Robotics

IRB 6700
The next generation of large industrial robots

The IRB 6700 family of robots is a natural evolution following more than 30 years of large robot heritage at ABB. This 7th generation of large ABB robots features a multitude of next generation improvements derived from intimate customer relationships and exhaustive engineering studies. The IRB 6700 is more robust than its predecessor and maintenance has been simplified, making it the highest performing robot for the lowest total cost of ownership in the 150-300 kg class.

Not only have accuracy, payload and speed been enhanced in the IRB 6700, but power consumption has been lowered by 15 percent and overall serviceability has been improved. The result is the most reliable and cost effective large robot ABB has ever built. In fact, with the IRB 6700, total cost of ownership has been reduced by 20 percent and minimum time between failures has been calculated at a significant 400,000 hours.

Multiple variants

The IRB 6700 enhances ABB's portfolio by combining greater uptime, higher payloads and longer reach for use in Spot Welding, Material Handling and Machine Tending applications. A complete array of robot variants with payloads from 150 to 300 kg and reaches from 2.6 to 3.2 meters makes the IRB 6700 easily adaptable to the large variety of tasks required in both the automotive and general industries.

Robust and reliable

Anchored by a new generation of accurate, efficient and reliable motors and compact gearboxes, the IRB 6700 is underpinned with quality from the earliest stages of manufacturing. The entire robot structure has been strengthened with higher rigidity, resulting in increased accuracy, shorter cycle time and better protection. It has been built to withstand the harshest working environments and is available with ABB's ultimate Foundry Plus 2 protection system.

To ensure predictions for reliability were accurate in the real world, the IRB 6700 was validated and tested with more robot prototypes than ever before.

Simplified maintenance

In designing the new robot, easier serviceability was identified as a critical aspect for improving its total cost of ownership. The end result is a doubling of time between service intervals and an optimization of maintenance. On average it takes ABB technicians 20 minutes to conduct an annual inspection, and service and repair time has been reduced by as much as 15 percent.

Access to motors has also been improved and technical documentation for maintenance has become easier to read and understand through the use of improved graphics and 3D simulations called "Simstructions."

Built around Lean ID

Every robot in the 6700 family has been designed to accommodate Lean ID—a new Integrated Dressing (ID) solution meant to achieve a balance between cost and durability by integrating the most exposed parts of the dress pack into the robot. Equipping an IRB 6700 with Lean ID makes it easier to program and simulate with predictable cable movements, creates a more compact footprint, and lengthens service intervals due to lessened wear and tear.

Features and benefits

- Increased service intervals and decreased service times
- Longer uptime—minimum time between failures 400,000 hours
- Available with Lean ID for cost effectively increasing dress pack lifetimes
- More robust with a rigid structure and a new generation of motors and compact gearboxes
- Increased speed and shorter cycle times—on average 5 percent faster
- Improved accuracy and higher payloads
- Built to operate in the harshest environments—available with Foundry Plus 2 package
- 15 percent lower power consumption

IRB 6700

Specification

Robot versions IRB	Reach	Handling capacity	Center of gravity	Wrist torque
6700-235	2.65 m	235 kg	300 mm	1324 Nm
6700-205	2.80 m	205 kg	300 mm	1263 Nm
6700-175	3.05 m	175 kg	300 mm	1179 Nm
6700-150	3.20 m	150 kg	300 mm	1135 Nm

Extra loads can be mounted on all variants.
50 kg on upper arm and 250 kg on frame of axis 1.

Number of axes: 6
Protection Complete robot IP 67
Mounting: Floor mounted
IRC5 Controller variants: Single cabinet, Dual cabinet

Performance

	6700-235	6700-205	6700-175	6700-150
Pos. repeatability RP (mm)	0.04	0.06	0.04	0.05
Path repeatability RT (mm)	0.08	0.08	0.12	0.14

Axis movements	Working range	Axis max speed
Axis 1 Rotation*	+170° to - 170°	100°/s
Axis 2 Arm	+85° to - 65°	90°/s
Axis 3 Arm	+70° to - 180°	90°/s
Axis 4 Wrist	+300° to - 300°	170°/s
Axis 5 Bend**	+130° to - 130°	120°/s
Axis 6 Turn***	+360° to - 360°	190°/s

A supervision function prevents overheating in applications with intensive and frequent movements.
* Option ±220°, ** ±120° for LeanID option, *** ±220° for LeanID option

Electrical Connections

Supply voltage 200-600 V,50/60 Hz
Power consumption ISO-Cube 2.85kW

Physical

Dimensions robot base 1004 x 720 mm
Weight 1250 - 1280 kg

Environment

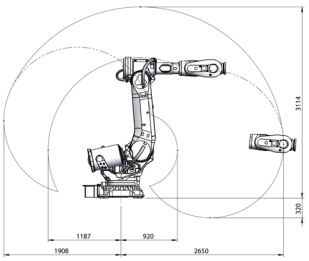
Ambient temperature for mechanical unit
During operation + 5° C (41°F) -+50°C (122°F) *
During transportation and storage for short periods (max 24h) - 25° C (13°F) -+55°C (131°F) up to +70° C (158°F)
Relative humidity Max 95 %
Noise level Max 71 dB
Safety Double circuits with supervision, emergency stops and safety functions, 3-position enable device
Emission EMC/EMI-shielded
Options Foundry Plus 2
LeanID

* In a high-speed press tending application, max ambient temperature is 40 °C.

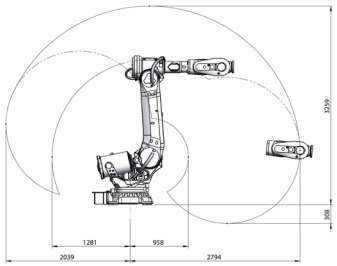
Data and dimensions may be changed without notice.

Working range

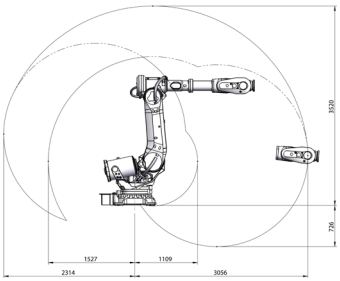
IRB 6700-235/2.65



IRB 6700-205/2.80



IRB 6700-175/3.05



IRB 6700-150/3.20