Small Robot Update: IRB 1300 Introduction
Darren Hung – Global Product Manager – Small Robots
Outline

IRB 1300 Standard Version

- Introduction
- Target Applications
- Unique Functions
IRB 1300 Standard Version: Introduction

Over 60% weight reduction and only one-sixth the footprint allow customers to maximize space utilization.

Better productivity with longer reach and higher payload

Target markets:

- Auto
- Tier-1
- CSSR
- Electronics
- GI

Target applications:

- Loading & unloading
- Deburring
- Sanding
- Buffing
- Assembly & Testing
- Packing
- Welding
- Machine tending

Wider small robot portfolio to accomplish more applications with bigger business opportunities

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1) Compared IRB 1300-7/1400 with IRB 1600-6/1450
2) wrist motor/gear design, gearbox leakage, motor noise, brake issue and etc.
3) Compared with IRB 1600
Introduction
IRB 1300: Class-leading powerful performance in a compact package

IRB 1300

For electronics, General Industries, Auto Tier 1, food & beverage, and logistics industries that need compact and small footprint for confined space, IRB 1300 offer over 50 percent weight reduction, only one-sixth the footprint, and up to 27 percent faster cycle times to enhance both productivity and production-line flexibility.

Customer value proposition

- **Productivity**
  - Up to 27% faster cycle times for increased productivity and efficiency\(^1\)

- **Flexibility**
  - 1/6 the footprint allows customers to maximize space utilization\(^2\)

- **Quality**
  - 26 new designs assure product reliability

- **Simplicity**
  - Up to 60% of weight reduction makes robot deployment much easier than ever\(^2\)

\(^1\) Compared IRB 1300-7/1400 with IRB 1600-6/1450
\(^2\) Compared with IRB 1600
IRB 1300 Standard Version: Introduction
Application Mapping Chart

Reach mm

Payload kg

1. IRB1300-7/1400
2. IRB1300-10/1150
3. IRB1300-11/900
4. IRB1100-4/580
5. IRB1100-4/475

1. IRB1200-5/900
2. IRB140-6/800
3. IRB1200-7/700
4. IRB120-3/580
IRB 1300 Standard Version: Introduction

Application Mapping Chart

Reach mm

Payload kg

1. Loading & Unloading
   CNC Machine Tending
   Item Picking
   Packing
   Assembly & Testing

2. Deburring
   Sanding
   Buffing
   CNC Machine Tending
   Loading & Unloading
   Assembly & Testing
   Item Picking
   Packing
   Welding

3. Loading & Unloading
   Assembly & Testing
   Packing
   Light Polishing

4. Assembly & Testing

5. Assembly & Testing
### IRB 1300: To Penetrate & Expand

Key features, advantages and benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Advantage</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach &amp; Payload</td>
<td>900/1150/1400mm 11/10/7kg</td>
<td>Exclusive in the class</td>
</tr>
<tr>
<td>Speed (Cycle Time)</td>
<td>0.42~0.45s</td>
<td>Leading in the class</td>
</tr>
<tr>
<td>Repeatability (RP)</td>
<td>0.02~0.03mm</td>
<td>Leading in the class</td>
</tr>
</tbody>
</table>
## IRB 1300: To Penetrate & Expand

Key features, advantages and benefits

<table>
<thead>
<tr>
<th>Feature</th>
<th>Advantage</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ingress Protection (IP)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IP40 (default)</td>
<td>Best in the class</td>
<td>IP67</td>
</tr>
<tr>
<td>IP67 (option)</td>
<td></td>
<td>Foundry Plus² (option)²</td>
</tr>
<tr>
<td>Foundry Plus² (option)¹</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Cleanroom (CR)</strong></td>
<td>Leading in the class</td>
<td>NA</td>
</tr>
<tr>
<td>ISO4¹ (option)</td>
<td></td>
<td>IPA</td>
</tr>
<tr>
<td><strong>Light Weight &amp; Compact (Footprint)</strong></td>
<td>Improvements</td>
<td></td>
</tr>
<tr>
<td>60%+ Reduction²</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80%+ Downsizing²</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

¹ Scheduled to be released in the 2nd wave of product launch
² Compared with IRB 1600
### IRB 1300 Standard Version: Introduction

