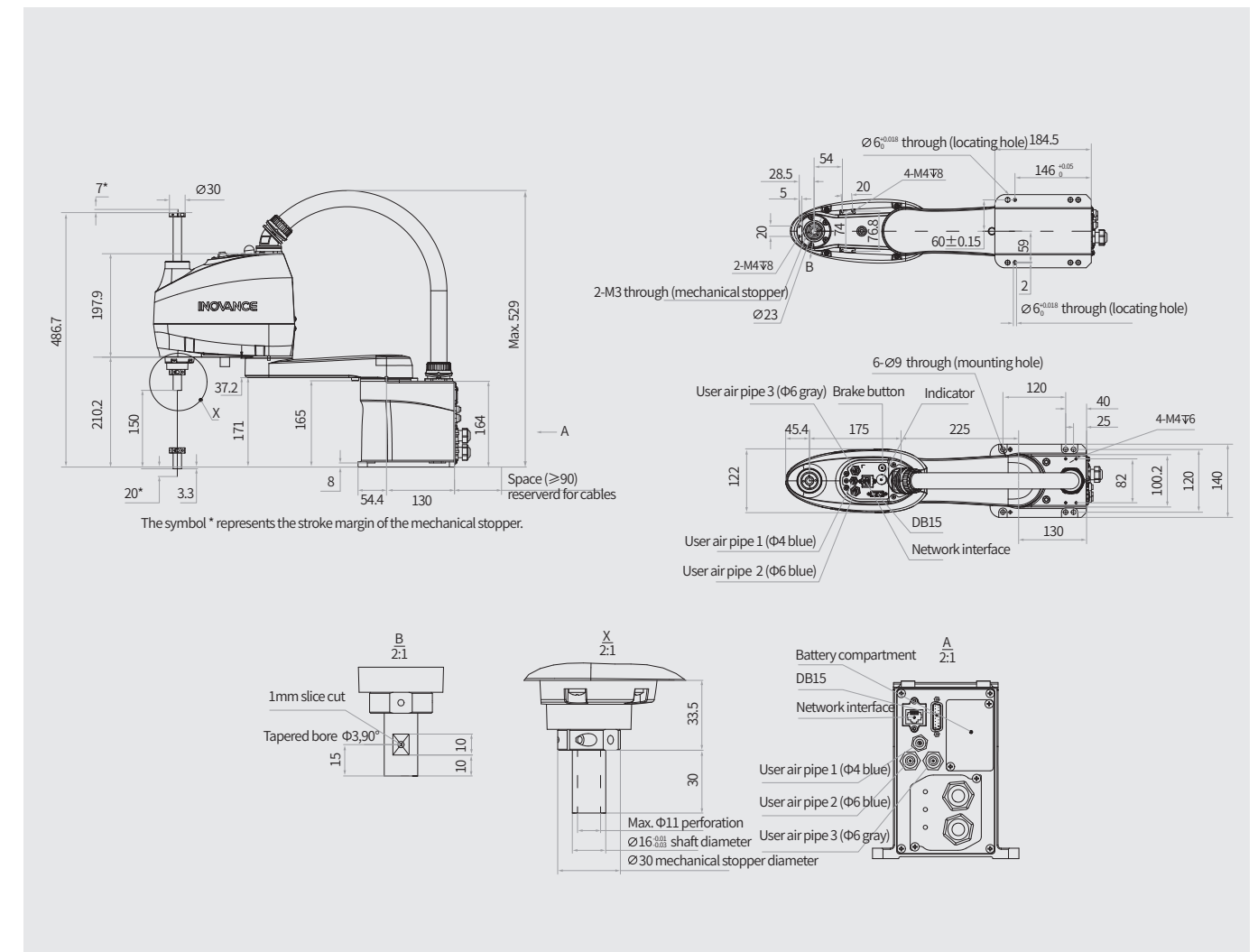
Load	4 kg
Arm length	400 mm
Efficiency	0.342s
Repeatability	±0.01 mm



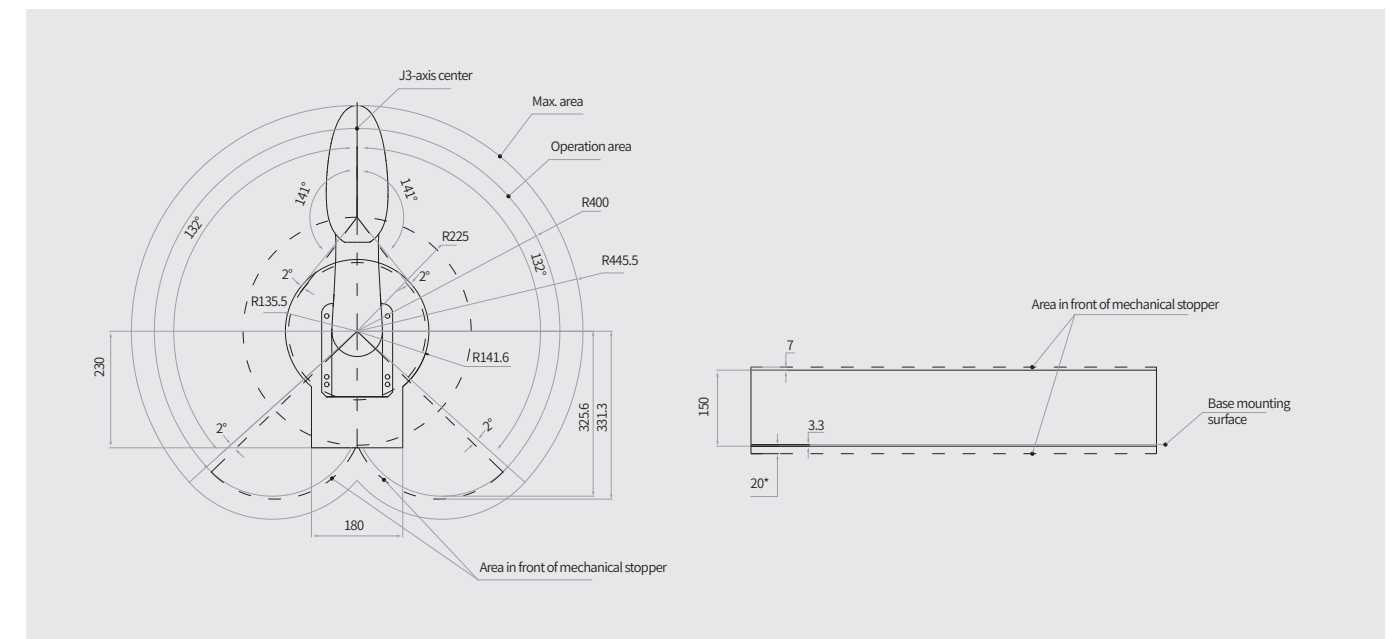
Technical Data

Item		IR-S4-40Z15S3
Arm length	Arm 1 + Arm 2	400 mm
	Arm 1	225 mm
	Arm 2	175 mm
Maximum speed	J1 + J2	7200 mm/s
	J3	1300 mm/s
	J4	2600° /s
Repeatability	J1 + J2	±0.01 mm
	J3	±0.01 mm
	J4	±0.01°
Handling capacity (load)	Rated	2 kg
	Maximum	4 kg
Allowable inertia moment of J4	Rated	0.005 kg.m ²
	Maximum	0.05 kg.m ²
Mounting hole		120x120 mm (4-∅9 mm)
Weight (excluding cables)		11 kg
Press-in force of J3		100 N
Customer signal line		15 (15pin: D-sub) CAT5E
Customer air piping		∅6 mm x 2, 0.59 Mpa ∅4 mm x 1, 0.59 Mpa
Operating conditions	Ambient temperature	5° C to 40° C (no excessive temperature changes)
	Relative humidity	10% to 80% RH
Noise level		Laeq=70 dB(A)
Maximum motion range	J1	±132°
	J2	±141°
	J3	150 mm
	J4	±360°
Cycle time		0.342s

Mounting Dimensions(mm)



Motion Range(mm)



SCARA Robot

IR-S7 Series

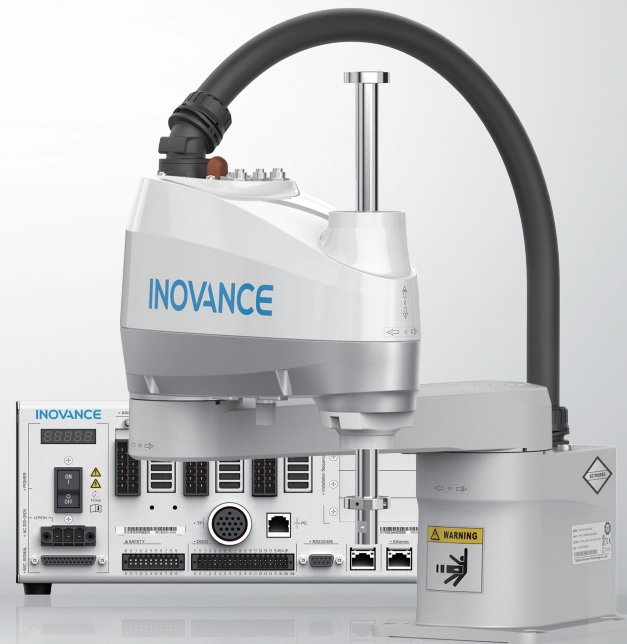
Robots with enhanced load capacity and multiple arm length options, suitable for large load applications in various industries.

Scope of Application

Assembly and dispensing in 3C industry, lithium battery industry, photovoltaic industry, and display industry.

Features

Load	7 kg
Arm length	500 mm / 600 mm / 700 mm
Efficiency	0.325s/0.330s/0.375s
Repeatability	J1 and J2: ±0.02 mm; J3: 0.01 mm; J4: ±0.01°



Technical Data

Item		IR-S7-50Z20S3	IR-S7-60Z20S3	IR-S7-70Z20S3
Arm length	Arm 1 + Arm 2	500 mm	600 mm	700 mm
	Arm 1	225 mm	325 mm	425 mm
	Arm 2	275 mm	275 mm	275 mm
Maximum speed	J1 + J2	7120 mm/s	7850 mm/s	8590 mm/s
	J3	1600 mm/s	1600 mm/s	1600 mm/s
	J4	2000°/s	2000°/s	2000°/s
	J1 + J2	±0.02 mm	±0.02 mm	±0.02 mm
Repeatability	J3	±0.01 mm	±0.01 mm	±0.01 mm
	J4	±0.01°	±0.01°	±0.01°
	J1 + J2	±0.02 mm	±0.02 mm	±0.02 mm
Handling capacity (load)	Rated	3 kg	3 kg	3 kg
	Maximum	7 kg	7 kg	7 kg
Allowable inertia moment of J4	Rated	0.01 kg.m ²	0.01 kg.m ²	0.01 kg.m ²
	Maximum	0.12 kg.m ²	0.12 kg.m ²	0.12 kg.m ²
Mounting hole		150x150 mm (4-ø9 mm)		
Weight (excluding cables)		15 kg	16 kg	17 kg
Press-in force of J3		150 N		
Customer signal line		15 (15pin: D-sub) CAT5E		
Customer air piping		Ø6 mm x 2, 0.59 Mpa Ø4 mm x 1, 0.59 Mpa		
Operating conditions	Ambient temperature	5° C to 40° C (no excessive temperature changes)		
	Relative humidity	10% to 80% RH		
Noise level		Laeq=70 dB(A)		
Maximum motion range	J1	±132°		
	J2	±150°		
	J3	200 mm		
	J4	±360°		
Cycle time		0.325s	0.330s	0.375s

Mounting Dimensions(mm)

The symbol * represents the stroke margin of the mechanical stopper.

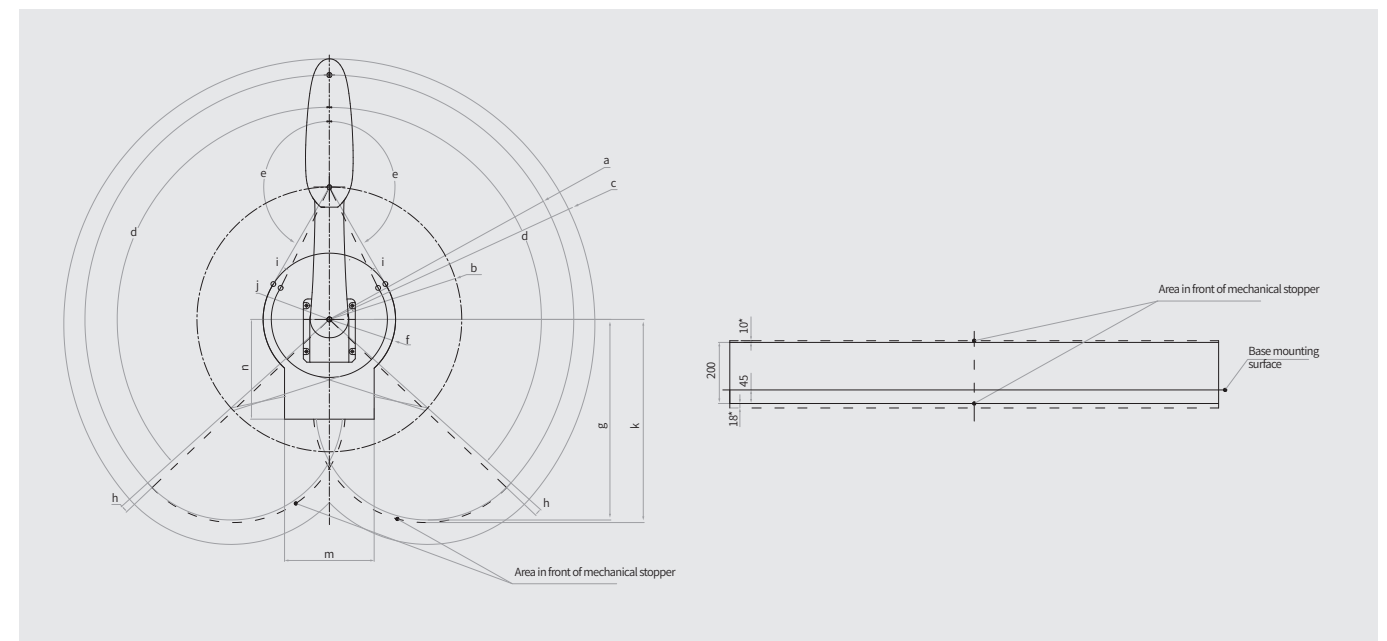
Parameters of IR-S7 series robots with different arm lengths

Model	IR-S7-50Z20S3	IR-S7-60Z20S3	IR-S7-70Z20S3
a: Length of arm 1 + arm 2 (mm)	500	600	700
a: Length of arm 1 (mm)	225	325	425
c: Maximum motion range (mm)	552	652	752
d: Motion range of J1 (*)	132		
e: Motion range of J2 (*)	150		
f: Motion range (mm)	138.1	162.6	232
g: Rear motion range (mm)	425.6	492.5	559.4
h: Angle of mechanical stop position of J1 (*)	1		
i: Angle of mechanical stop position of J2 (*)	1	3	4
j: Range of mechanical stop position (mm)	134.2	148.3	214.8
k: Range of rear mechanical stop position (mm)	428.5	496.7	564.9
m: Motion range (mm)	240	220	220
n: Motion range (mm)	245		

Parameters of IR-S7 series robots with different arm lengths

Model	IR-S7-50Z20S3	IR-S7-60Z20S3	IR-S7-70Z20S3
α	225	325	425
β	545	569	599

Motion Range(mm)



SCARA Robot

IR-S10 Series

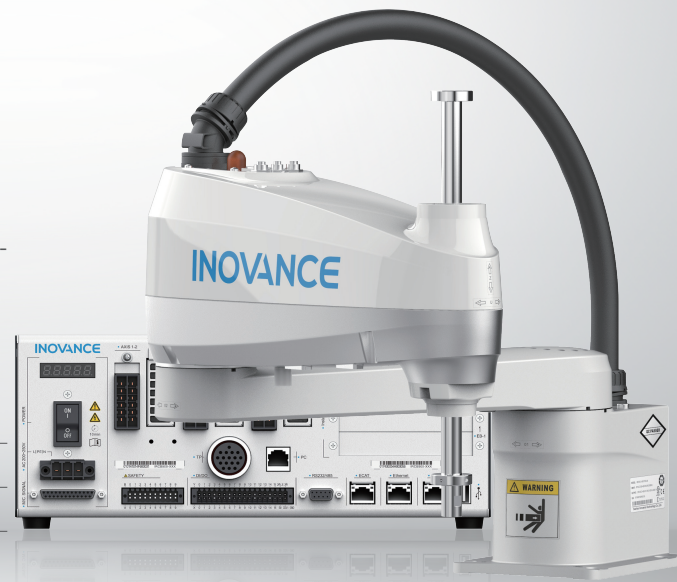
Robots with enhanced load capacity and multiple arm length options, suitable for large load applications in various industries.

