

IRB 8700

High payload robot



The IRB 8700 is ABB's 8th generation of heavy payload, high performance industrial robots. With a focus on high production capacity, compact design, simple service, and low maintenance cost, the IRB 8700 offers a general-purpose robot with the handling capacity and sustainability to meet even your heaviest demands.

In designing the IRB 8700, ABB focused on delivering a reliable robot with a low total cost of ownership. Through a combination of robust design elements, including simpler parts configurations where possible, ABB Robotics applied decades of engineering experience to combine the high performance customers require with low overall maintenance needs. In addition, the IRB 8700 delivers 25% faster speeds than any other robot in this class size.

Outstanding reliability

With a straightforward and uncomplicated design that uses world-class components, LeanID for the best cost-to-endurance ratio in a dress pack, and ABB's Foundry Plus 2 as standard protection, the IRB 8700 will run with very high uptime—a key feature in production lines that operate around the clock.

Simplified design

The IRB 8700 has only one motor and one gear per robot axis, while most other robots in this size class use dual motors and/or gears. In addition, there are no gas springs that can leak and cause safety problems, only a reliable counterweight and mechanical springs for counter balancing. Together these design elements mean fewer components to fail while delivering shorter cycle times and higher accuracy.

Built around LeanID

With LeanID, ABB has developed a concept that is less expensive than completely integrated dress packs but still delivers most of the benefits for a fraction of

the cost. LeanID results in a robot that is easy to simulate in offline programming, has a long dress pack lifetime, supports flexible production with a large working range, and can easily enter tight spaces.

Fast

High payload robots are typically known as being very slow, but the IRB 8700 turns these assumptions on their head. With a compact footprint, optimized counterweight, parallel linkages, stiff axes, and fewer drive motors, the IRB 8700 keeps its momentum down and speed up. In fact, all of these improvements add up to a robot that is 25 % faster than any other robot in its size class. In addition, thanks to superior motion control at high moments of inertia (725 kgm²) the robot can adapt, or slow its speed, to accommodate heavy and wide parts.

Sustainable

The IRB 8700 fully complies with environmental directive RoHS 2002/95/EC and Reach No1907/2006 directives for using non-hazardous materials, resulting in a robot that is safer for work environments.

Features and benefits

- High payloads up to 1000 kg with the wrist down
- 25% faster speeds than other robots in size class
- Highly reliable with simplified design and Foundry Plus 2 protection standard
- Built around LeanID for reduced wear on dress packs and ease of simulation
- Built using non-hazardous materials

Specification

Robot version	Reach (m)	Handling capacity (kg)*	Center of gravity (kg)	Wrist torque (Nm)
Without LeanID				
IRB 8700-800/3.50	3.50	800**	460	6043
IRB 8700-550/4.20	4.20	550	460	5279
With LeanID				
IRB 8700-800/3.50	3.50	630	460	6043
IRB 8700-550/4.20	4.20	475	460	5279
Number of axes	6			
Protection	Std IP67, Foundry Plus 2			
Mounting	Floor			
Controller	IRC5 Single Cabinet			

*Extra loads can be mounted on all variants. 50 kg on upper arm and 250 kg on frame of axis 1. **The load is up to 1000 kg while the wrist is down.

Performance (according to ISO 9283)

	Position repeatability	Path repeatability
IRB 8700-800/3.50	0.05 mm	0.07 mm
IRB 8700-550/4.20	0.08 mm	0.14 mm

Actual values are equal or below the given values.

Technical information

Electrical Connections

Supply voltage	200-600 V, 50/60 Hz
Energy consumption	3.93 kW

Physical

Robot base	1175 x 920 mm
Robot weight (without DressPack)	
IRB 8700-800/3.50	4525 kg
IRB 8700-550/4.20	4575 kg

Environment

Ambient temperature for mechanical unit	
During operation	+5°C (41°F) to +50°C (122°F)
During transportation and storage	-25°C (-13°F) to +55°C (+131°F)
During short periods (max. 24h)	up to +70°C (158°F)
Relative humidity	Max. 95%
Noise level	Max. 71 dB (A)
Safety	Double circuits with supervision, emergency stops and safety functions, 3-position enable device

Extended safety	SafeMove2
Emission	EMC/EMI-shielded
Options	Foundry Plus 2 LeanID

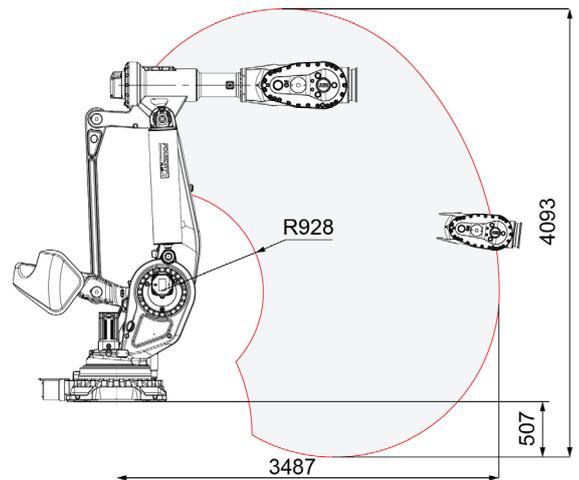
Data and dimensions may be changed without notice.

Movement

Axis movement	Working range	Axis max. speed
Axis 1 rotation	±170° Option: ±220°	75°/s
Axis 2 arm	-65°/+90°	60°/s
Axis 3 arm	-30°/+132°	60°/s
Axis 4 wrist	±300°	85°/s
Axis 5 bend	±130°	85°/s
Axis 6 turn	±360° Max. rev: ±93.7**	115°/s

* The default working range for axis 6 can be extended by changing parameter values in the software.

Working range, IRB 8700-800/3.50



Working range, IRB 8700-550/4.20

