

IRB 360 FlexPicker®

Greater flexibility in a compact footprint



ABB's IRB 360 FlexPicker® has been the leader in state-of-the-art high speed robotic picking and packing technology. Compared to conventional hard automation, the IRB 360 offers much greater flexibility in a compact footprint while maintaining accuracy and high payloads.

ABB's IRB 360 family of robots, more commonly known as the FlexPicker, are capable of the fastest picking applications and have been optimized for packing applications. The robot has outstanding motion performance with the shortest cycle times, precision accuracy, and high payloads.

The IRB 360 family includes variants with payloads of 1 kg, 3 kg, 6 kg, and 8 kg and reaches of 1130 mm and 1600 mm—meaning there is an IRB 360 for almost every need.

Featuring outstanding motion control, short cycle times, and precision accuracy, an IRB 360 can operate at very high speeds in anything from narrow to wide spaces with very tight tolerances. Every FlexPicker also benefits from a re-engineered tool flange which can accommodate larger grippers, allowing for efficient handling of flow wrapped products at high speeds from an indexing belt.

Food handling applications

A stainless option for food handling applications is IP69K validated so that it can be washed down with industrial detergents and high pressure hot water. This variant is also designed with smooth and easy to rinse-off surfaces and lubricant free joints that are resistant to most corrosives.

Software and controls

Setting up an application becomes easy using PickMaster® software which has evolved into an invaluable help for integrators and users. It simplifies vision configuration and offers the application tools needed for efficient high speed picking.

Powered by OmniCore or IRC5 controller

The controllers with TrueMove™ and QuickMove™, guarantee high speeds and path following facilities which allows these robots to track fast moving conveyor belts with extreme accuracy. OmniCore C30 controller offers desktop, 19" rack, and vertical mounting kit for easier installation when placing in industrial control cabinets.

The IRC 5 also is available in a panel-mounted version that offers substantial space savings and easy integration into machines and production lines.

Features

- High speed flexibility
- High capacity – up to 8 kg payload
- Hygienic design for washdown applications
- Superior tracking performance
- Integrated vision software
- Integrated control of indexing belts

Specifications			
Robot version	Handling capacity	Diameter	No. Axes
IRB 360-1/1130*	1 kg	1130 mm	3/4
IRB 360-3/1130	3 kg	1130 mm	3/4
IRB 360-1/1600	1 kg	1600 mm	4
IRB 360-6/1600	6 kg	1600 mm	4
IRB 360-8/1130	8 kg	1130 mm	4
Supplementary load	on upper arm		350 g
	on lower arm		350 g
Integrated signal supply	12 poles 50V, 250mA		
Integrated vacuum supply	Max. 7 bar/max vacuum 0.75 bar		

* Tested by IPA, all axes

Physical			
Robot mounting	Inverted		
Weight	120 kg (Standard & wash down)		
	145 kg (Stainless wash down)		
Performance			
Position repeatability	0.1 mm		
Angular repeatability	Standard & stainless axis 4	0.4°	
	Wash-down axis 4	1.5°	

Cycle times					
	0.1 kg	1 kg	3 kg	6 kg	8 kg
25/305/25 (mm)					
IRB 360-1/1130	0.30	0.36			
IRB 360-3/1130	0.40	0.40	0.52		
IRB 360-8/1130		0.38	0.42		0.60
IRB 360-1/1600	0.35	0.40			
IRB 360-6/1600		0.43	0.48	0.60	
90/400/90 (mm)					
IRB 360-1/1130	0.44	0.51			
IRB 360-3/1130	0.60	0.60	0.75		
IRB 360-8/1130		0.55	0.65		0.92
IRB 360-1/1600	0.50	0.54			
IRB 360-6/1600		0.57	0.63	0.80	

The cycle times are measured under real conditions, but may vary depending on the actual application. Please use RobotStudio or real cycle tests to verify actual cycle time.