Scope of Application

Assembly and dispensing in 3C industry, lithium battery industry, photovoltaic industry, and display industry.

Features

Load	10 kg
Arm length	600 mm / 700 mm / 800 mm
Cycle time	0.361s/0.386s/0.416s
Repeatability	J1 and J2: ±0.02 mm to 0.025 mm J3: 0.01 mm; J4: ±0.01°



Technical Data

Item		IR-S10-60Z20S3	IR-S10-70Z20S3	IR-S10-80Z20S3
Arm length	Arm 1 + Arm 2	600 mm	700 mm	800 mm
	Arm 1	225 mm	325 mm	425 mm
	Arm 2	375 mm	375 mm	375 mm
Maximum speed	J1 + J2	9100 mm/s	9800 mm/s	10500 mm/s
	J3	1600 mm/s	1600 mm/s	1600 mm/s
	J4	2700° /s	2700° /s	2700° /s
	J1 + J2	±0.02 mm	±0.02 mm	±0.025 mm
Repeatability (mm)	J3	±0.01 mm	±0.01 mm	±0.01 mm
	J4	±0.01°	±0.01°	±0.01°
	J1 + J2	±0.02 mm	±0.02 mm	±0.025 mm
Handling capacity (load)	Rated	5 kg	5 kg	5 kg
	Maximum	10 kg	10 kg	10 kg
Allowable inertia moment of J4	Rated	0.02 kg.m ²	0.02 kg.m ²	0.02 kg.m ²
	Maximum	0.3 kg.m ²	0.3 kg.m ²	0.3 kg.m ²
Mounting hole	150x150 mm (4-ø9 mm)			
Weight (excluding cables)	17 kg 18 kg 19 kg			
Press-in force of J3	200 N 200 N 200 N			
Customer signal line	15 (15pin: D-sub) CAT5E			
Customer air piping	Ø6 mm x 2, 0.59 Mpa Ø4 mm x 1, 0.59 Mpa			
Operating conditions	Ambient temperature	5° C to 40° C (no excessive temperature changes)		
	Relative humidity	10% to 80% RH		
Noise level	Laeq=70 dB(A)			
Maximum motion range	J1	±132°		
	J2	±150°		
	J3	200 mm		
	J4	±360°		
Cycle time	0.361s	0.386s	0.416s	

Mounting Dimensions(mm)

The symbol * represents the stroke margin of the mechanical stopper.

Parameters of IR-S10 series robots with different arm lengths

Model	IR-S10-60Z20S3	IR-S10-70Z20S3	IR-S10-80Z20S3
a: Length of arm 1 + arm 2 (mm)	600	700	800
a: Length of arm 1 (mm)	225	325	425
c: Maximum motion range (mm)	653	753	853
d: Motion range of J1 (*)	132		
e: Motion range of J2 (*)	150		
f: Motion range (mm)	212.4	187.5	212.6
g: Rear motion range (mm)	525.6	592.5	659.4
h: Angle of mechanical stop position of J1 (*)	1		
i: Angle of mechanical stop position of J2 (*)	1	3	4
j: Range of mechanical stop position (mm)	208.9	170.5	186
k: Range of rear mechanical stop position (mm)	528.5	596.7	664.9
m: Motion range (mm)	420	330	320
n: Motion range (mm)	300		

Parameters of IR-S10 series robots with different arm lengths

Model	IR-S10-60Z20S3	IR-S10-70Z20S3	IR-S10-80Z20S3
α	225	325	425
β	545	569	599

Motion Range(mm)

Area in front of mechanical stopper

Base mounting surface

SCARA Robot

IR-S20 Series

SCARA robots with harmonic drive for the fourth joint, featuring high inertia, high rigidity and high repeatability.

Scope of Application

Applications in lithium battery industry.

Features

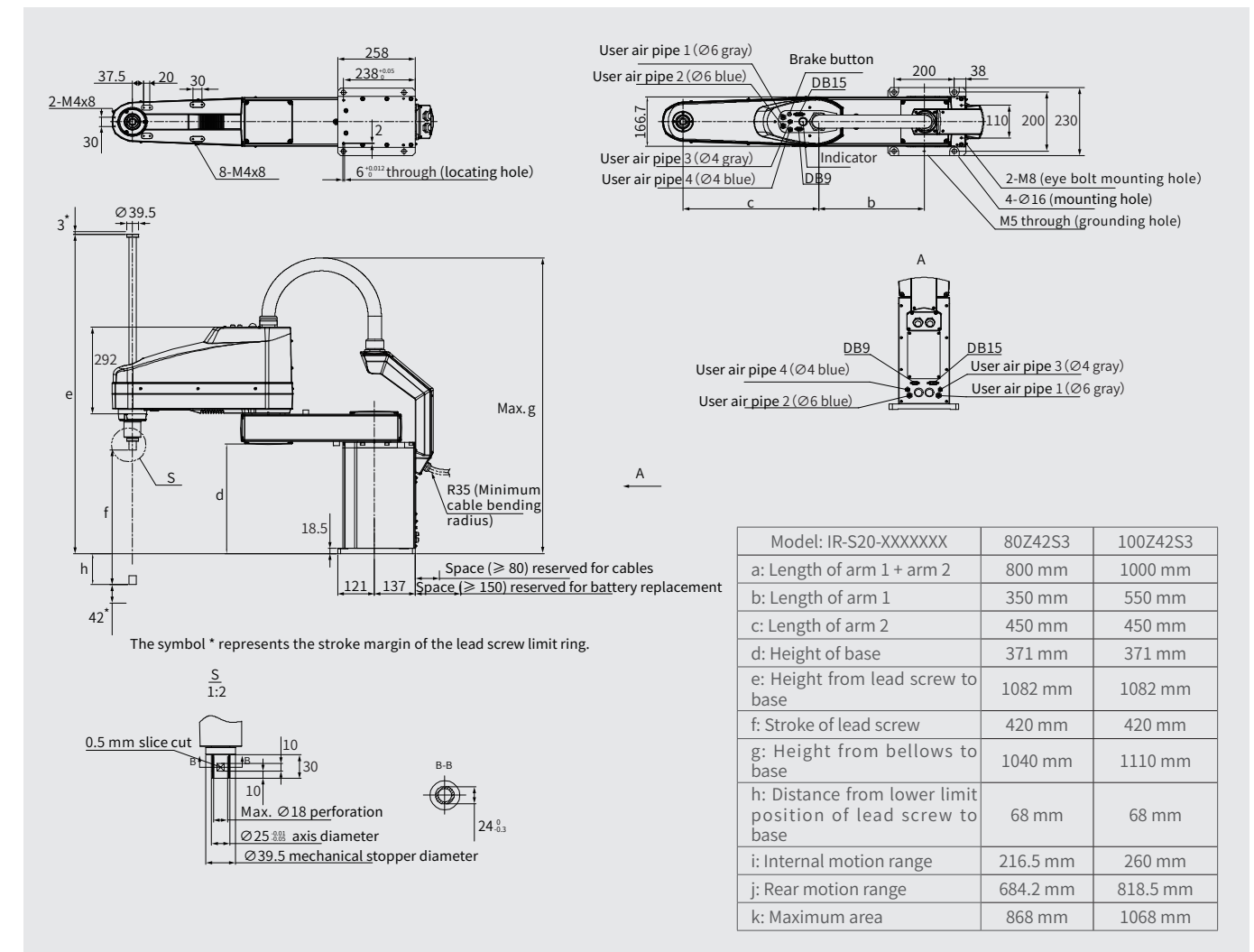
Load	20 kg
Arm length	800 mm / 1000 mm
Cycle time	0.36s to 0.38s
Repeatability	±0.025 mm



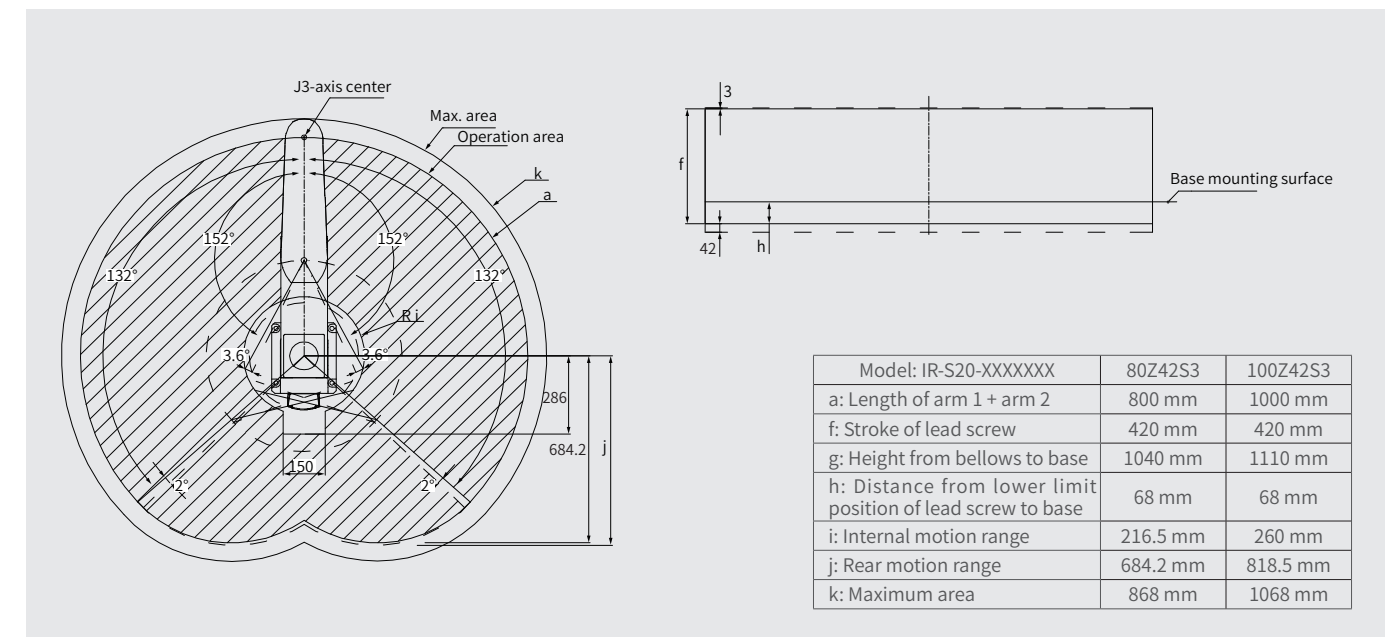
Technical Data

Item		IR-S20-80Z42S3	IR-S20-100Z42S3
Mounting mode		Tabletop	
Arm length		800 mm	1000 mm
Maximum speed	J1 + J2	9550 mm/s	10807 mm/s
	J3	1010 mm/s	1010 mm/s
	J4	705° /s	705° /s
	J4	705° /s	705° /s
Weight (excluding cables)		51 kg	54 kg
Repeatability	J1 + J2	±0.025 mm	±0.025 mm
	J3	±0.01 mm	±0.01 mm
	J4	±0.01°	±0.01°
	J4	±0.01°	±0.01°
Maximum motion range	J1	±132°	±132°
	J2	±152°	±152°
	J3	420 mm	420 mm
	J4	±360°	±360°
Handling capacity (load)	Rated	10 kg	10 kg
	Maximum	20 kg	20 kg
Cycle time		0.36s	0.38s
Allowable inertia moment of J4	Rated	0.5 kg.m ²	0.5 kg.m ²
	Maximum	1.0 kg.m ²	1.0 kg.m ²
Maximum power		2.55 kW	2.55 kW
Press-in force of J3		250 N	250N
Homing		Not needed	
Customer signal line		9 (9pin: D-sub), (15pin: D-sub)	
Customer air piping		Φ6 mm x 2, 0.59 Mpa (6 kgf/cm ² :86 psi) Φ4 mm x 2, 0.59 Mpa (6 kgf/cm ² :86 psi)	
Installation environment		Standard	
Matching controller		IRCB500 drive-control integrated controller	

Mounting Dimensions(mm)



Motion Range(mm)



SCARA Robot

IR-GS20 Series

SCARA robots with harmonic drive for the fourth joint, together with a plain shaft to increase the rigidity in the overturning direction, featuring high inertia, high rigidity and high repeatability.

Scope of Application

Applications in lithium battery industry.

