ABB’s 6 axis robot – for flexible and compact production

The IRB 120 robot is the latest addition to ABB’s new fourth-generation of robotic technology. It is ideal for material handling and assembly applications and provides an agile, compact and lightweight solution with superior control and path accuracy.

Compact and lightweight
IRB 120’s compact design enables it to be mounted virtually anywhere at any angle without any restriction - for example inside a cell, on top of a machine or close to other robots.

IRB 120 is also the most portable and easy to integrate on the market with its 25 kg weight. The smooth surfaces are easy to clean and the cables for air and customer signals are internally routed, all the way from the foot to the wrist, ensuring that integration is effortless.

Multipurpose
IRB 120 is ideal for a wide range of industries including the electronic, food and beverage, machinery, solar, pharmaceutical, medical and research sectors.

The Food Grade Lubrication (NSF H1) option includes Clean Room ISO Class 5, which ensures uncompromising safety and hygiene for food and beverage applications.

Optimized working range
IRB 120 has a horizontal reach of 580 mm, the best in class stroke, the ability to reach 112 mm below its base and a very compact turning radius.

Fast, accurate and agile
Designed with a light, aluminum structure, the motors ensure the robot is enabled with a fast acceleration, and can deliver accuracy and agility in any application.

IRCS5 Compact controller – optimized for small robots
ABB’s new IRC5 Compact controller presents the capabilities of the IRC5 controller in a compact format. It brings accuracy and motion control to applications which have been exclusive to large installations and enables easy commissioning through one phase power input, external connectors for all signals and a built-in expandable 16 in, 16 out, I/O system.

RobotStudio for offline programming enables manufacturers to simulate a production cell to find the optimal position for the robot, and provide offline programming to prevent costly downtime and delays to production.

Reduced footprint
The combination of the new lightweight architecture of the IRB 120 with the new IRC5 Compact controller introduces a significantly reduced footprint.
**Specification**

<table>
<thead>
<tr>
<th>Robot version</th>
<th>Reach (m)</th>
<th>Handling capacity (kg)</th>
<th>Armload (kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRB 120-3/0.6</td>
<td>0.58</td>
<td>3*</td>
<td>0.30</td>
</tr>
</tbody>
</table>

Number of axes: 6

Protection: IP30

Mounting: Any angle

Controller: IRC5 Compact/IRC5 Single Cabinet

Integrated signal supply: 10 signals on wrist

Integrated air supply: 4 air on wrist (5 bar)

* * 4 with vertical wrist

**Movement**

<table>
<thead>
<tr>
<th>Axis movement</th>
<th>Working range</th>
<th>Velocity IRB 120</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axis 1 rotation</td>
<td>+165° to -165°</td>
<td>250°/s</td>
</tr>
<tr>
<td>Axis 2 arm</td>
<td>+110° to -110°</td>
<td>250°/s</td>
</tr>
<tr>
<td>Axis 3 arm</td>
<td>+70° to -110°</td>
<td>250°/s</td>
</tr>
<tr>
<td>Axis 4 wrist</td>
<td>+160° to -160°</td>
<td>320°/s</td>
</tr>
<tr>
<td>Axis 5 bend</td>
<td>+120° to -120°</td>
<td>320°/s</td>
</tr>
<tr>
<td>Axis 6 turn</td>
<td>Default: +400° to -400° Max. rev: +242 to -242</td>
<td>420°/s</td>
</tr>
</tbody>
</table>

**Performance (according to ISO 9283)**

<table>
<thead>
<tr>
<th>IRB 120</th>
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</thead>
<tbody>
<tr>
<td>1 kg picking cycle</td>
</tr>
<tr>
<td>25 x 300 x 25 mm</td>
</tr>
<tr>
<td>25 x 300 x 25 with 180° axis 6 reorientation</td>
</tr>
</tbody>
</table>

Acceleration time 0-1 m/s: 0.07 s

Position repeatability: 0.01 mm

**Technical information**

**Electrical Connections**

- Supply voltage: 200-600 V, 50/60 Hz
- Rated power transformer rating: 3.0 kVA
- Power consumption: 0.24 kW

**Physical**

- Robot base: 180 x 180 mm
- Robot height: 700 mm
- Robot weight: 25 kg

**Environment**

Ambient temperature for robot manipulator:
- During operation: +5°C (41°F) to +45°C (113°F)
- During transportation and storage: -25°C (-13°F) to +55°C (131°F)
- During short periods (max. 24 h): up to +70°C (158°F)

Relative humidity: Max. 95%

Noise level: Max. 70 dB (A)

Safety:
- Safety and emergency stops
- 2-channel safety circuits supervision, 3-position enabling device

Emission:
- EMC/EMI-shielded

Options:
- Clean Room ISO class 5 (certified by IPA)**

**Working range**

*ISO class 4 can be reached under certain conditions. Data and dimensions may be changed without notice.*