Electrical connections		
Supply voltage	200-600 V, 60 Hz	
Transformer rating	7.2 kVA	
Power consumption	type of movement	IRB 360/1
	typical pick & place cycle (1 kg)	0.477 kW

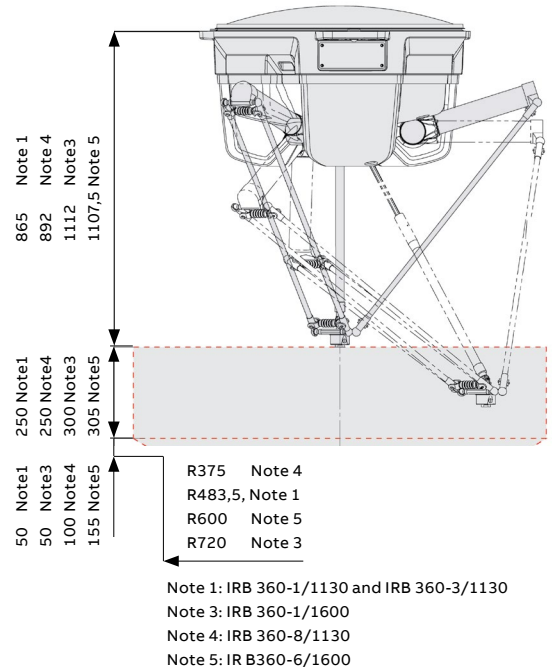
Conveyor tracking		
	speed (mm/s)	repeatability
Constant conveyor	200	1.0 mm
	350-750	1.5 mm
	800-1400	5.0 mm
Start/stop conveyor	500 (start/stop in 0.2 sec)	3.5 mm
Indexing conveyor control	3.5 g acceleration/ deceleration	2.0 mm

The tracking is measured under real conditions with IRB 360-1/1130 & PickMaster. The figures may vary depending on the actual robot max. speed & acceleration in relation to the application demands.

Environment		
Ambient temperature	IRB 360 manipulator	±0°C to +45°C
	Relative humidity	Max. 95 %
Noise level	< 70 dB(A)	
Safety	Double circuits with supervision, emergency stops & safety functions, 3 position enabling device	
Emission	EMC/EMI shielded	
Clean room options axis 4	Standard	Clean room 7
	Wash down	Clean room 5*
	Stainless	Clean room 5*
	Option	Collision detection

* Certified by IPA
Data and dimensions may be changed without notice

Working range



IRB 365 FlexPicker®

5 axes flexibility for fast reorientation of lightweight products



With its 5 axes and 1.5 kg payload, IRB 365 FlexPicker Delta robot adds the needed flexibility to be the ideal and unique solution on the market for fast reorientation of packaged lightweight products.

Key benefits

- **5-axes capability:** the unique 5-axes capability increases application flexibility making it ideal for reorienting, secondary packaging, top-loading, Shelf Ready Packaging (SRP), or Retail Ready Packaging (RRP), bottle unscrambling, and small parcel sorting.
- **Speed:** pick, reorientate and place 1kg product at 120 picks per minute (picking cycle 25x305x25mm and return) or 90 picks per minute (picking cycle 90x400x90mm and return), the fastest in the class.
- **Powered by OmniCore controller:** OmniCore controller offers best-in-class motion control, future-proofing through built-in digital connectivity and 1000+ additional functions to meet changing requirements. OmniCore C30 is the smallest Delta robot controller on the market. The speed and repeatability are archived by OmniCore's motion control and robot design.
- **Powered by PickMaster Twin:** from conception to operation and beyond, PickMaster Twin is the market-leading robotic software for vision-guided random flow picking and packing applications. PickMaster Twin features digital twin technology, which increases productivity by dramatically shortening commissioning times from days to hours and changeover times from hours to minutes.

This combination of performance and flexibility enables the IRB 365 to be deployed in a variety of industries including:

- Food and Beverage
- Consumer Packaged Goods
- E-commerce
- Pharmaceutical

Applications:

- **Product reorienting:** reorientate the lightweight products.
- **Secondary packaging:** top-loading, Shelf Ready Packaging (SRP), and Retail Ready Packaging (RRP) by tilting products in the packaging.
- **Bottle handling & unscrambling:** picking random orientation bottles laying flat and standing them up.
- **Small parcel handling and sorting:** singulation of random bulk parcels and parcel orientation
- **On edge placing:** picking products and placing them on the edge.
- **3D picking:** identify product characteristics and place to an orientation. Identify the stalk position and orientate when placing.
- **Feeding:** picking from a random flow and placing vertical.