Features

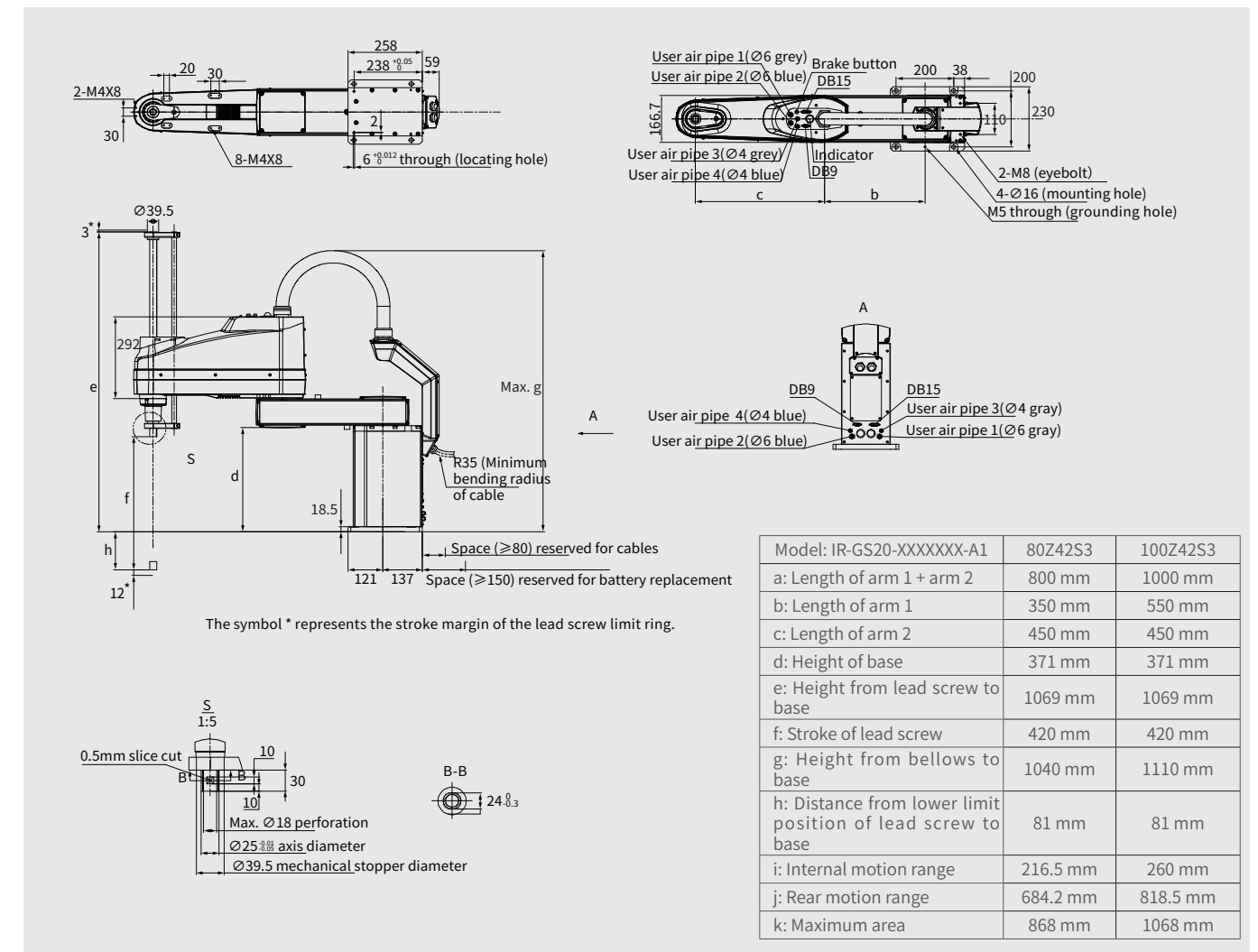
Load	20 kg
Arm length	800 mm / 1000 mm
Cycle time	0.36s to 0.38s
Repeatability	±0.025 mm



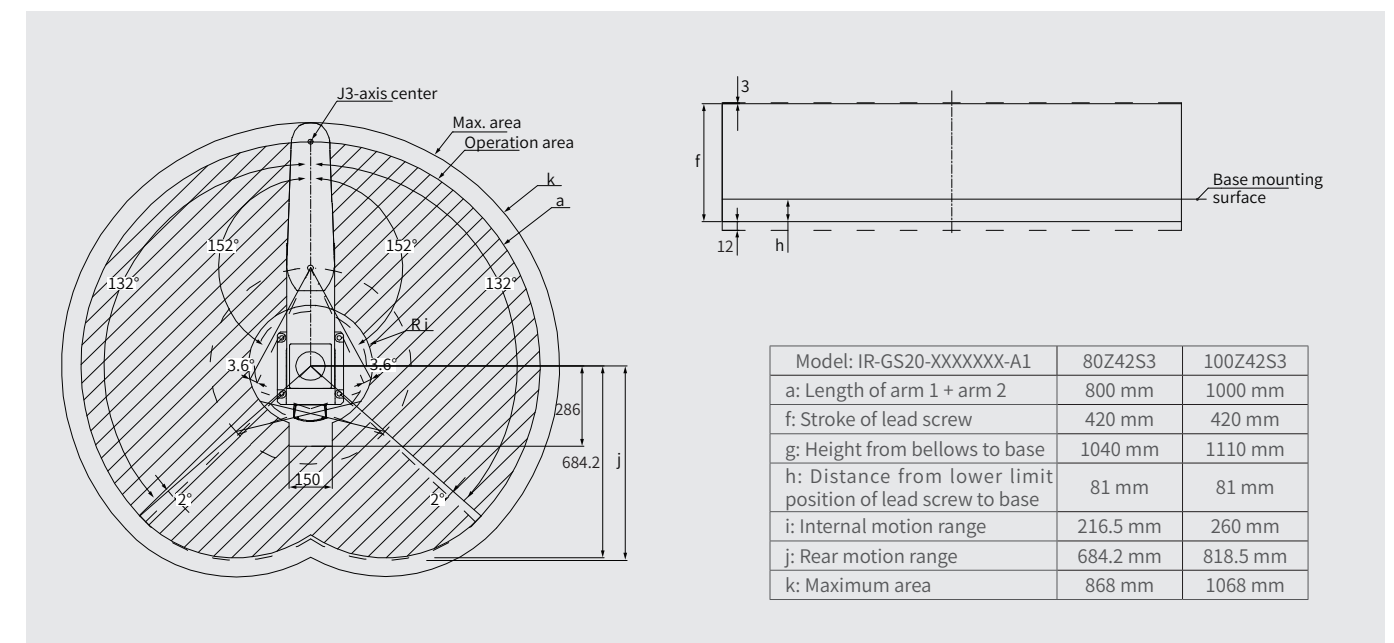
Technical Data

Item		IR-GS20-80Z42S3	IR-GS20-100Z42S3
Mounting mode		Tabletop	
Arm length	Arm 1 + Arm 2	800 mm	1000 mm
Maximum speed	J1 + J2	9550 mm/s	10807 mm/s
	J3	1010 mm/s	1010 mm/s
	J4	705° /s	705° /s
Weight (excluding cables)		53 kg	56 kg
Repeatability	J1 + J2	±0.025 mm	±0.025 mm
	J3	±0.01 mm	±0.01 mm
	J4	±0.01°	±0.01°
Maximum motion range	J1	±132°	±132°
	J2	±152°	±152°
	J3	420 mm	420 mm
	J4	±360°	±360°
Handling capacity (load)	Rated	10 kg	10 kg
	Maximum	20 kg	20 kg
Cycle time		0.36s	0.38s
Allowable inertia moment of J4	Rated	0.5 kg.m ²	0.5 kg.m ²
	Maximum	1.0 kg.m ²	1.0 kg.m ²
Maximum power		2.55 kW	2.55 kW
Press-in force of J3		250 N	250N
Homing		Not needed	
Customer signal line		9 (9pin: D-sub), (15pin: D-sub)	
Customer air piping		Φ6 mm x 2, 0.59 Mpa (6 kgf/cm ² :86 psi) Φ4 mm x 2, 0.59 Mpa (6 kgf/cm ² :86 psi)	
Installation environment		Standard	
Matching controller		IRCB500 drive-control integrated controller	

Mounting Dimensions(mm)



Motion Range(mm)



SCARA Robot

IR-S50 Series

SCARA robots suitable for large load applications, featuring large load capacity, high repeatability, high rigidity and smooth motion.

Scope of Application

Material loading and unloading, precision assembly, handling, dispensing, coating, screw tightening, labeling, material insertion, sorting in new energy, 3C and food packaging industries.

Features

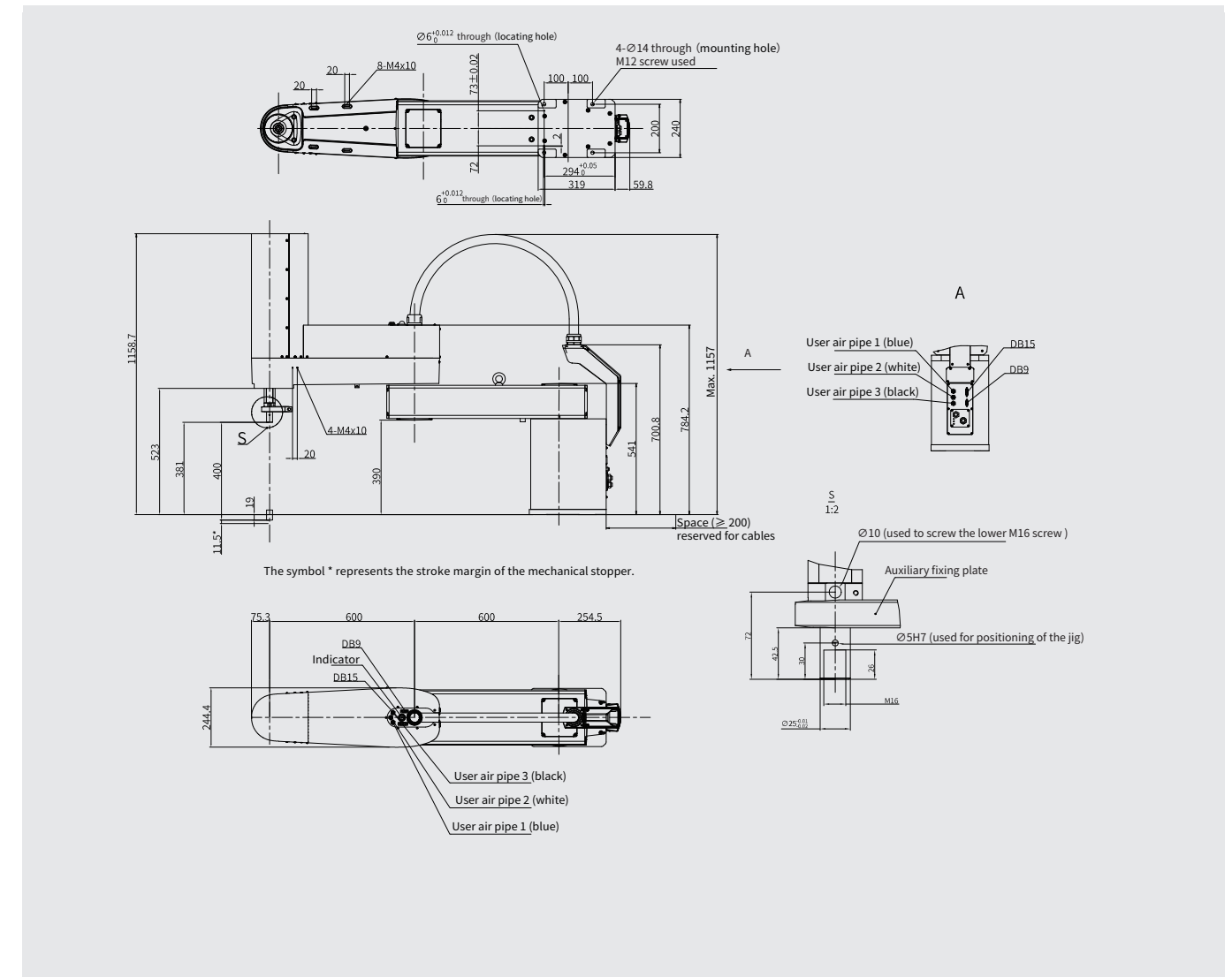
Load	50 kg
Arm length	1200 mm
Cycle time	0.84s
Repeatability	±0.05 mm



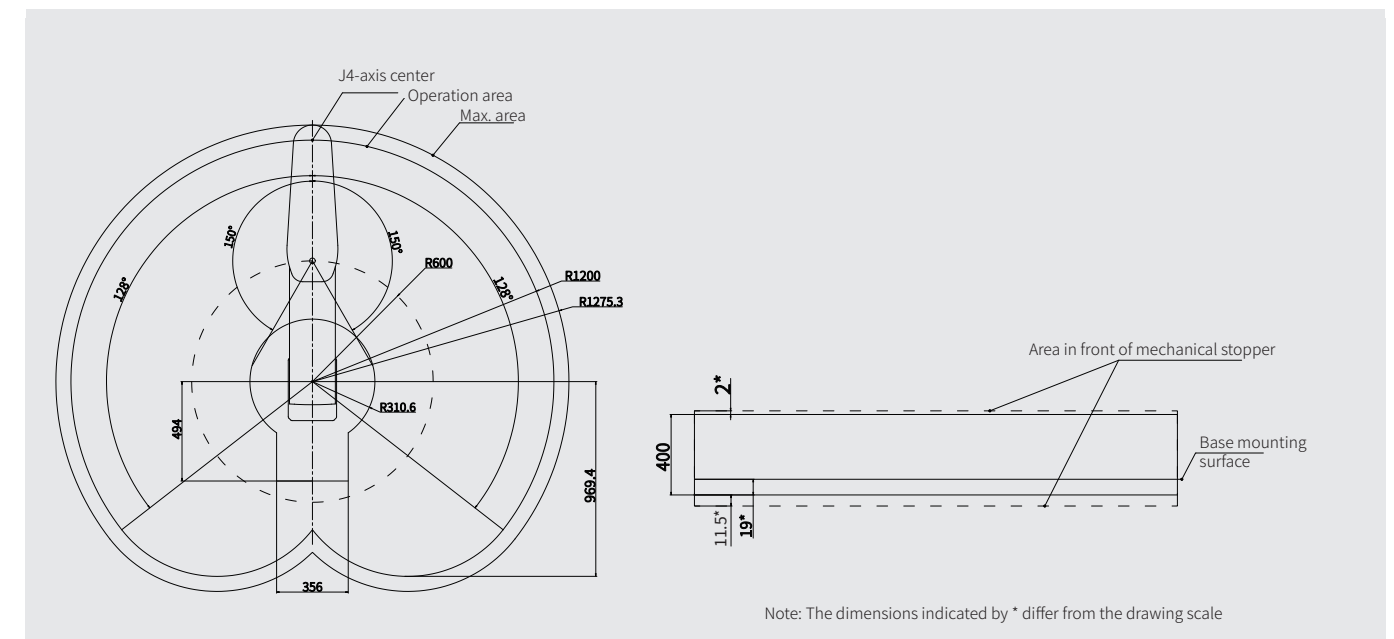
Technical Data

Item		IR-S50-120Z40S3-B1
Mounting mode		Tabletop
Arm length	Arm 1 + Arm 2	1200 mm
Maximum speed	J1 + J2	7400 mm/s
	J3	750 mm/s
	J4	600° /s
Weight (excluding cables)		124 kg
Repeatability	J1 + J2	±0.05 mm
	J3	±0.02 mm
	J4	±0.005°
Maximum motion range	J1	±128°
	J2	±150°
	J3	400 mm
	J4	±360°
Handling capacity (load)	Maximum	50 kg
Cycle time		0.84s
Allowable inertia moment of J4	Maximum	2.45 kg.m ²
Maximum power		3.1 kW
Homing		Not needed
Customer signal line		24 (15Pin: D-sub+9Pin)
Customer air piping		Φ6 mm x 3, 0.59 Mpa (6 kgf/cm ² :86 psi)
Installation environment		Standard
Matching controller		IRCB500 high-protection drive-control integrated controller

Mounting Dimensions(mm)



Motion Range(mm)



SCARA Robot

IR-TS4 Series

Robots with enhanced load capacity and multiple arm length options, suitable for large load applications in various industries.

Scope of Application

Assembly and dispensing in 3C industry, lithium battery industry, photovoltaic industry, and display industry.

