ROBOTICS

IRB 6700

The 7th generation of large industrial robots

The IRB 6700 family of robots is a natural evolution following 40 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 family is the highest performance robots in the 150-300 kilogram class, now with a 20 percent reduction in total cost of ownership achieved through more robust design, longer service intervals, increased efficiency and simplified maintenance versus the previous generation.

Multiple variants
These robots enhances ABB's portfolio by combining greater uptime, higher payloads and longer reach for use in Spot Welding, Material Handling and Machine Tending applications at the automotive and the general industries. This array of robot variants has payloads from 150 to 300 kg, reaches 2.6 to 3.2 meters, and are avalible as floor mounted and inverted versions.

Robust and reliable
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. The IRB 6700 has also been validated and tested with more robot prototypes than ever before to ensure that the predictions for reliability were accurate in the real world.

Simplified maintenance
In designing the robot, easier serviceability was identified as a critical aspect for improving its total cost of ownership. Therefor service and repair time has been reduced by 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 LeanID
Every robot in the 6700 family has been designed to accommodate LeanID—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 LeanID 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 - mean time between failures 400,000 hours
- Available with LeanID 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 energy consumption

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Specification

Robot version	Reach (m)	Handling capacity (kg)*	Center of gravity (kg)	Wrist torque (Nm)
Without LeanID				
IRB 6700-200/2.60	2.60	200	300	981
IRB 6700-155/2.85	2.85	155	300	927
IRB 6700-235/2.65	2.65	235	300	1324
IRB 6700-205/2.80	2.80	205	300	1263
IRB 6700-175/3.05	3.05	175	300	1179
IRB 6700-150/3.20	3.20	150	300	1135
IRB 6700-300/2.70	2.70	300	300	1825
IRB 6700-245/3.00	3.00	245	300	1693
IRB 6700Inv -300/2.60	2.60	300	300	1825
IRB 6700Inv -245/2.90	2.90	245	300	1645
With LeanID				
IRB 6700-200/2.60	2.60	175	300	981
IRB 6700-155/2.85	2.85	140	300	927
IRB 6700-235/2.65	2.65	220	300	1324
IRB 6700-205/2.80	2.80	200	300	1263
IRB 6700-175/3.05	3.05	155	300	1179
IRB 6700-150/3.20	3.20	145	300	1135
IRB 6700-300/2.70	2.70	270	300	1825
IRB 6700-245/3.00	3.00	220	300	1693
IRB 6700Inv -300/2.60	2.60	270	300	1825
IRB 6700Inv -245/2.90	2.90	210	300	1645
Number of axes	6			
Protection	Std: IP67. Option: Foundry Plus 2			
Mounting	Floor, inverted			
Controller	IRC5 Single Cabinet/ IRC5 PMC Panel Mounted Controller			

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

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Performance (according to ISO 9283)

	Position repeatability	Path repeatability
IRB 6700-200/2.60	0.05 mm	0.10 mm
IRB 6700-155/2.85	0.10 mm	0.15 mm
IRB 6700-235/2.65	0.05 mm	0.10 mm
IRB 6700-205/2.80	0.05 mm	0.15 mm
IRB 6700-175/3.05	0.05 mm	0.10 mm
IRB 6700-150/3.20	0.10 mm	0.15 mm
IRB 6700-300/2.70	0.10 mm	0.15 mm
IRB 6700-245/3.00	0.05 mm	0.10 mm
IRB 6700Inv-300/2.60	0.05 mm	0.25 mm
IRB 6700Inv-245/2.90	0.10 mm	0.10 mm

Actual values are equal or below the given values.