Specification

Robot version	Diameter (mm)	Payload (kg)	No. Axes
IRB 365 – 1.5/1100	1100	1.5	5
Supplementary load	on upper arm on lower arm	0.35 kg 0.35 kg	
Protection	IP54		
Mounting	Inverted		
Controller	OmniCore C30		

Performance (According to ISO 9283)

IRB 365 - 1.5/1100	
Pose repeatability, RP [mm]	0.05
Pose stabilization time, PSt [s] within 0.1 mm of the position	0.25

Cycle times (s)

90/400/90 mm cycle	1.0 kg	1.5 kg
IRB 365 - 1.5/1100	0.66	0.69
50/800/50 mm cycle		
IRB 365 - 1.5/1100	0.79	0.84

Physical

IRB 365 – 1.5/1100	
Weight	86 kg

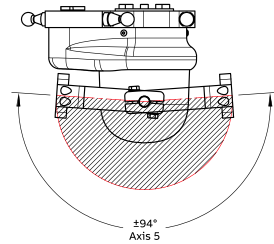
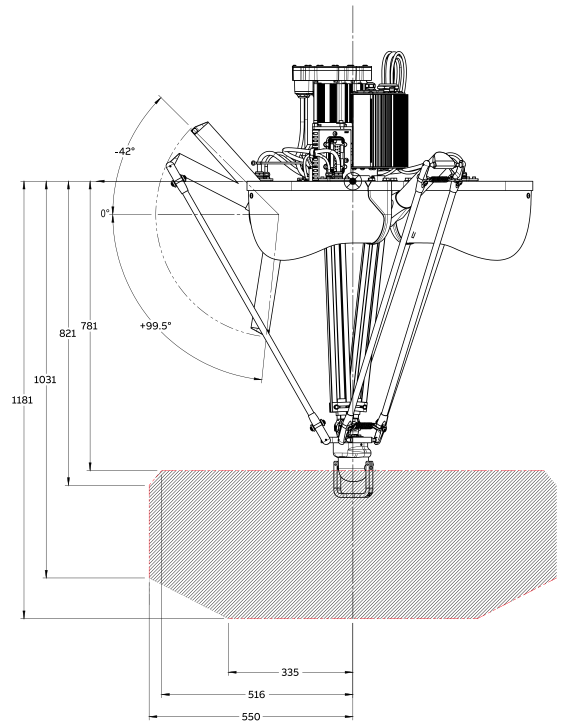
Environment

Ambient temperature	Manipulator 0° C to +45° C Relative humidity Max. 90 %
Noise level	< 59 dB(A)

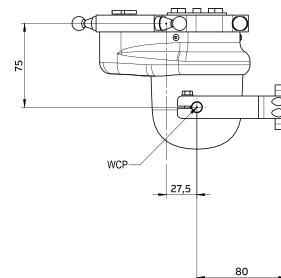
Hygienic Attributes

Food grade lubrication	Gearbox oil Grease behind exposed seals
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Working range (mm)



Axis 5



IRB 390 FlexPacker®

Opening new possibilities for ultra-fast high payload picking and packing



reddot winner 2022

The IRB 390 is a 4 and 5 axis delta robot that is up to 35 percent faster and offers a 45 percent larger working volume for enhanced productivity. Its 5-axis capability increases application flexibility for secondary packaging, making it ideal for Retail Ready Packaging (RRP) where products are placed vertically.

Faster, with a higher payload and more flexibility due to its delta form, the new IRB 390 FlexPacker is ideal for customized packaging, vertical packing and high-speed, high-variation sorting, as well as on demand order picking in logistics and e-commerce fulfillment centers.

Key benefits

- Fast 5-axis motion makes it ideal for Shelf Ready Packaging (SRP) and Retail Ready Packaging (RRP) where products are placed vertically.
- Ability to vertically orient goods means a single manipulator can be used for top load and Shelf Ready Packing with no need for additional equipment.
- 15 kg payload offers high flexibility in materials handling, packaging and sorting applications aimed for heavy products, complex multi-head grippers and full layer packing.
- NSF H1 Food Grade Lubricants and FDA compliant, suitable for use in hygienic sensitive surfaces.
- 35 % faster and offers 45 % larger working volume* for enhanced productivity, enabling products to be picked from high speed systems running at up to 100 m/min and placed into cases, trays, crates or other packaging formats.
- Can be combined with ABB's IRB 360 FlexPicker® and PickMaster® Twin to provide a complete packing solution for pre-sorting and group packing applications.