Features

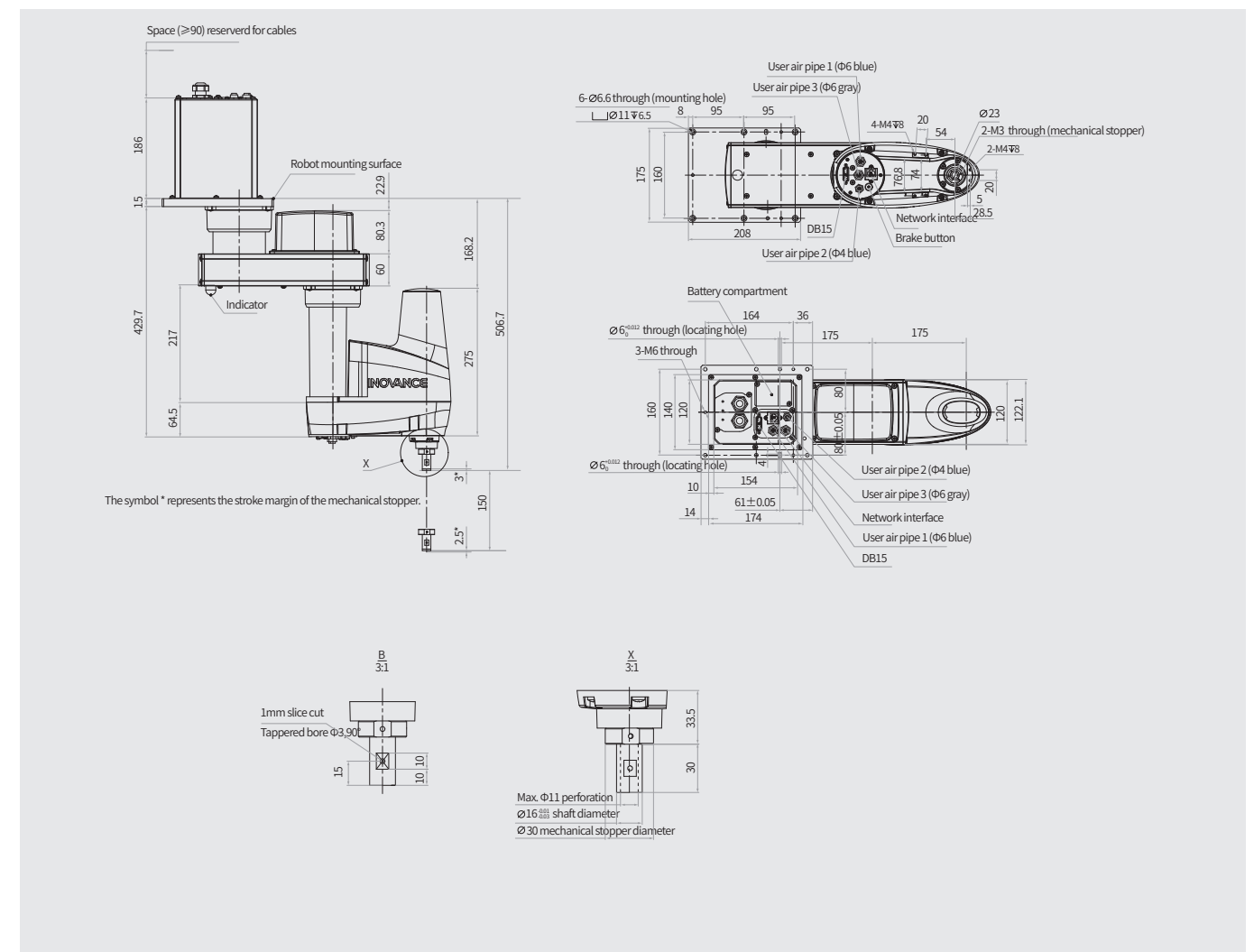
Load	4 kg
Arm length	350 mm
Cycle time	0.304s
Repeatability	J1-J3: ± 0.01 mm; J4: $\pm 0.01^\circ$



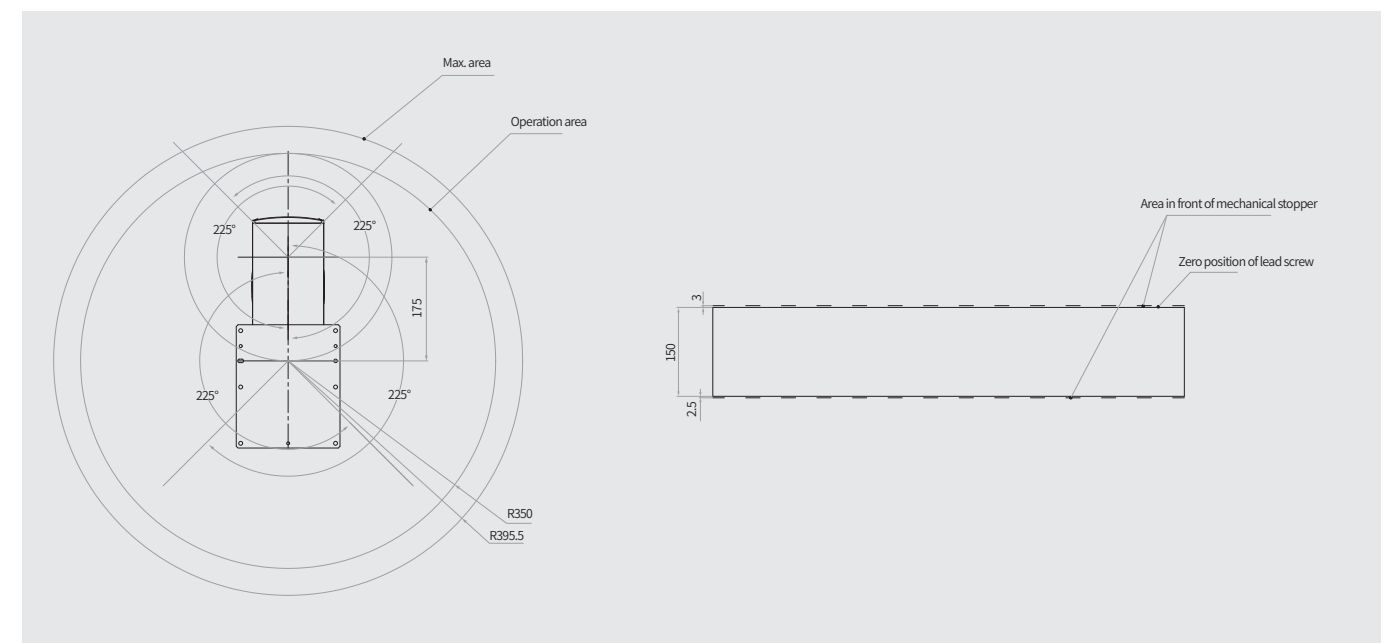
Technical Data

Item		IR-TS4-35Z15S3
Arm length	Arm 1 + Arm 2	350 mm
	Arm 1	175 mm
	Arm 2	175 mm
Maximum speed	J1 + J2	6180 mm/s
	J3	1300 mm/s
	J4	2600°/s
	J1 + J2	± 0.01 mm
Repeatability (mm)	J3	± 0.01 mm
	J4	$\pm 0.01^\circ$
	J1 + J2	2 kg
Handling capacity (load)	Rated	2 kg
	Maximum	4 kg
Allowable inertia moment of J4	Rated	0.05 kg.m ²
	Maximum	0.05 kg.m ²
Mounting hole	95x95x160 mm (6- $\phi 6.6$ mm)	
Weight (excluding cables)	18.5 kg	
Press-in force of J3	100 N	
Customer signal line	15 (15pin: D-sub)	
	CAT5E	
Customer air piping	$\phi 6$ mm x 2, 0.59 Mpa	
	$\phi 4$ mm x 1, 0.59 Mpa	
Operating conditions	Ambient temperature	5° C to 40° C (no excessive temperature changes)
	Relative humidity	10 to 80% RH
Noise level	Laeq=70 dB(A)	
Maximum motion range	J1	$\pm 225^\circ$
	J2	$\pm 225^\circ$
	J3	150 mm
	J4	$\pm 720^\circ$
Cycle time	0.304s	

Mounting Dimensions(mm)



Motion Range(mm)



SCARA Robot

IR-TS5 Series

Robots with enhanced load capacity and multiple arm length options, suitable for large load applications in various industries.

Scope of Application

Assembly and dispensing in 3C industry, lithium battery industry, photovoltaic industry, and display industry.

Features

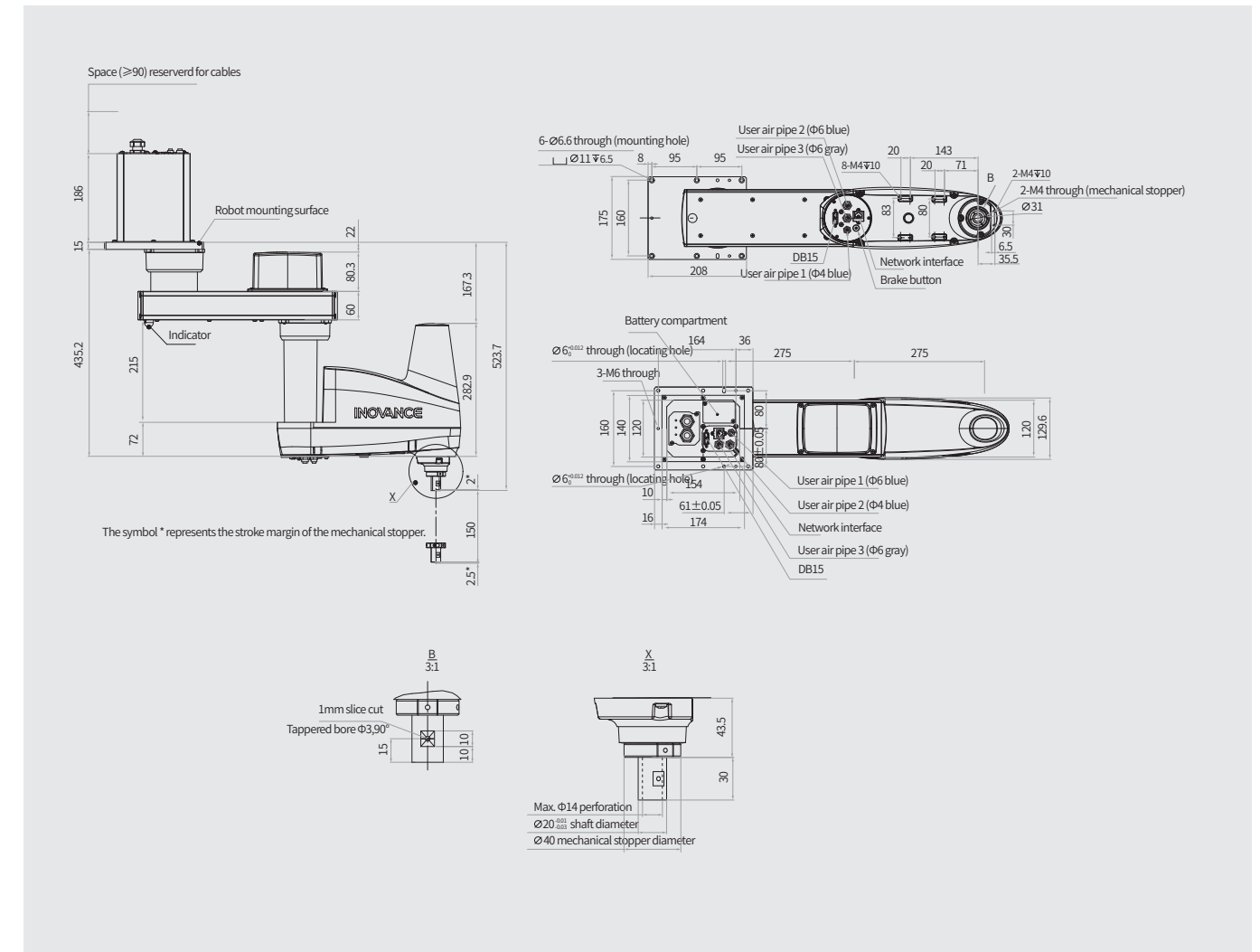
Load	5 kg
Arm length	550 mm
Cycle time	0.340s
Repeatability	J1 and J2: ±0.015 mm; J3: 0.01 mm; J4: ±0.01°



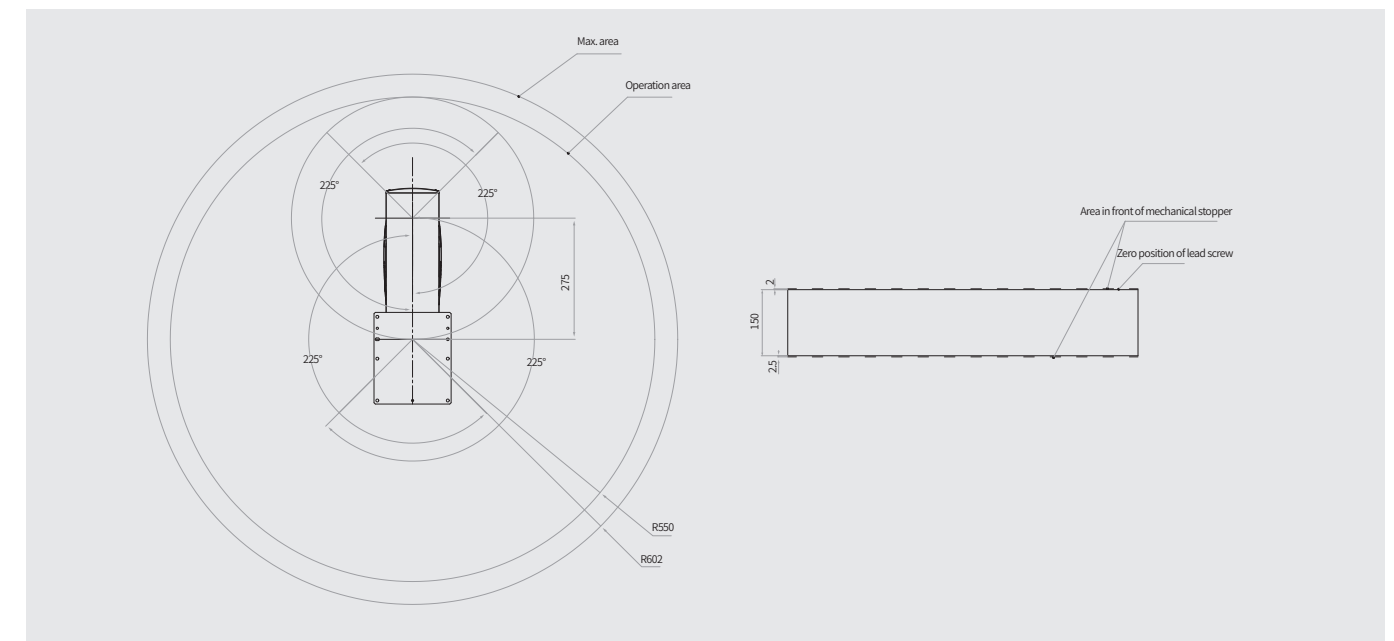
Technical Data

Item		IR-TS5-55Z15S3
Arm length	Arm 1 + Arm 2	550 mm
	Arm 1	275 mm
	Arm 2	275 mm
Maximum speed	J1 + J2	9712 mm/s
	J3	1300 mm/s
	J4	2000° /s
Repeatability (mm)	J1 + J2	±0.015 mm
	J3	±0.01 mm
	J4	±0.01°
Handling capacity (load)	Rated	2 kg
	Maximum	5 kg
Allowable inertia moment of J4	Rated	0.01 kg.m ²
	Maximum	0.12 kg.m ²
Mounting hole		95x95x160 mm (6-∅6.6 mm)
Weight (excluding cables)		20 kg
Press-in force of J3		150N
Customer signal line		15 (15pin: D-sub)
		CAT5E
Customer air piping		∅6 mm x 2, 0.59 Mpa
		∅4 mm x 1, 0.59 Mpa
Operating conditions	Ambient temperature	5° C to 40° C (no excessive temperature changes)
	Relative humidity	10% to 80% RH
Noise level		Laeq=70 dB(A)
Maximum motion range	J1	±225°
	J2	±225°
	J3	150 mm
	J4	±720°
Cycle time		0.340s

Mounting Dimensions(mm)



Motion Range(mm)



SCARA Robot

IR-C8 Series

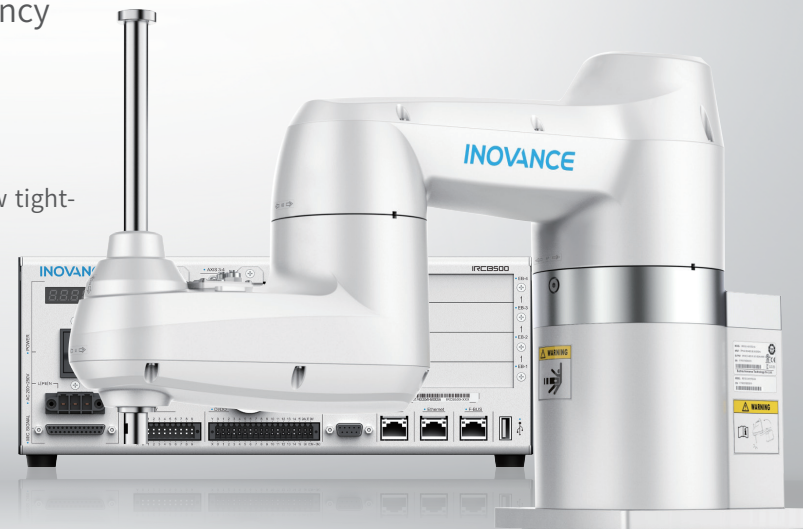
Inovance's fastest SCARA robots with a cycle time of only 0.26s to greatly increase efficiency of the production line.