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Technical information

Electrical Connections	
Supply voltage	200-600 V,50/60 Hz
Energy consumption	2.8kW
Physical	
Robot base	1004 x 720 mm
Robot weight (without DressPack)	
IRB 6700-200/2.60	1250 kg
IRB 6700-155/2.85	1260 kg
IRB 6700-235/2.65	1205 kg
IRB 6700-205/2.80	1270 kg
IRB 6700-175/3.05	1220 kg
IRB 6700- 150/3.20	1280 kg
IRB 6700-300/2.70	1525 kg
IRB 6700-245/3.00	1540 kg
IRB 6700 Inv-300/2.60	1690 kg
IRB 6700 Inv-245/2.90	1705 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 for short periods (max. 24h)	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
Extended safety	SafeMove2
Emission	EMC/EMI-shielded
Options	Foundry Plus 2 LeanID

Data and dimensions may be changed without notice.

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Movement

Axis movement	Working range
Axis 1 rotation	Default: ±170° Option: ±220°
Axis 2 arm	-65°/+85°[1]
Axis 3 arm	-180°/+70°
Axis 4 wrist	Default: ±300°
Axis 5 bend	±130°[2]
Axis 6 turn	Default: ±360°[3] Max. rev: ±93.7

[1] Working range for variants IRB 6700 - 300/2.70 and - 245/3.00: +85° to -65° when axis 3 is within +70° to -45°, +85° to -58° when axis 3 is within +70° to -180°
[2]Working range +120° to -120° for robots with LeanID.
[3]Working range +220° to -220° for robots with LeanID.

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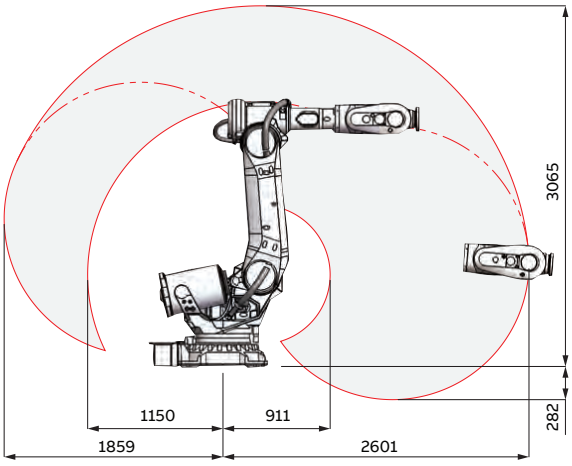
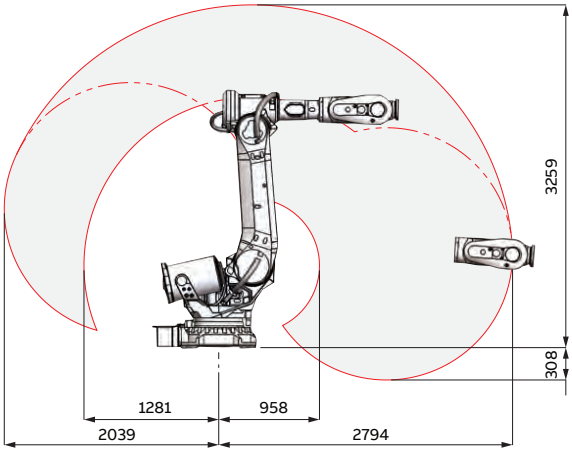
Axis max. speed

	Axis 1 (°/s)	Axis 2 (°/s)	Axis 3 (°/s)	Axis 4 (°/s)	Axis 5 (°/s)	Axis 6 (°/s)
IRB 6700-200/2.60	110	110	110	190	150	210
IRB 6700-155/2.85	110	110	110	190	150	210
IRB 6700-235/2.65	100	90	90	170	120	190
IRB 6700-205/2.80	100	90	90	170	120	190
IRB 6700-175/3.05	100	90	90	170	120	190
IRB 6700-150/3.20	100	90	90	170	120	190
IRB 6700-300/2.70	100	88	90	140	110	180
IRB 6700-245/3.00	100	88	90	140	110	180
IRB 6700Inv-300/2.60	100	88	90	140	110	180
IRB 6700Inv-245/2.90	100	88	90	140	110	180

