IRB 1660ID – EXTERNAL presentation
High performance ID robot for Arc Welding and Machine Tending
IRB 1660ID introduction movie
High performance ID robot for Arc Welding and Machine Tending
IRB 1600ID succeeded by IRB 1660ID
IRB 1660ID is a new robot setting a new standard for it’s class

<table>
<thead>
<tr>
<th>IRB 1600ID</th>
<th>-&gt;</th>
<th>IRB 1660ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arc welding</td>
<td>-&gt;</td>
<td>Arc welding &amp; Machine tending</td>
</tr>
<tr>
<td>4 kg payload</td>
<td>-&gt;</td>
<td>4 and 6 kg</td>
</tr>
<tr>
<td>1.50 m reach</td>
<td>-&gt;</td>
<td>1.55 m</td>
</tr>
<tr>
<td>200 mm wrist</td>
<td>-&gt;</td>
<td>135 mm</td>
</tr>
<tr>
<td>No IP wrist</td>
<td>-&gt;</td>
<td>IP 67</td>
</tr>
<tr>
<td>Axis 4-6 range 1080°</td>
<td>-&gt;</td>
<td>1390°</td>
</tr>
<tr>
<td>Floor, tilt, inverted</td>
<td>-&gt;</td>
<td>Floor, tilt, <strong>wall</strong>, inverted</td>
</tr>
</tbody>
</table>

From dedicated arc welder to general purpose
### Overview

**Comparison with IRB 2600ID**

<table>
<thead>
<tr>
<th>IRB 1660ID</th>
<th>IRB 2600ID</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arc welding &amp; Machine tending</td>
<td>Arc welding &amp; Machine tending</td>
</tr>
<tr>
<td>4 - 6 kg payload</td>
<td>8 - 15 kg</td>
</tr>
<tr>
<td>1.55 m reach</td>
<td>1.85 - 2.00 m</td>
</tr>
<tr>
<td>135 mm wrist</td>
<td>135 &amp; 200 mm</td>
</tr>
<tr>
<td>IP 67 wrist</td>
<td>IP 67</td>
</tr>
<tr>
<td>Path repeatability: 0.05 mm</td>
<td>0.27 - 0.30 mm</td>
</tr>
</tbody>
</table>

**Smaller than IRB 2600ID but even more accurate**
Differentiated value proposition

When shorter cycle times, unmatched versatility, and a smaller more powerful wrist matter – ABB’s new IRB 1660ID is the robot of choice.
Key differentiators
Up to 10% shorter cycle times

- Faster re-orientations
  - New high-torque wrist with higher accelerations
  - More agile, compact 135 mm wrist

- QuickMove™ motion control
  - Unique variable acceleration provides cycle time gain
  - Max possible acceleration at all times
Key differentiators
Up to 10% shorter cycle times in Arc Welding
Key differentiators
Outstanding weld quality

- Can handle heavier torches with integrated wire feeder for enhanced wire feed control
  - Superior and even weld quality in high volume prod.
- New motion process “Accuracy mode“ can provide 0.05 mm path repeatability in ISO test.
- TrueMove technology makes the path independent of the speed. “What you program is what you get”
  - Easy to get a correct and speed-independent path

High performance torches and motion control provide perfect welds.
Key differentiators
Safe robot movements enable super-productive high density cells

RobotStudio-simulated cell with 4 x IRB 1660ID

- Full control over hose package movements
  - Max speed and acceleration at all times
  - Shortest possible and predictable cycle times
  - Maximized output
- Four torches weld close to each other, reducing the heat distortions, providing top quality parts.
- Safe robot movements and collision detection secures unmatched reliability.

Maximized output, top quality parts, unmatched reliability.
Key differentiators
Fast, agile and reliable in Machine Tending

- Fast and reliable movements
  - Max acceleration without interference from swinging cables.
  - Eliminated risk for cable collisions in confined spaces.
- Outstanding agility inside tight machines
  - 1,390° working range axes 4-6
  - Compact 135 mm wrist
- Maintenance costs cut by more than 50%
  - IP 67 wrist
  - Protection of the cablings from cutting fluids
  - Collision-free movements
Key differentiators
Simplified online programming

- Full control of the hose packages thanks to the ID wrist
- Faster re-orientations with the compact 135 mm wrist
- Highly accurate cornering thanks to 0.30 mm TCP re-orientation accuracy (with absolute accuracy option)

Easy and precise jogging at your fingertips
Sustainability
Lowest power consumption and noise in class

Thanks to highly energy efficient drive trains with very low friction:

- Power consumption 0.62 kW in the ISO cube with max speed, acceleration and load – best in class!
- Noise < 70 dB (A) – best in class!
Technical data
The total load is 36 kg
## Technical data

### ISO test results

<table>
<thead>
<tr>
<th></th>
<th>IRB 1600ID-4/1.50</th>
<th>IRB 1660ID-6/1.55</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pose repeatability, RP</td>
<td>0,02 mm</td>
<td>0,02 mm</td>
</tr>
<tr>
<td>Pose accuracy, AP</td>
<td>0,08 mm</td>
<td>0,02 mm</td>
</tr>
<tr>
<td>Path repeatability, RT</td>
<td>0,13 mm (100 mm/s)</td>
<td>0,05 mm</td>
</tr>
<tr>
<td>Path accuracy, AT</td>
<td>0,88 mm</td>
<td>0,25 mm (250 mm/s)</td>
</tr>
<tr>
<td>TCP re-orientation</td>
<td>0,35 mm</td>
<td>0,30 mm</td>
</tr>
<tr>
<td>accuracy, average</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Application test: Max deviation 0.09 mm at 80 mm/s**

![Graph showing circular path with radius r = 5 mm](image)
Arc welding process equipment packages
Fronius available, Lincoln soon, others following late 2016
Summary

IRB 1660ID

- Up to 10% shorter cycle times.
- Unrivalled welding quality.
- Highly productive for machine tending.
Power and productivity for a better world™