Scope of Application

Precision assembly, handling, dispensing, coating, screw tightening, labeling, material insertion, and sorting.

Features

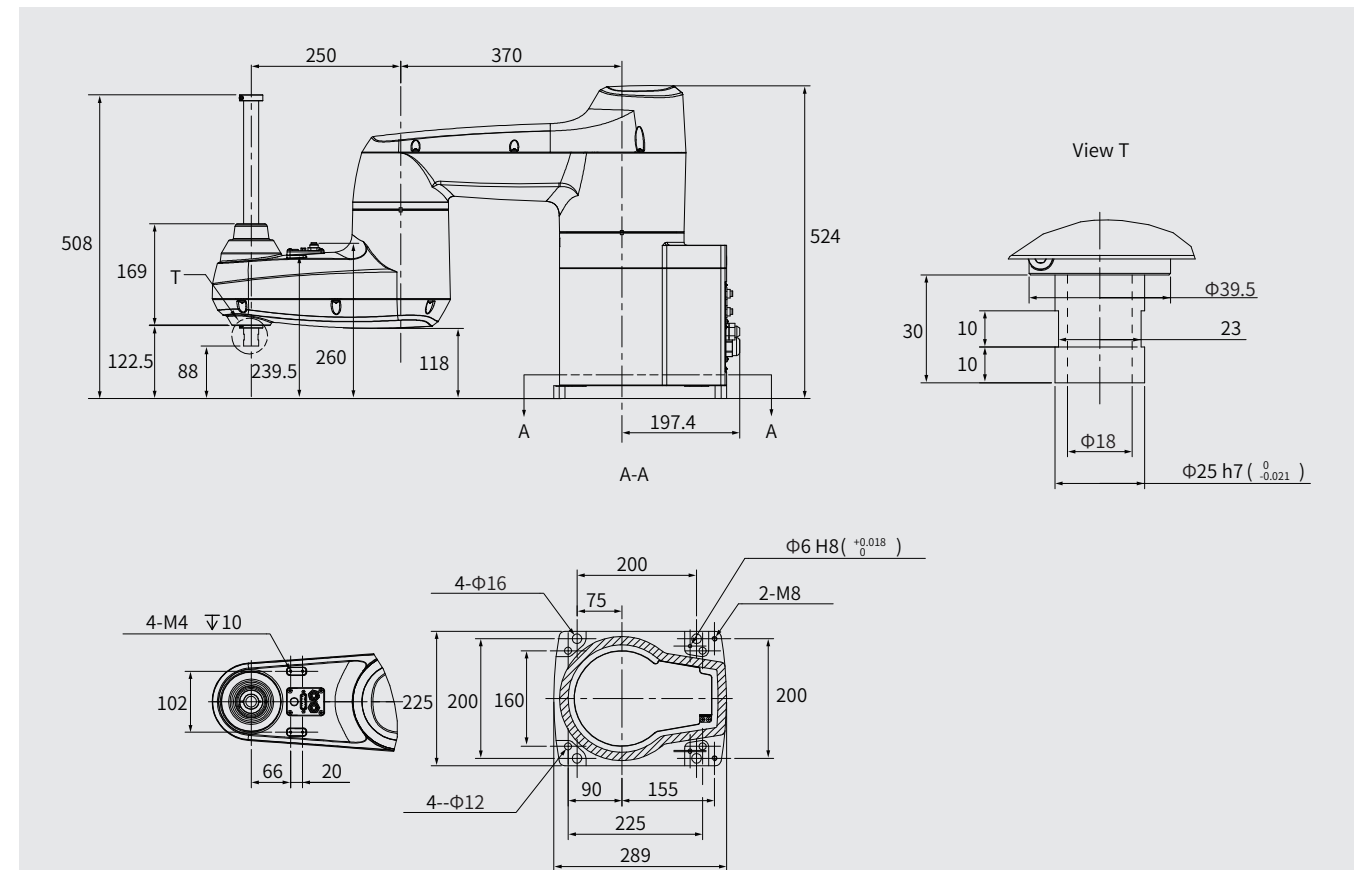
Load	8 kg
Arm length	620 mm
Cycle time	0.26s
Repeatability	±0.02 mm



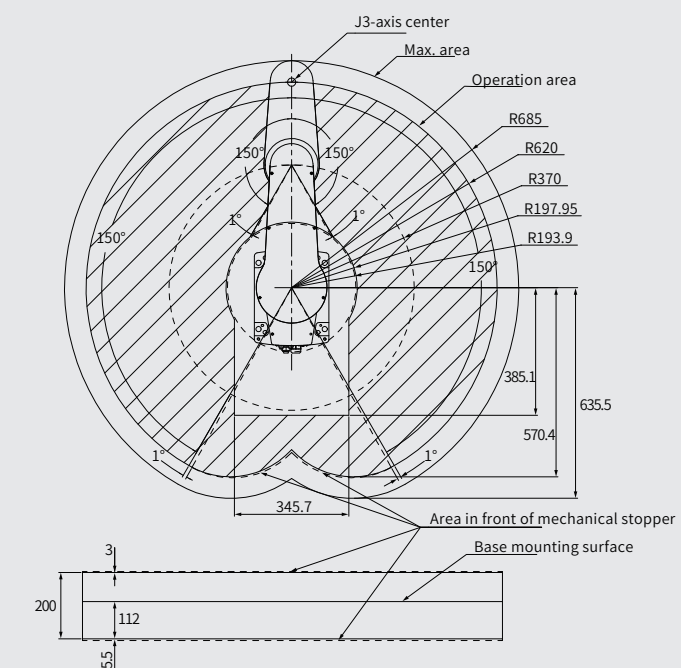
Technical Data

Item		IR-C8-62Z20S3-A1
Mounting mode		Tabletop
Arm length	Arm 1 + Arm 2	620 mm
Maximum speed	J1 + J2	6950 mm/s
	J3	2200 mm/s
	J4	2800 deg/s
Weight (excluding cables)		50 kg
Repeatability	J1 + J2	±0.02 mm
	J3	±0.01 mm
	J4	±0.01°
Maximum motion range	J1	±150°
	J2	±150°
	J3	200 mm
	J4	±360°
Handling capacity (load)	Rated	4 kg
	Maximum	8 kg
Cycle time		0.26s
Allowable inertia moment of J4	Rated	0.01 kg·m ²
	Maximum	0.12 kg·m ²
Maximum power		3.1 kW
Press-in force of J3		100 N
Homing		Not needed
Customer signal line		15 (15Pin: D-sub)
Customer air piping		Φ6 mm x 2, 0.59 Mpa (6 kgf/cm ² :86 psi)
Installation environment		Standard
Matching controller		IRCB500 drive-control integrated controller

Mounting Dimensions(mm)



Motion Range(mm)



SCARA Robot

IRS11 3-Axis Series

Robots featuring IP67 protection and acid/alkali corrosion-resistant surface, designed for long-term stable operation in environments suffering from moisture and oil mist.

Scope of Application

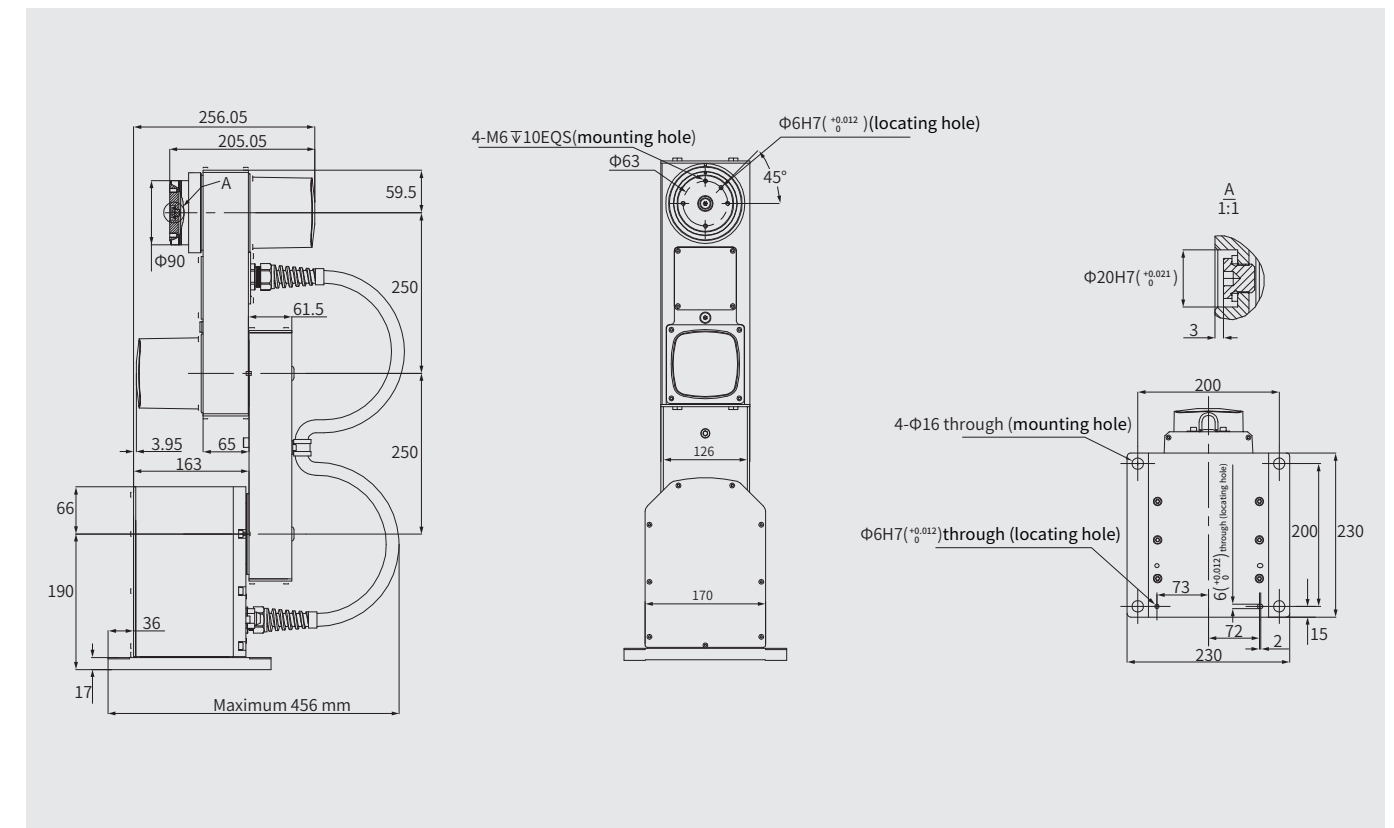
Especially applicable to material loading and unloading as a highly protective and cost-effective solution.

Features

Load	8 kg
Arm length	500 mm
IP rating	IP67
Motion axis	R/R/R axis



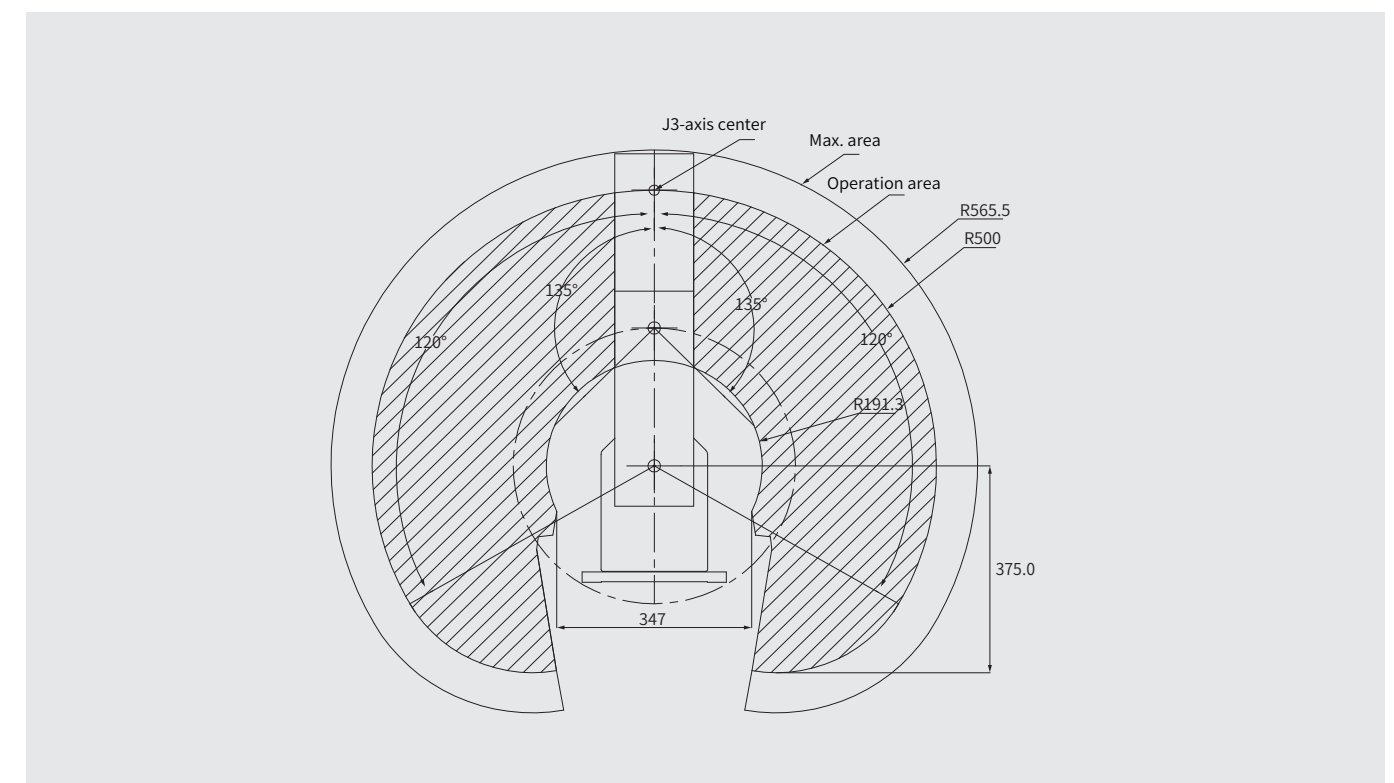
Mounting Dimensions(mm)



