YuMi is designed to meet the flexible and agile production needs required for small parts assembly in the electronics industry. It is also well suited to other small parts environments, including the manufacture of watches, toys and automotive components. All of this thanks to its dual-arms, flexible hands, universal parts feeding system, camera-based part location and state-of-the-art motion control.

Redefining safety
YuMi has a lightweight yet rigid magnesium skeleton covered with a floating plastic casing wrapped in soft padding, which absorbs the force of any unexpected impacts to a very high degree. YuMi has no pinch points so that sensitive ancillary parts cannot be crushed between two opposing surfaces as the axes open and close.

If YuMi senses an unexpected impact or change in its environment such as a collision with a coworker, it can pause its motion within milliseconds to prevent injury, and the motion can be restarted again as easily as pressing play on a remote control.

YuMi is very precise and fast, returning to the same point in space over and over again to within 0.02 mm accuracy and moving at a maximum velocity of 1,500 mm/sec. This ensures the safety of human co-workers on production lines and in fabricating cells.

Total solution concept
ABB also develops software and manufactures hardware, peripheral equipment, process equipment and modular manufacturing cells. This “total solution” concept is evident in YuMi’s breakthrough design.

Features
• The fifth-generation, integrated IRC5 controller with TrueMove and QuickMove™ motion control technology commands accuracy, speed, cycle-time, programmability and synchronization with external devices.
• I/O interfaces include Ethernet IP, Profibus, USB ports, DeviceNet™, communication port, emergency stop and air-to-hands. YuMi accepts a wide range of HMI devices including ABB’s teach pendant, industrial displays and commercially available tablets.
• The 100-240 volt power supply plugs into any power socket for worldwide versatility.

Benefits
• Can operate equally effectively side-by-side or face-to-face with human coworkers.
• Servo grippers (the “hands”) include options for built-in cameras.
• Real-time algorithms set a collision-free path for each arm customized for the required task.
• Padding protects coworkers in high-risk areas by absorbing force if contact is made.
## Specification

<table>
<thead>
<tr>
<th>Robot version</th>
<th>Reach (mm)</th>
<th>Payload (g)</th>
<th>Armload</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRB 14000-0.5/0.5</td>
<td>559</td>
<td>500</td>
<td>No</td>
</tr>
</tbody>
</table>

Number of axes: 14  
Protection: Std: IP30 and Clean Room  
Mounting: Table  
Controller: Integrated  
Integrated signal and power supply: 24V Ethernet or 4 Signals  
Integrated air supply: 1 per Arm on tool Flange (4 Bar)  
Integrated ethernet: One 100/10 Base-TX ethernet port/per arm

## Performance (according to ISO 9283)

**IRB 14000-0.5/0.5**  
0.5 kg picking cycle  
25° 300 * 25 mm: 0.86s  
Max TCP Velocity: 1.5 m/s  
Max TCP Acceleration: 11 m/s²  
Acceleration time 0-1m/s: 0.12s  
Position repeatability: 0.02 mm

## Technical Information

### Physical

- Robot base: 399 x 496 mm  
- Robot toes: 399 x 134 mm  
- Weight: 38 kg  

### Environment

- Ambient temperature for mechanical unit:  
  - During operation: +5°C (41°F) to +40°C (104°F)  
  - During transportation and storage: -10°C (14°F) to +55°C (131°F)  
- Relative humidity: Max. 85%  
- Noise level: < 70 dB  
- Safety: PL b Cat B

Data and dimensions may be changed without notice.

## Movement

<table>
<thead>
<tr>
<th>Axis movement</th>
<th>Working range</th>
<th>Axis max. speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axis 1 arm rotation</td>
<td>-168.5° to +168.5°</td>
<td>180°/s</td>
</tr>
<tr>
<td>Axis 2 arm bend</td>
<td>-143.5° to +43.5°</td>
<td>180°/s</td>
</tr>
<tr>
<td>Axis 7 arm rotation</td>
<td>-168.5° to +168.5°</td>
<td>180°/s</td>
</tr>
<tr>
<td>Axis 3 arm bend</td>
<td>-123.5° to +80°</td>
<td>180°/s</td>
</tr>
<tr>
<td>Axis 4 wrist rotation</td>
<td>-290° to +290°</td>
<td>400°/s</td>
</tr>
<tr>
<td>Axis 5 wrist bend</td>
<td>-88° to +138°</td>
<td>400°/s</td>
</tr>
<tr>
<td>Axis 6 flange rotation</td>
<td>-229° to +229°</td>
<td>400°/s</td>
</tr>
</tbody>
</table>

---

We reserve all rights in this document and in the subject matter and illustrations contained therein. Any reproduction, disclosure to third parties or utilization of its contents – in whole or in parts – is forbidden without prior written consent of ABB.

Copyright © 2019 ABB

All rights reserved.