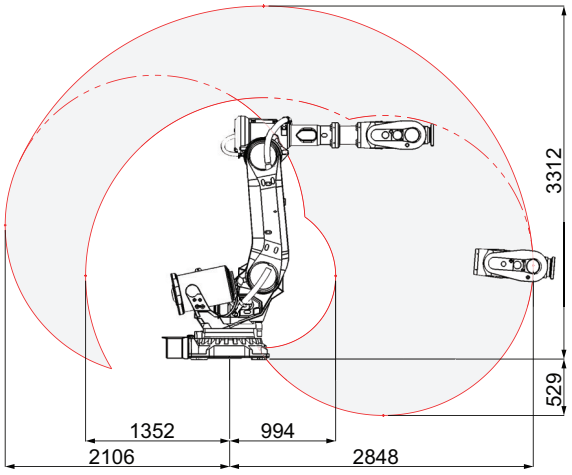
Working range, IRB 6700-200/2.60



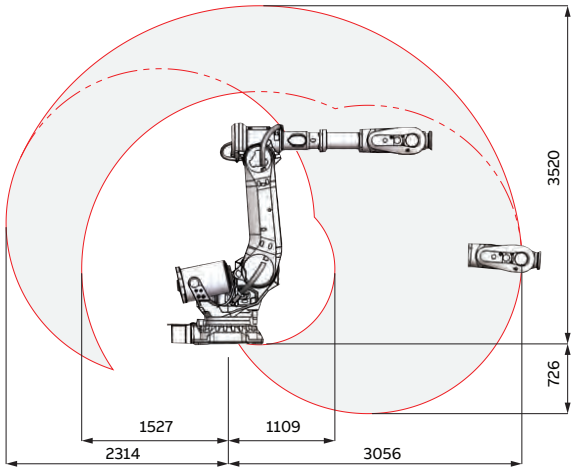
Working range, IRB 6700-205/2.80



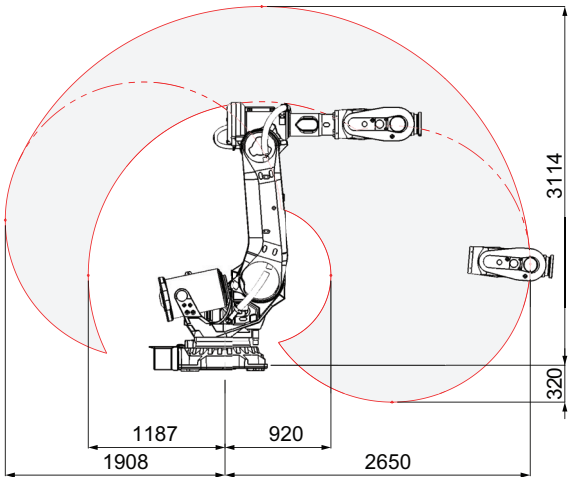
Working range, IRB 6700-155/2.85



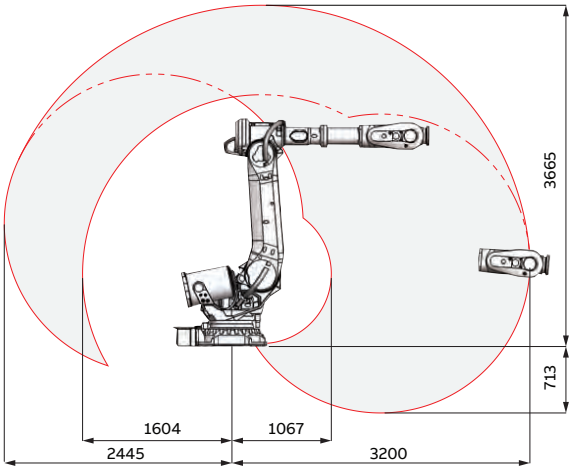
Working range, IRB 6700-175/3.05



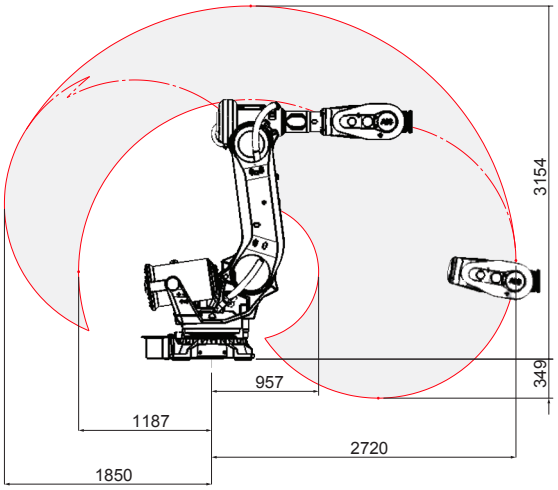
Working range, IRB 6700-235/2.65