Technical Data

Item		IRS11-8-50TS5
Mounting mode		Tabletop
Number of motion axes		3
IP rating		IP67
Arm length	Arm 1 + Arm 2	500 mm
Maximum speed	J1 + J2	5890 mm/s
	J3	600° /s
Weight (excluding cables)		24 kg
Repeatability	J1 + J2	±0.02 mm
	J3	±0.01°
Maximum motion range	J1	±120°
	J2	±135°
	J3	±360°
Handling capacity (load)	Maximum	8 kg
Maximum power		1 kW
Homing		Not needed
Matching controller		IRCB500 drive-control integrated controller

Motion Range(mm)



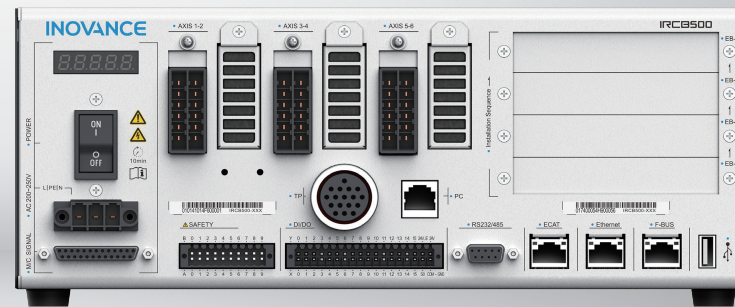
Robot Controller

IRCB500 Series

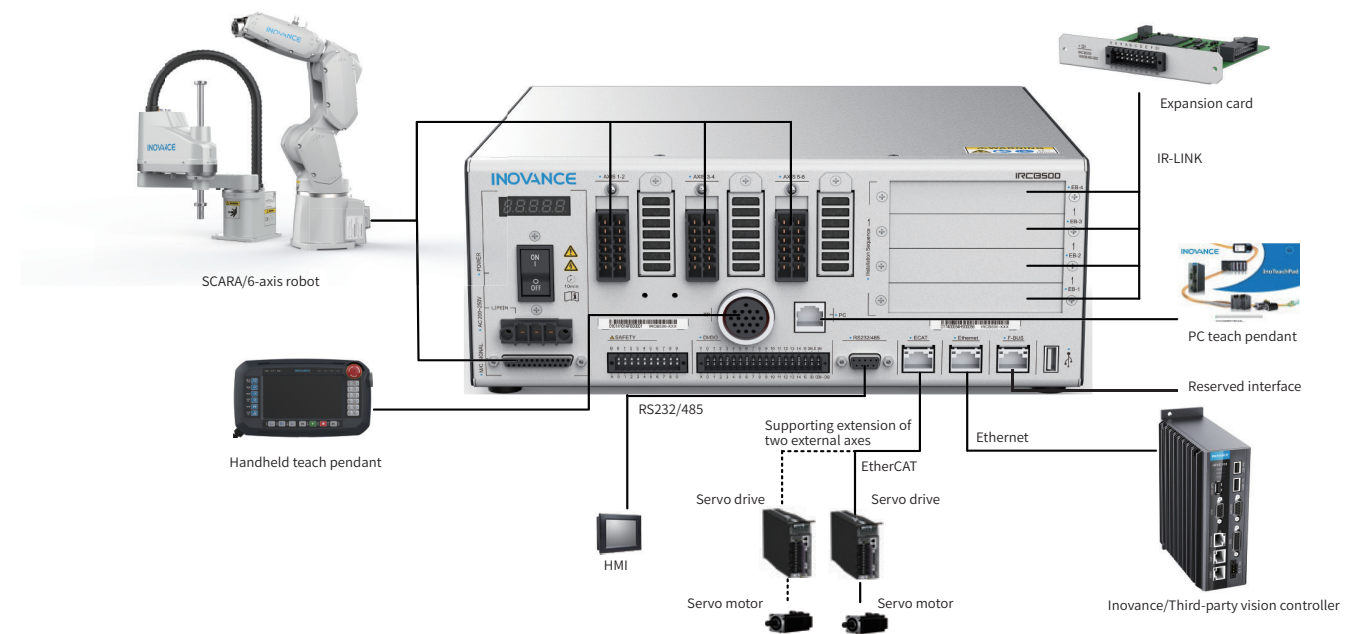
Robot controllers featuring delicate structure, abundant functions, easy installation, and easy extension to meet the market demands for compact structure, flexible production and productivity boost in 3C industry.

Applicable Robots

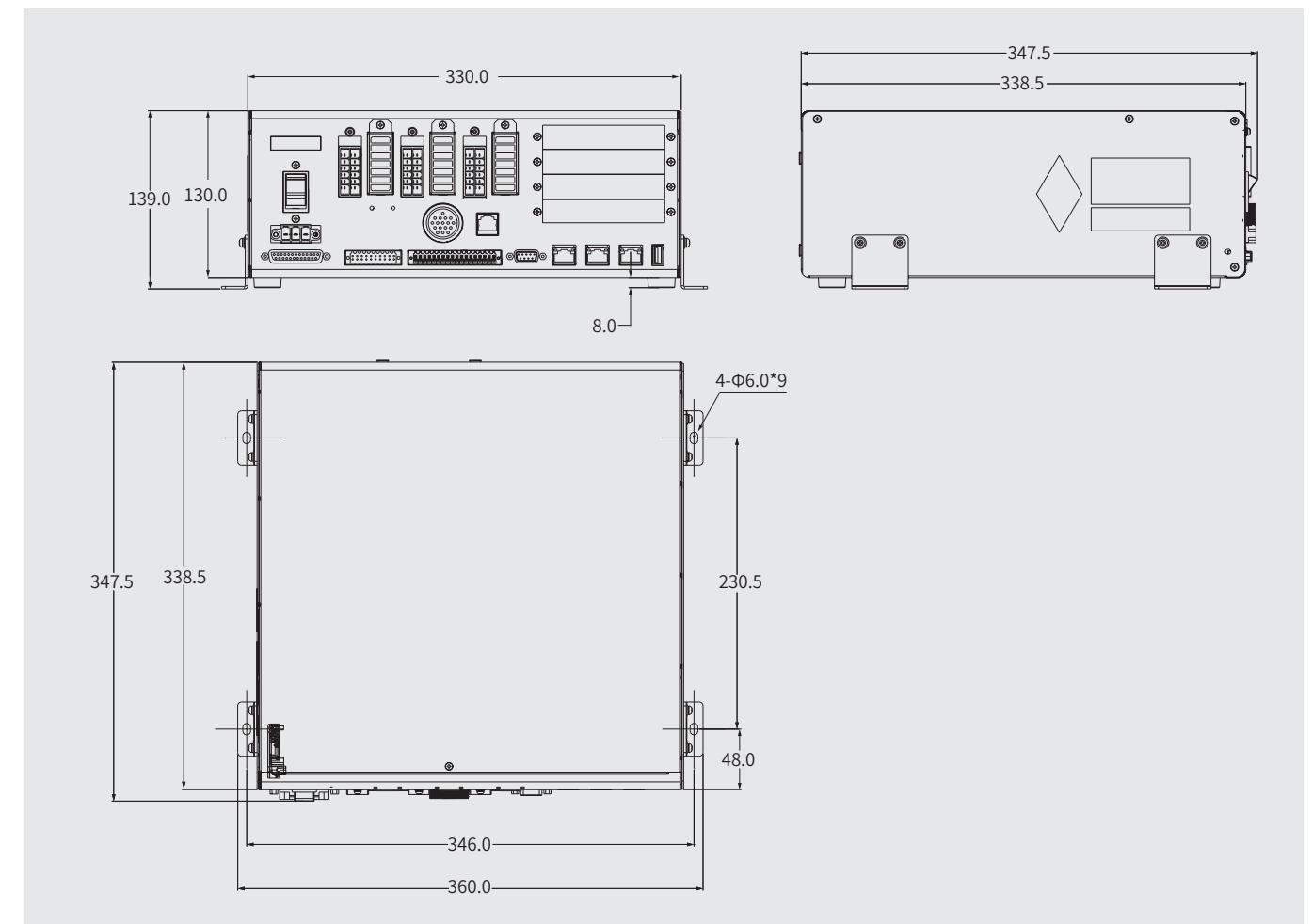
SCARA Robot	IR-S4/7/10 Series	●
	IR-TS4/5 Series	●
	IRS111 Series	●
	IRS112 Series	●
	IR-S20 Series	●
6-Axis Robot	IR-GS20 Series	●
	IR-S50 Series	●
	IRS311-3/7 Series	●
	IR-R4/11 Series	●
Others	IR-R10 Series	×
	IR-R20 Series	×
	IR-R60/80 Series	×
	IRS11 Series	●
	IR-C8 Series	●



System Topology



Mounting Dimensions(mm)



Technical Data

Controlled axes	8 (including robot motion axis)
Motion mode	Point-to-point, arching, linear interpolation, circular interpolation, free curve interpolation, and dynamic following
Mounting mode	Vertical mounting, horizontal mounting, 19" rack mounting
Standard I/Os	16 inputs and 16 NPN outputs (extendable)
Communication interfaces	Ethernet interface: Used for TCP/IP, Modbus TCP, Ethernet/IP, MC communication
	F-Bus interface: Used for EtherCAT bus communication
	EtherCAT interface: Used for extension of external axes
	RS232/RS485 interface: Used for serial and Modbus RTU communication (RS485 only)
Control mode	USB2.0 interface: Used for backup/upload programs and export robot status information
	PC programming platform control, teach pendant control, remote I/O control, remote Modbus control, and API control
Power supply	Input voltage: Single-phase 200 VAC to 240 VAC, 10A, 50 Hz to 60 Hz
	Max. power consumption: 2.1 kW (depending on the robot model)
IP rating	IP20
Operating conditions	Temperature: 5° C to 40° C ; Relative humidity: 20% to 95% RH@30° C (non-condensing)
Dimensions	330 mm × 338.5 mm × 130 mm
Weight	8 kg

Robot Controller

IRCB500 High-Protection Series

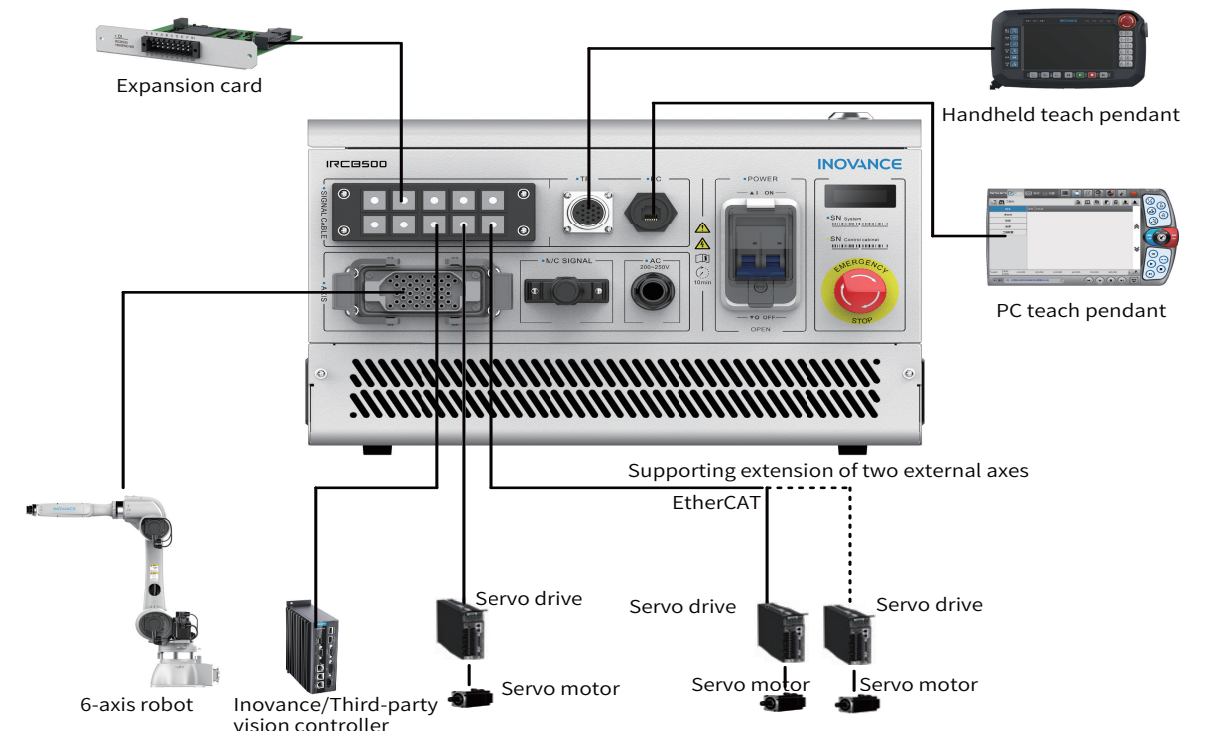
Integrating drive and control functions, the IRCB500 high-protection series features delicate structure, abundant functions, easy installation, and easy extension. It is widely used in automotive, die casting, machine tools, packaging and other industrial automation industries, as well as medical, laboratory automation and consumer product automation production industries.

Applicable Robots

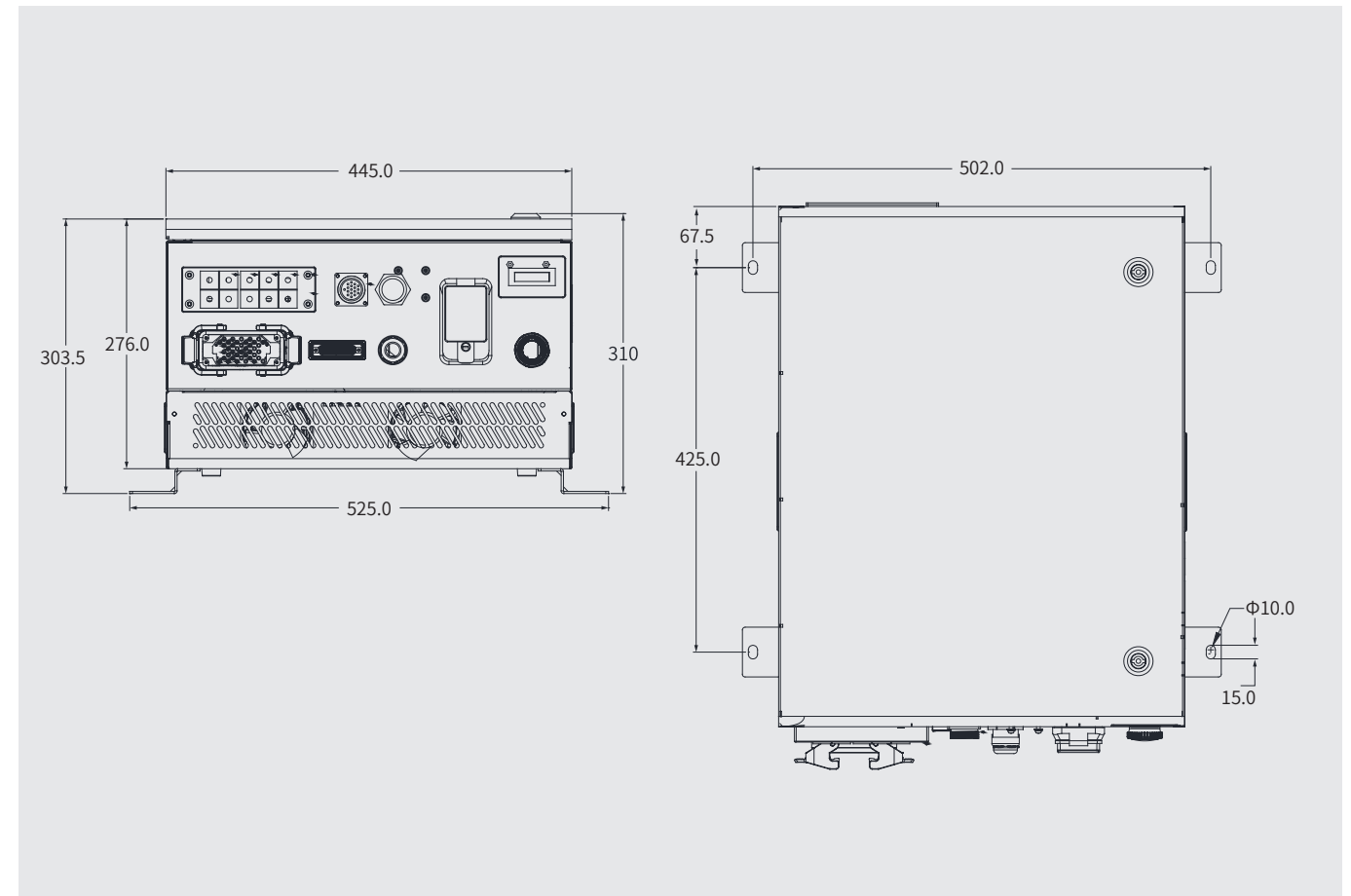
SCARA Robot	IRS111 Series	×
	IRS112 Series	×
	IR-S20 Series	×
	IR-GS20 Series	×
6-Axis Robot	IR-S50 Series	●
	IRS311-3/7 Series	×
	IR-R10 Series	●
Others	IR-R20 Series	●
	IR-R60/80 Series	×
	IRS11 Series	×
	IR-C8 Series	×