Outstanding performance

#### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>IRB 1300-11/0.9</th>
<th>IRB 1300-10/1.15</th>
<th>IRB 1300-7/1.4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reach (m)</td>
<td>0.9</td>
<td>1.15</td>
<td>1.4</td>
</tr>
<tr>
<td>Payload (kg)</td>
<td>11</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Armload (kg)</td>
<td>1</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>Number of axes</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Protection</td>
<td>IP40 (Standard)</td>
<td>IP67, CR, Foundry plus² (Optional)</td>
<td></td>
</tr>
<tr>
<td>Mounting</td>
<td>Any angle</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Controller</td>
<td>Omnicore</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated signal and power supply</td>
<td>24 Signals on wrist (C1+C2+C3) (Optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated air supply</td>
<td>Φ6 x 4 air on wrist (Max. 6 Bar) (Optional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Integrated ethernet</td>
<td>One 1000 Base-T ethernet port (Optional)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Performance (according to ISO 9283)

<table>
<thead>
<tr>
<th>Specification</th>
<th>0.02mm</th>
<th>0.023mm</th>
<th>0.03mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 kg picking cycle</td>
<td>0.42s</td>
<td>0.45s</td>
<td>0.45s</td>
</tr>
<tr>
<td>25 x 300 x 25 mm</td>
<td>0.42s</td>
<td>0.45s</td>
<td>0.45s</td>
</tr>
</tbody>
</table>

#### Physical

| Specification                  | 220x220mm       | 74.5 kg         | 77 kg          | 78.5 kg          |
|--------------------------------|-----------------|-----------------|----------------|
| Robot base                     |                 | 220x220mm       | 74.5 kg        | 77 kg            | 78.5 kg          |
IRB 1300 Standard Version: Introduction

Customer interfaces

A. 12 x customer signals 30V, 1.5A
B. 8 x customer signals 30V, 1A or 1Gbits/s
C. 4 x customer signals 60V DC, 4A or 25V AC, 4A
D. 4 x air, 6bar (inner hose diameter 6mm)
E. Break Release (axis 1, 2, 3 and 4+5+6)
IRB 1300 Standard Version: Target Applications
Targeted Industry: Solution for All Business Lines

Automotive

Electronics

GI and CSSR
## IRB 1300 Standard Version: Target Applications

Typical application requirement and IRB 1300 fits

<table>
<thead>
<tr>
<th>Application</th>
<th>Payload &amp; Reach</th>
<th>Accuracy &amp; Repeatability</th>
<th>Speed</th>
<th>Protection</th>
<th>Motion Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Loading &amp; Unloading</td>
<td><img src="image1" alt="Lights" /></td>
<td><img src="image2" alt="Lights" /></td>
<td><img src="image3" alt="Lights" /></td>
<td><img src="image4" alt="Lights" /></td>
<td><img src="image5" alt="Lights" /></td>
</tr>
<tr>
<td>Assembly</td>
<td><img src="image6" alt="Lights" /></td>
<td><img src="image7" alt="Lights" /></td>
<td><img src="image8" alt="Lights" /></td>
<td><img src="image9" alt="Lights" /></td>
<td><img src="image10" alt="Lights" /></td>
</tr>
<tr>
<td>Testing</td>
<td><img src="image11" alt="Lights" /></td>
<td><img src="image12" alt="Lights" /></td>
<td><img src="image13" alt="Lights" /></td>
<td><img src="image14" alt="Lights" /></td>
<td><img src="image15" alt="Lights" /></td>
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- **IP 40**
- Clean Room ISO 4
- **IP 67**
- Foundry Plus2

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<th>Protection</th>
<th>Motion Control</th>
</tr>
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<tbody>
<tr>
<td>11kg/900mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10kg/1150mm</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7kg/1400mm</td>
<td></td>
<td></td>
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## IRB 1300 Standard Version: Target Applications

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<tbody>
<tr>
<td>Packing</td>
<td>🟢🟢🟢</td>
<td>🟢🟢🟢🟢</td>
<td>🟢🟢🟢</td>
<td>🟢🟢🟢🟢</td>
<td>🟢🟢🟢🟢</td>
</tr>
<tr>
<td>Machine Tending</td>
<td>🟢🟢🟢</td>
<td>🟢🟢🟢🟢</td>
<td>🟢🟢🟢</td>
<td>🟢🟢🟢🟢</td>
<td>🟢🟢🟢🟢</td>
</tr>
<tr>
<td>Arc Welding</td>
<td>🟢🟢🟢</td>
<td>🟢🟢🟢🟢</td>
<td>🟢🟢🟢</td>
<td>🟢🟢🟢🟢</td>
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- **Payload & Reach**:
  - Packing: 11kg/900mm, 10kg/1150mm, 7kg/1400mm