*compared to IRB 360-8/1130

Game changing in packaging with class-leading performance

The demand for fast, flexible and accurate goods handling are met by the IRB 390. With its class-leading speed, working range and payload handling capabilities, the IRB 390 can be used to sort and pick multiple products of varying sizes and shapes up to 15 kg, enabling increased throughput per robot. The five axes version of the IRB 390 can be used to vertically orient boxes and parcels from lines running at up to 100 meters per minute and place them into cases, trays, crates or other packaging formats.

This combination of performance and flexibility enables the IRB 390 to be deployed in secondary packaging and higher payload applications across a variety of industries including:

- Food and Beverage
- Pharmaceutical
- Medical products
- Personal care
- Consumer Packaged Goods
- Logistics

Applications include:

- Picking, packing, secondary packaging
- Materials handling and sorting
- Bin picking
- Singulation for logistics, parcel picking and sorting and on demand carton box packing

Specification

Robot version	Diameter (mm)	Payload (kg)	No. Axes
IRB 390 - 15/1300	1300	15	4
IRB 390 - 10/1300	1300	10	5
Supplementary load	on upper arm on lower arm	0.5 kg 0.15 kg	
Protection	IP67		
Mounting	Inverted		
Controller	IRC5		

Performance (According to ISO 9283)

	IRB 390 - 15/1300	IRB 390 - 10/1300
Pose repeatability, RP [mm]	0.02	0.07
Pose stabilization time, PSt [s] within 0.1 mm of the position	0.14	0.30

Cycle times (s)

25/305/25mm cycle	1 kg	10 kg	15 kg
IRB 390 - 15/1300	0.42	0.52	0.57
IRB 390 - 10/1300	0.49	0.59	-
90/400/90 mm cycle	1 kg	10 kg	15 kg
IRB 390 - 15/1300	0.59	0.74	0.81
IRB 390 - 10/1300	0.69	0.83	-
200/700/200 mm cycle	1 kg	10 kg	15 kg
IRB 390 - 15/1300	0.89	1.09	1.19
IRB 390 - 10/1300	1.04	1.23	-

Incl. 0.035 s dwell time at pick and place

Physical

	IRB 390 - 15/1300	IRB 390 - 10/1300
Weight	133	148

Environment

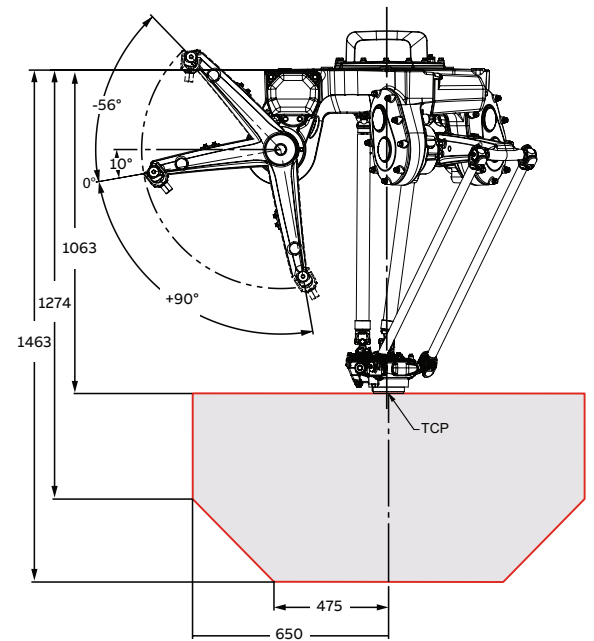
Ambient temperature	IRB 390 manipulator +5 °C to +50 °C Relative humidity max. 95 %
Noise level	< 68 dB(A)
Safety	Double circuits with supervision, emergency stops & safety functions, 3 position enabling device

Hygienic Attributes

Food grade lubrication	Gearbox oil Grease behind exposed seals
FDA compliant material	All exposed surfaces

Working range (mm)

IRB 390 - 15/1300



IRB 390 - 10/1300