System Topology



Mounting Dimensions(mm)



Technical Data

Controlled axes	6 robot axes + 2 external axes
Motion mode	Point-to-point, arching, linear interpolation, circular interpolation, free curve interpolation, and dynamic following
Mounting mode	Vertical mounting, horizontal mounting, 19" rack mounting
Standard I/Os	16 inputs and 16 NPN outputs (extendable)
Communication interfaces	Ethernet interface: Used for TCP/IP, Modbus TCP, Ethernet/IP, MC communication
	F-Bus interface: Used for EtherCAT bus communication
	EtherCAT interface: Used for extension of external axes
	RS232/RS485 interface: Used for serial and Modbus RTU communication (RS485 only)
	USB2.0 interface: Used for backup/upload programs and export robot status information
Control mode	PC programming platform control, teach pendant control, remote I/O control, remote Modbus control, and API control
Power supply	Input voltage: Single-phase 200 VAC to 250 VAC, 23A, 50 Hz to 60 Hz
	Max. power consumption: 4.5 kW (depending on the robot model)
IP rating	IP54 + anti metal dust
Operating conditions	Temperature: 0° C to 45° C; Relative humidity: 20% to 95% RH@30° C (non-condensing)
Dimensions	445 mm × 575 mm × 276 mm
Weight	30 kg

Robot Controller

IRCB100 High-Protection Series

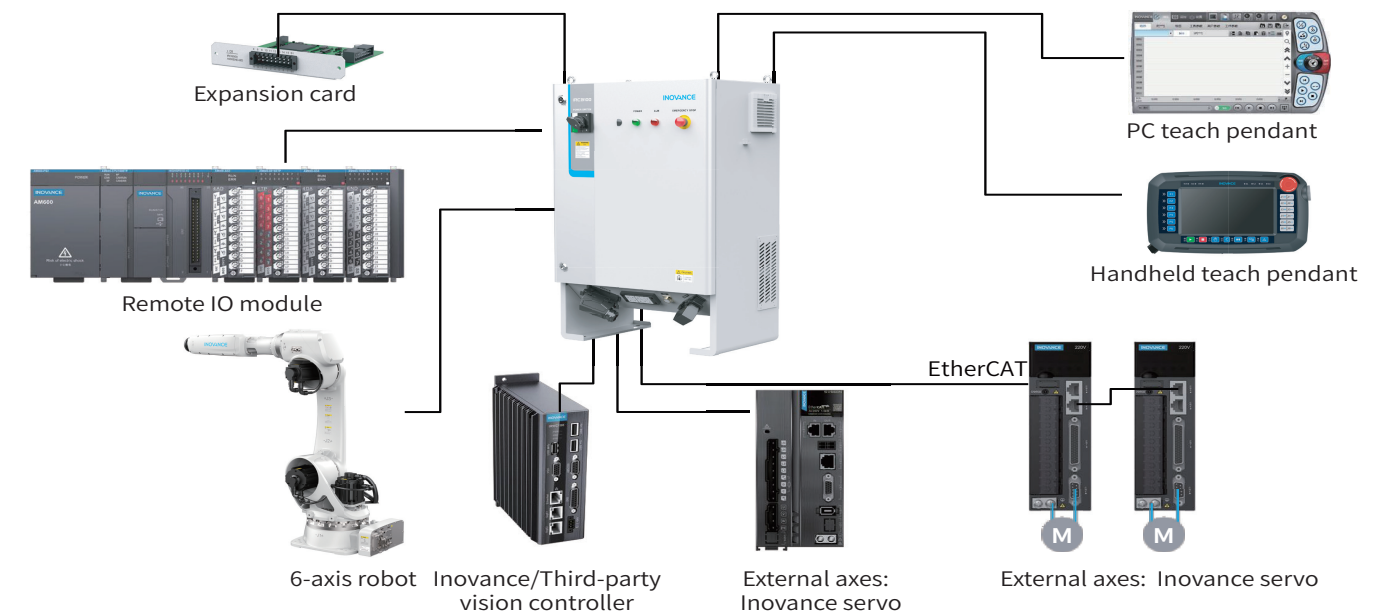
The IRCB100 series is well protected from metal dust and applicable to 6-axis robots with a payload from 30 to 300 kg, featuring high compatibility with a variety of hardware control platforms and support of various external expansion modules and ECAT slave stations.

Applicable Robots

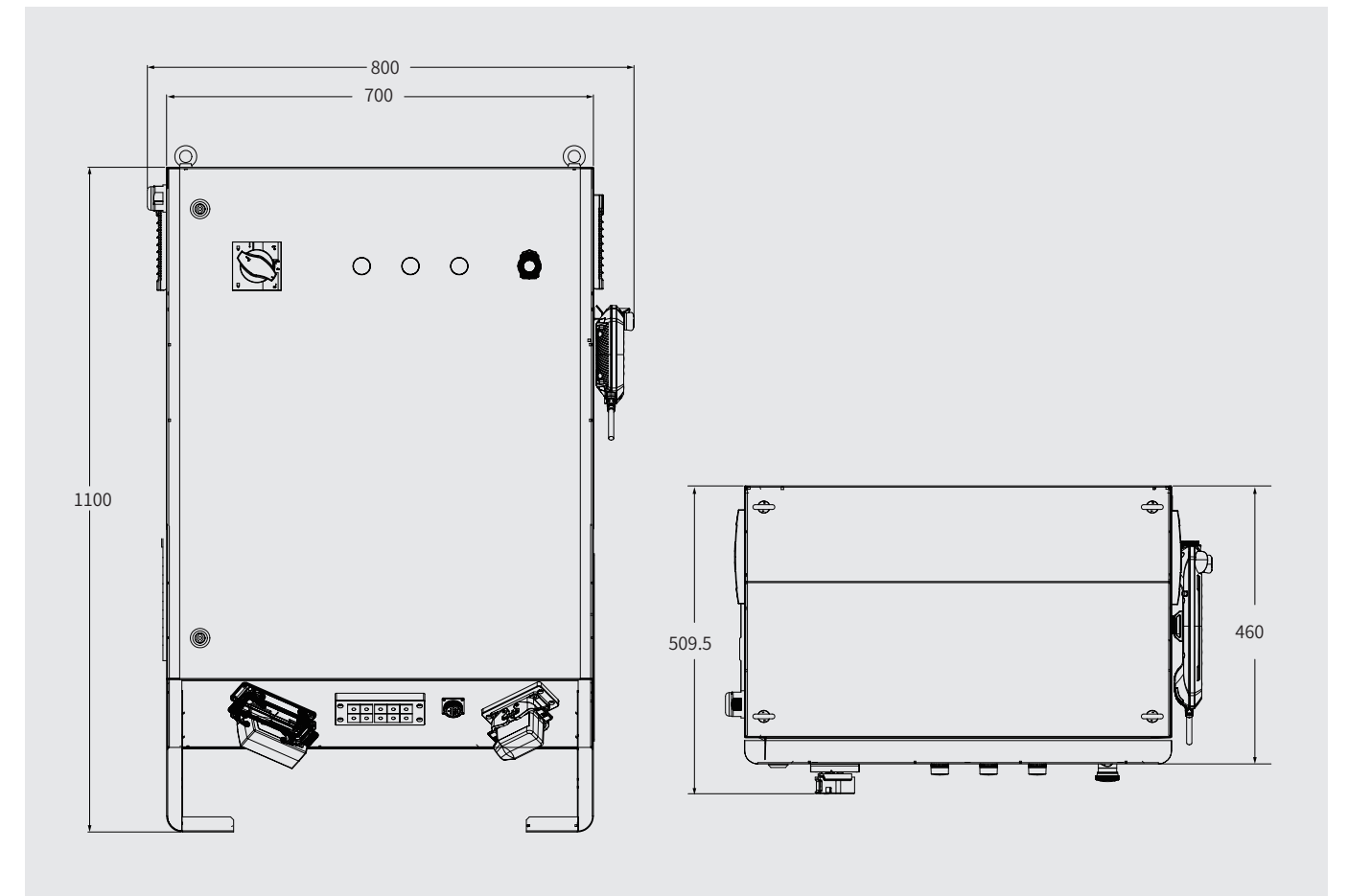
6-Axis Robot	IR-R60/80 Series	●
	IR-R220 Series	●



System Topology



Mounting Dimensions(mm)



Technical Data

Controlled axes	6 robot axes + 2 external axes
Motion mode	Point-to-point, linear interpolation, circular interpolation, free curve interpolation, and dynamic following
Mounting mode	Vertical mounting
Standard I/Os	16 inputs and 16 NPN outputs (extendable)
Communication interfaces	Ethernet interface: Used for TCP/IP, Modbus TCP, Ethernet/IP, MC communication
	F-Bus interface: Used for EtherCAT bus communication
	IR-Link interface: Used to connect local extension modules
	EtherCAT interface: Used for extension of external axes
	RS232/RS485 interface: Used for serial and Modbus RTU communication (RS485 only)
Safety functions	External emergency stop button, safety circuit access, safety door, excessive speed error detection, excessive position error detection, storage error detection, and CPU error detection
	USB2.0 interface: Used for backup/upload programs and export robot status information
Power supply	Input voltage: Three-phase 380 VAC ± 10%, 32 A, 50 Hz to 60 Hz
	Max. power consumption: 19 kW (depending on the robot model)
IP rating	IP54
Operating conditions	Temperature: 0° C to 45° C; Relative humidity: 20% to 95% RH@30° C (non-condensing)
Dimensions	700 mm × 460 mm × 1100 mm
Weight	93 kg

List of Robot Models

6-Axis Robot

Series	IRS311-3	IR-R4	IR-R4H	IRS311-7		IR-R11	IR-R10	
Model	60TS5	56S5	54S5	70TS5	90TS5	90S5	110S5	
Structural style	Vertical axis cascading structure							
Number of Axes	6 axes							
Maximum reach (mm)	638	560.6	545.7	717	911	901.9	1101.6	
Repeatability (mm)	±0.02	±0.01	±0.02	±0.02	±0.03	±0.02	±0.02	
Wrist load	Maximum (kg)	3	4	4	7	7	11.3	10
	Maximum speed							
Maximum speed	J1 (°/s)	440	460	460	450	300	300	300
	J2 (°/s)	420	460	460	380	280	225	225
	J3 (°/s)	500	520	520	520	360	330	330
	J4 (°/s)	600	560	560	550	550	450	450
	J5 (°/s)	600	560	560	550	550	420	420
	J6 (°/s)	900	900	900	1000	620	720	720
Maximum motion range	J1 (°)	±170	±170	±170	±170	±170	±170	±170
	J2 (°)	-145 to +78	-120 to +110	-120 to +110	-135 to +80	-125 to +80	+100 to -135	+100 to -135
	J3 (°)	-71 to +173	-69 to +205	-65 to +195	-70 to +190	-70 to +190	-66 to +210	-66 to +210
	J4 (°)	±200	±190	±190	±190	±190	±190	±190
	J5 (°)	±120	±120	±120	±120	±120	±125	±125
	J6 (°)	±360	±360	±360	±360	±360	±360	±360
Allowed wrist torque	J4 (N·m)	7.36	8.86	8.86	16.6	16.6	20.45	18.59
	J5 (N·m)	7.36	8.86	8.86	16.6	16.6	20.45	18.59
	J6 (N·m)	4.41	4.9	4.9	9.4	9.4	10.8	9.8
Allowed wrist inertia	J4 (kg·m ²)	0.42	0.2	0.2	0.47	0.47	0.6	0.6
	J5 (kg·m ²)	0.42	0.2	0.2	0.47	0.47	0.6	0.6
	J6 (kg·m ²)	0.18	0.067	0.067	0.15	0.15	0.2	0.2
Environment	Operating ambient temperature (°C)	0 to 45	0 to 45	0 to 45	0 to 45	0 to 45	0 to 45	0 to 45
	Relative humidity (non-condensing)	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)
	Maximum Temperature Gradient (°C/min)	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Airborne noise (dB)	≤ 75	≤ 75	≤ 80	≤ 75	≤ 75	≤ 75	≤ 75	
IP rating	IP40 (IP67 optional)	IP40 (IP67 optional)	IP40 (IP67 optional)	IP65	IP65	IP40 (IP67 optional)	IP40 (IP67 optional)	
Weight	35 kg	24 kg	24.5 kg	38 kg	40 kg	45 kg	47 kg	
Controller	IRCB500-6LD					IRCB500-6FD		