Working range, IRB 6700-150/3.20



Working range, IRB 6700-300/2.70



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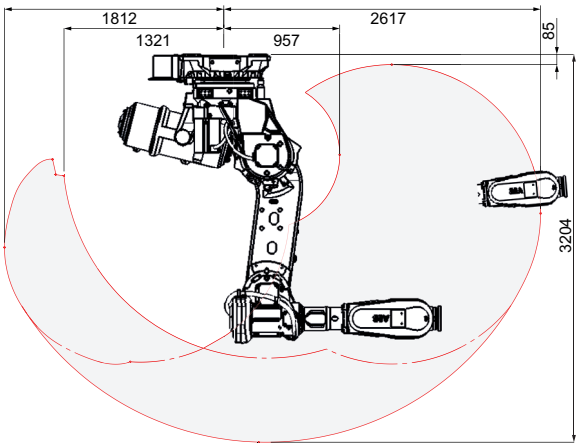
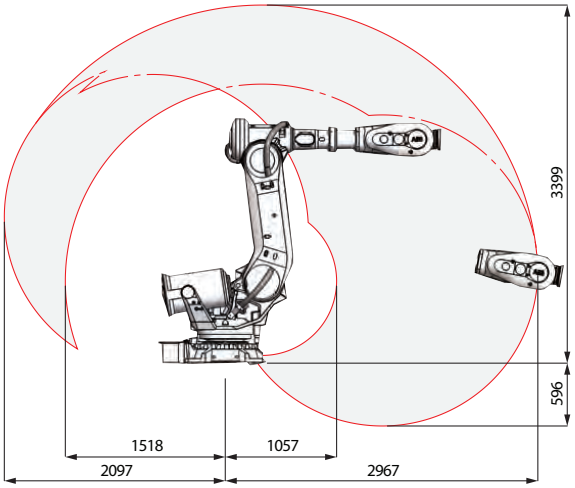
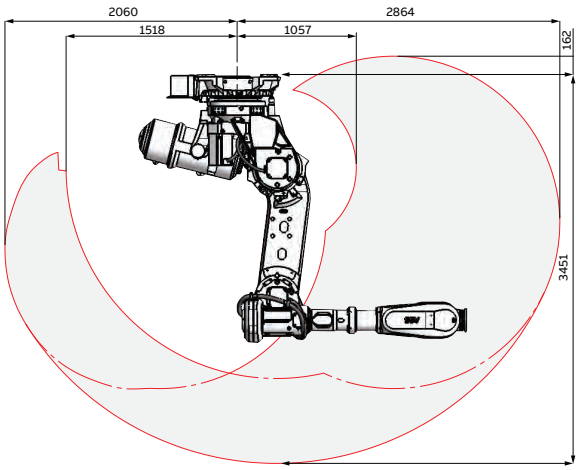


Working range, IRB 6700-245/3.00



Working range, IRB 6700Inv-245/2.90



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