- **Protection**:
  - IP 40
  - Clean Room ISO 4
  - IP67
  - Foundry Plus2
## IRB 1300 Standard Version: Target Applications

Typical application requirement and IRB 1300 fits

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<tr>
<td>Buffing</td>
<td><img src="image1" alt="Light Bulbs" /></td>
<td><img src="image2" alt="Light Bulbs" /></td>
<td><img src="image3" alt="Light Bulbs" /></td>
<td><img src="image4" alt="Light Bulbs" /></td>
<td><img src="image5" alt="Light Bulbs" /></td>
</tr>
<tr>
<td>Sanding</td>
<td><img src="image6" alt="Light Bulbs" /></td>
<td><img src="image7" alt="Light Bulbs" /></td>
<td><img src="image8" alt="Light Bulbs" /></td>
<td><img src="image9" alt="Light Bulbs" /></td>
<td><img src="image10" alt="Light Bulbs" /></td>
</tr>
<tr>
<td>Deburring</td>
<td><img src="image11" alt="Light Bulbs" /></td>
<td><img src="image12" alt="Light Bulbs" /></td>
<td><img src="image13" alt="Light Bulbs" /></td>
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- **Payload & Reach**: 11kg/900mm, 10kg/1150mm, 7kg/1400mm
- **Protection**: IP 40, Clean Room ISO 4, IP67, Foundry Plus2
- **Motion Control**: 11kg/900mm, 10kg/1150mm, 7kg/1400mm
ABBA Unique Function – Richer Selection for I/O Connection

Universal connectors and air hoses

Supporting universal M12 connectors up to 24 I/O connectors as option on the upper arm

Supporting up to Φ6 air hoses as option on the upper arm

IRB 1300 supports up to 9 air hoses as option on the upper arm¹

¹ scheduled to release at 21.B
ABB Unique Function – ESD Compliant

Comply IEC 61340-5-1 & ANSI ESD S20.20 directive

1. **Mechanical Design**
   - High quality metal structure design guarantees good conductivity without residual charges

2. **Grounding**
   - Well-grounded body ensures way to quickly discharge

3. **ESD Testing**
   - Certify resistance measurement test
ABB Unique Function – Wider and Stronger Ingress Protection Options
From IP54, IP67 to Foundry Plus²

- Over 30 delicate sealing components to prevent dust and liquid intrusion
- Over 20 dedicated gasket and glue to enhance specific protection area
- Exclusive Foundry Plus² equips robot with stainless steel at designed area as rust-free capability
- Optimizing all screw design to assure protection level

Ingress Protection (IP) Option

- IRB 1100
  - IP67
- IRB 1200
  - IP67
  - Foundry Plus
- IRB 1300
  - IP67
  - Foundry Plus²
- IRB 910INV
  - IP54

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ABB Unique Function – Full Support on Clean Room Capability

From ISO 4 to the highest ISO 1

Over 20 delicate sealing components to prevent particle generation

Implementing 4 additional processes to ensure painting quality for cleanliness maintenance

Optimizing manufacturing flow to exclude odds of particle attachment

Endured by #1 prestige institution for guaranty on clean room performance

Clean Room (CR) Option

- IRB 1100
  - ISO 4
- IRB 1200
  - ISO 3
- IRB 1300
  - ISO 4
- IRB 910INV
  - ISO 1
ABB Unique Function – New Generation of Controller: OmniCore

More motion control functions for you to exploit and make best use

- Intelligent thermal fan for noise control
- Integrated 24V power supply system
- Rich Ethernet and I/O connection
- New generation of powerful teach pendant with intuitively graphical interface

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ABB Unique Function – New Generation of Controller: OmniCore

More motion control functions for you to exploit and make best use

Intelligent collision avoidance and detection

Supporting multitasking and efficient programing environment

Exclusive path accuracy enhancement and management function

Seamlessly integrated with powerful RobotStudio