*Contact Inovance technical support for customized models

List of Robot Models

6-Axis Robot

Series	IR-R20		IR-R50	IR-R60	IR-R80	IR-R130	IR-R170	IR-R220	
Model	170S5	200S5	250S7	210S5	210S5	310S7	270S7	270S7	
Structural style	Vertical axis cascading structure								
Number of Axes	6 axes								
Maximum reach (mm)	1723	2045	2500	2109		3096	2701	2701	
Repeatability (mm)	±0.05		±0.07	±0.07		±0.07	±0.07	±0.07	
Wrist load	Maximum (kg)	20	10	50	60	80	130	170	220
	Maximum speed								
Maximum speed	J1 (°/s)	190		175	175	175	130	130	120
	J2 (°/s)	175		150	175	140	115	115	105
	J3 (°/s)	200		175	175	160	125	125	110
	J4 (°/s)	400		250	250	230	180	180	140
	J5 (°/s)	360		250	250	230	180	180	140
	J6 (°/s)	610		355	355	355	260	260	220
Maximum motion range	J1 (°)	±170		±180	±180		±180	±180	±180
	J2 (°)	-155 to +80		-135 to +90	-135 to +90		-76 to +60	-76 to +60	-76 to +60
	J3 (°)	-75 to +160		-80 to +170	-80 to +170		-79 to +180	-79 to +180	-79 to +180
	J4 (°)	±180		±190	±190		±360	±360	±360
	J5 (°)	±140		±125	±125		±125	±125	±125
	J6 (°)	±360		±360	±360		±360	±360	±360
Allowed wrist torque	J4 (N·m)	42	22	206	206	380	710	940	1360
	J5 (N·m)	42	22	206	206	380	710	940	1360
	J6 (N·m)	20	10	127	127	200	355	490	735
Allowed wrist inertia	J4 (kg·m ²)	1.18	1	28	28	30	72	89	147
	J5 (kg·m ²)	1.18	1	28	28	30	72	89	147
	J6 (kg·m ²)	0.5	0.2	11	11	20	40	46	82
Environment	Operating ambient temperature (°C)	0 to 45		0 to 45	0 to 45		0 to 45	0 to 45	0 to 45
	Relative humidity (non-condensing)	5% to 95% RH (non-condensing)		5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)		5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)	5% to 95% RH (non-condensing)
	Maximum Temperature Gradient (°C/min)	1.5		1.5	1.5		1.5	1.5	1.5
Airborne noise (dB)	≤ 80		≤ 85	≤ 85		≤ 85	≤ 85	≤ 85	
IP rating	Body: IP65 Wrist: IP67		Body: IP54 Wrist: IP67	Body: IP65 Wrist: IP67		Body: IP65 Wrist: IP67			
Weight	240 kg	245 kg	690 kg	680 kg		1155 kg	1130 kg	1130 kg	
Controller	IRCB500-6ND		IRCB100-6FT			IRCB100-6GT			

*Contact Inovance technical support for customized models

List of Robot Models

SCARA Robot — Floor Mounted

Series	IR-S4	IR-S7			IR-S10			IRS111-3			
Model	40Z15S3	50Z20S3	60Z20S3	70Z20S3	60Z20S3	70Z20S3	80Z20S3	25Z15TS3	30Z15TS3	40Z15TS3	
Mounting mode	Tabletop										
Arm length	J1+J2 (mm)	400	500	600	700	600	700	800	250	300	400
	J1 (mm)	225	225	325	425	225	325	425	125	125	225
	J2 (mm)	175	275	275	275	375	375	375	125	175	175
Maximum speed	J1+J2 (mm/s)	7200	7120	7850	8590	9100	9800	10500	4000	5000	6000
	J3 (mm/s)	1300	1600	1600	1600	1550	1550	1550	1100	1100	1100
	J4 (°/s)	2600	2000	2000	2000	2700	2700	2700	2600	2600	2600
Maximum motion range	J1 (°)	±132	±132	±132	±132	±132	±132	±132	±132	±132	±132
	J2 (°)	±141	±150	±150	±150	±150	±150	±150	±130	±141	±141
	J3 (mm)	150	200	200	200	200	200	200	150	150	150
	J4 (°)	±360	±360	±360	±360	±360	±360	±360	±360	±360	±360
Repeat-ability	J1+J2 (mm)	±0.01	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.01	±0.01	±0.01
	J3 (mm)	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01
	J4 (°)	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01
Load	Rated (kg)	2	2	2	2	5	5	5	1	1	1
	Maximum (kg)	4	7	7	7	10	10	10	3	3	3
Permissible moment of inertia of J4	Rated (kg·m ²)	0.005	0.01	0.01	0.01	0.02	0.02	0.02	0.005	0.005	0.005
	Max (kg·m ²)	0.05	0.12	0.12	0.12	0.3	0.3	0.3	0.05	0.05	0.05
Standard cycle time (s)	0.342	0.344	0.352	0.36	0.361	0.386	0.416	0.49	0.48	0.42	
Lead screw dimensions	Shaft diameter (mm)	Φ16	Φ20	Φ20	Φ20	Φ20	Φ20	Φ20	Φ16	Φ16	Φ16
	Through hole inner diameter (mm)	Φ11	Φ14	Φ14	Φ14	Φ14	Φ14	Φ14	Φ11	Φ11	Φ11
Mounting base dimensions (mm)	120x120 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	120X120 (Φ9)	120X120 (Φ9)	120X120 (Φ9)	
Weight (excluding cables)	11 kg	17 kg	17 kg	18 kg	19.5 kg	20 kg	21.5 kg	12	12.5	13	
Controller	IRCB500-4AD				IRCB500-4CD			IRCB500-4AD			

*Contact Inovance technical support for customized models

List of Robot Models

SCARA Robot — Floor Mounted

Series	IRS111-6			IRS111-10			IRS111-20				IR-S50	
Model	50Z20TS3	60Z20TS3	70Z20TS3	50Z20TS3	60Z20TS3	70Z20TS3	60Z18TS3	70Z18TS3	80Z42TS3	100Z42TS3	120Z40S3	
Mounting mode	Tabletop											
Arm length	J1+J2 (mm)	500	600	700	500	600	700	600	700	800	1000	1200
	J1 (mm)	225	325	425	225	325	425	300	400	350	550	600
	J2 (mm)	275	275 mm	275	275	275	275	300	300	450	450	600
Maximum speed	J1+J2 (mm/s)	6150	6800	7450	6150	6800	6800	6800	7450	9940	11250	7400
	J3 (mm/s)	1100	1100	1100	1100	1100	1100	1010	1010	1010	1010	750
	J4 (°/s)	2000	2000	2000	1050	1050	1050	1400	1400	1400	1400	600
Maximum motion range	J1 (°)	±127	±132	±127	±127	±132	±127	±132	±132	±132	±132	±128
	J2 (°)	±145	±150	±145	±145	±150	±145	±152	±152	±152	±152	±150
	J3 (mm)	200	200	200	200	200	200	180	180	420	420	400
	J4 (°)	±360	±360	±360	±360	±360	±360	±360	±360	±360	±360	±360
Repeat-ability	J1+J2 (mm)	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.02	±0.025	±0.025	±0.05
	J3 (mm)	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.02
	J4 (°)	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.01	±0.005
Load	Rated (kg)	2	2	2	5	5	5	10	10	10	10	-
	Maximum (kg)	6	6	6	10	10	10	20	20	20	20	50
Permissible moment of inertia of J4	Rated (kg·m ²)	0.01	0.01	0.01	0.02	0.02	0.02	0.05	0.05	0.05	0.05	-
	Max (kg·m ²)	0.12	0.12	0.12	0.25	0.25	0.25	0.45	0.45	0.45	0.45	2.45
Standard cycle time (s)	0.40	0.42	0.44	0.46	0.47	0.54	0.42	0.42	0.45s	0.47s	0.84	
Lead screw dimensions	Shaft diameter (mm)	Φ20	Φ20	Φ20	Φ20	Φ20	Φ20	Φ25	Φ25	Φ25	Φ25	Φ24.9
	Through hole inner diameter (mm)	Φ14	Φ14	Φ14	Φ14	Φ14	Φ14	Φ18	Φ18	Φ18	Φ18	Φ12
Mounting base dimensions (mm)	150X150 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	150X150 (Φ9)	200X200 (Φ16)	200X200 (Φ16)	200X200 (Φ16)	200X200 (Φ16)	200X200 (Φ14)	
Weight (excluding cables)	18	19	21	20	21	22	42	43	50	53	124	
Controller	IRCB500-4AD			IRCB500-4CD								IRCB500-4MD

*Contact Inovance technical support for customized models

List of Robot Models

SCARA Robot

Type	Code	Model (Model for Orders)	Description
3 kg	01740295	IRS111-3-25Z15TS3	Arm length: 250 mm Z-axis travel: 150 mm Max. load: 3 kg
	01740294	IRS111-3-30Z15TS3	Arm length: 300 mm Z-axis travel: 150 mm Max. load: 3 kg
	01740293	IRS111-3-40Z15TS3	Arm length: 400 mm Z-axis travel: 150 mm Max. load: 3 kg
4 kg	01740515	IR-S4-40Z15S3	Arm length: 400 mm Z-axis travel: 150 mm Max. load: 4 kg
6 kg	01740292	IRS111-6-50Z20TS3	Arm length: 500 mm Z-axis travel: 200 mm Max. load: 6 kg
	01740291	IRS111-6-60Z20TS3	Arm length: 600 mm Z-axis travel: 200 mm Max. load: 6 kg
	01740289	IRS111-6-70Z20TS3	Arm length: 700 mm Z-axis travel: 200 mm Max. load: 6 kg
7 kg	01740560	IR-S7-50Z20S3	Arm length: 500 mm Z-axis travel: 200 mm Max. load: 7 kg
	01740546	IR-S7-60Z20S3	Arm length: 600 mm Z-axis travel: 200 mm Max. load: 7 kg
	01740561	IR-S7-70Z20S3	Arm length: 700 mm Z-axis travel: 200 mm Max. load: 7 kg
10 kg	01740568	IR-S10-60Z20S3	Arm length: 600 mm Z-axis travel: 200 mm Max. load: 10 kg
	01740567	IR-S10-70Z20S3	Arm length: 700 mm Z-axis travel: 200 mm Max. load: 10 kg
	01740544	IR-S10-80Z20S3	Arm length: 800 mm Z-axis travel: 200 mm Max. load: 10 kg
	01740288	IRS111-10-50Z20TS3	Arm length: 500 mm Z-axis travel: 200 mm Max. load: 10 kg
	01740287	IRS111-10-60Z20TS3	Arm length: 600 mm Z-axis travel: 200 mm Max. load: 10 kg
	01740285	IRS111-10-70Z20TS3	Arm length: 700 mm Z-axis travel: 200 mm Max. load: 10 kg
	01740393	IRS111-10-80Z20TS3	Arm length: 800 mm Z-axis travel: 200 mm Max. load: 10 kg
	01740346	IRS111-10-80Z30TS3	Arm length: 800 mm Z-axis travel: 300 mm Max. load: 10 kg
20 kg	01740286	IRS111-20-60Z18TS3	Arm length: 600 mm Z-axis travel: 180 mm Max. load: 20 kg
	01740284	IRS111-20-70Z18TS3	Arm length: 700 mm Z-axis travel: 180 mm Max. load: 20 kg
	01740283	IRS111-20-80Z42TS3	Arm length: 800 mm Z-axis travel: 420 mm Max. load: 20 kg
	01740282	IRS111-20-100Z42T3	Arm length: 1000 mm Z-axis travel: 420 mm Max. load: 20 kg
50 kg	01740589	IR-S50-120Z40S3-B1	Arm length: 1200 mm Z-axis travel: 400 mm Max. load: 50 kg
Ceiling-mounted	01740281	IRS112-3-35Z13RS3	Arm length: 350 mm Z-axis travel: 130 mm Max. load: 3 kg
	01740280	IRS112-4-55Z13RS3	Arm length: 550 mm Z-axis travel: 130 mm Max. load: 4 kg
	01740553	IR-TS4-35Z15S3	Arm length: 350 mm Z-axis travel: 150 mm Max. load: 4 kg
	01740554	IR-TS5-55Z15S3	Arm length: 550 mm Z-axis travel: 150 mm Max. load: 5 kg

*1: The robot comes with a 3 m standard trailing cable. If needed, you can choose standard or highly-flexible 5 m/10 m/15 m trailing cable. For details, contact Inovance technical support.

6-Axis Robot

Type	Code	Model (Model for Orders)	Description
3 kg	01740279	IRS311-3-60TS5	Arm length: 638 mm Max. load: 3 kg
4 kg	01740496	IR-R4-56S5	Arm length: 560.6 mm Max. load: 4 kg
4 kg (hollow wrist)	01740542	IR-R4H-54S5	Arm length: 545.7 mm Max. load: 4 kg
7 kg	01740278	IRS311-7-70TS5	Arm length: 717 mm Max. load: 7 kg
	01740277	IRS311-7-90TS5	Arm length: 911 mm Max. load: 7 kg
10 kg	01740419	IR-R10-140S5-B1	Arm length: 1422 mm Max. load: 10 kg
	01740421	IR-R10-200S5-B1	Arm length: 2045 mm Max. load: 10 kg
	01740477	IR-R10-110S5	Arm length: 1101.6 mm Max. load: 10 kg
11 kg	01740527	IR-R11-90S5	Arm length: 901.9 mm Max. load: 11 kg
20 kg	01740420	IR-R20-170S5-B1	Arm length: 1723 mm Max. load: 20 kg
50 kg	/	IR-R50-250S7	Arm length: 2500 mm Max. load: 50 kg
60 kg	01740416	IR-R60-210S5	Arm length: 2109 mm Max. load: 60 kg
80 kg	01740550	IR-R80-210S5	Arm length: 2109 mm Max. load: 80 kg
130 kg	/	IR-R130-310S7	Arm length: 3096 mm Max. load: 130 kg
170 kg	/	IR-R170-270S7	Arm length: 2701 mm Max. load: 170 kg
220 kg	01740513	IR-R220-270S7	Arm length: 2701 mm Max. load: 220 kg

*1: The robot comes with a 5 m standard trailing cable. If needed, you can choose standard or highly-flexible 3 m/10 m/15 m trailing cable. For details, contact Inovance technical support.

Customized Robots

Type	Code	Model (Model for Orders)	Description
3-axis	/	IRS11-8-50TS3	Arm length: 500 mm Max. load: 8 kg
4-axis	/	IR-C8-62Z20S3	Arm length: 600 mm Max. load: 8 kg

Options

Type	Code	Description
Lower telescopic cover kit for lead screw	98070156	Used to protect the lower end of the lead screw of IRS111-6 and IRS111-10 series SCARA robots.
Fork lift tool for robots	01660006	Used by the fork lift for handling IR-R10 and IR-R20 series 6-axis robots.
Fork lift tool for robots	20182661	Sheet metal workpiece used by the fork lift for handling IR-R60/80 series 6-axis robots.
I/O male aviation connector (90°)	15050817	Used for wiring of the aviation connector on the upper end of the forearm in IRS311-3 and IRS311-7 series 6-axis robots.
	15050930	Used for wiring of the aviation connector on the upper end of the forearm in IR-R10 and IR-R20 series 6-axis robots.
I/O cable (5 m)	1504B978	Used for wiring between IRS311-3, IRS311-7, IR-R10 and IR-R20 series 6-axis robots and the controller.
I/O male aviation connector (180°) + I/O cable (5 m)	1504CU41	Used for wiring of the aviation connector on the upper end of the forearm in IR-R60 and IR-R80 series 6-axis robots + wiring between the robot and the controller.
Handheld break release box	01660004	Used to manually release the break of the robot in emergencies, applicable to all series of 6-axis robots.
Compatible bracket	20131993	Used to make IRCB500 drive-control integrated controller be compatible with the mounting holes of IRCB300 series controllers.
Sheet metal parts for vertical mounting of controller	20131974	Used in vertical mounting of IRCB500 drive-control integrated controller.
Protective cover for upper end of lead screw	20212757	Used to protect the upper end of the lead screw of IR-GS20 series SCARA robots.

Teach Pendant Model

Code	Model	Description
01640010	IRTP80-L5	Robot teach pendant (5 m)

Expansion Card

Type	Code	Model	Description
IRCB500 controller	01650019	IRCB500-0016ETND-BD	General I/O expansion card with 16 NPN outputs
	01650020	IRCB500-1600END-BD	General I/O expansion card with 16 inputs
	01650021	IRCB500-2ENID-BD	2-channel differential input incremental encoder expansion card

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Type	Code	Description
Vision dongle	01660003	IRVC-USBK1 (Inovance algorithms)
	01660005	IRVC-USBK2 (Halcon algorithms)
Cable kit	1504AD84	10 V voltage-regulation cable on the camera-trigger end

