IRB 140

Industrial Robot

MAIN APPLICATIONS
Arc welding
Assembly
Cleaning/Spraying
Machine tending
Material handling
Packing
Deburring

Small, Powerful and Fast

Compact, powerful IRB 140 industrial robot. Six axis multipurpose robot comprising IRB 140 manipulator and S4Cplus industrial robot controller. Handles payload of 5kg, with long reach (810 mm) of axis 5, optional floor, wall and suspended mounting. Available as Standard, Foundry, Clean Room and Wash versions, all mechanical arms completely IP67 protected, making IRB 140 easy to integrate in and suitable for a variety of applications. Uniquely extended radius of working area due to bend-back mechanism of upper arm, axis 1 rotation of 360 degrees and flexible mounting capabilities.

The compact, robust design with integrated cabling adds to overall flexibility. The Collision Detection option with full path retraction makes robot reliable and safe.

Using IRB 140T, cycle-times are considerably reduced where axis 1 and 2 predominantly are used. Reductions between 15-20% are possible using pure axis 1 and 2 movements.

This faster version is well suited for packing applications and guided operations together with PickMaster.

IRB Foundry Plus and Wash versions are suitable for operating in extreme foundry environments and other harsh environments with high requirements on corrosion resistance and tightness. In addition to the IP67 protection, excellent surface treatment makes the robot high-pressure steam washable. The white-finish Clean Room version meets Clean Room class 10 regulations, making it especially suited for environments with stringent cleanliness standards.

The S4Cplus controller has the electronics for controlling the robot manipulator, external axes and peripheral equipment. S4Cplus also contains system software with all basic functions for operating and programming, including two built-in Ethernet channels with 100 Mbit/s capacity. This ensures a significant increase in computing power as well as improved controller monitoring and supervision.
**TECHNICAL DATA, IRB 140 INDUSTRIAL ROBOT**

**SPECIFICATION**

<table>
<thead>
<tr>
<th>Robot versions</th>
<th>Handling capacity</th>
<th>Reach of 5th axis</th>
<th>Remarks</th>
<th>Standard colour</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRB 140/IRB 140T</td>
<td>5 kg</td>
<td>810 mm</td>
<td>Foundry Plus</td>
<td>Orange</td>
</tr>
<tr>
<td>IRB 140F/IRB 140TF</td>
<td>5 kg</td>
<td>810 mm</td>
<td>Protection</td>
<td>Orange</td>
</tr>
<tr>
<td>IRB 140CR/IRB 140TCR</td>
<td>5 kg</td>
<td>810 mm</td>
<td>Clean Room,</td>
<td>White</td>
</tr>
<tr>
<td>IRB 140W/IRB 140TW</td>
<td>5 kg</td>
<td>810 mm</td>
<td>Wash Protection</td>
<td>White</td>
</tr>
</tbody>
</table>

- Supplementary load (on upper arm alt. wrist)
  - on upper arm: 1 kg
  - on wrist: 0.5 kg

**Number of axes**
- Robot manipulator: 6
- External devices: 6

- Integrated signal supply: 12 signals on upper arm
- Integrated air supply: Max. 8 bar on upper arm

**PERFORMANCE**

- Position repeatability: 0.03 mm (average result from ISO test)

**Axis movement**
- 1, C Rotation: 360°
- 2, B Arm: 200°
- 3, A Arm: 280°
- 4, D Wrist: Unlimited (400° default)
- 5, E Bend: 240°
- 6, P Turn: Unlimited (800° default)

- Max. TCP velocity: 2.5 m/s
- Max. TCP acceleration: 20 m/s²
- Acceleration time 0-1 m/s: 0.15 sec

**VELOCITY**

<table>
<thead>
<tr>
<th>Axis no.</th>
<th>IRB 140</th>
<th>IRB 140T</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>200°/s</td>
<td>250°/s</td>
</tr>
<tr>
<td>2</td>
<td>200°/s</td>
<td>250°/s</td>
</tr>
<tr>
<td>3</td>
<td>260°/s</td>
<td>260°/s</td>
</tr>
<tr>
<td>4</td>
<td>360°/s</td>
<td>360°/s</td>
</tr>
<tr>
<td>5</td>
<td>360°/s</td>
<td>360°/s</td>
</tr>
<tr>
<td>6</td>
<td>450°/s</td>
<td>450°/s</td>
</tr>
</tbody>
</table>

**CYCLE TIME**

- 5 kg Picking side: IRB 140 0.85s, IRB 140T 0.77s
- Cycle 25 x 300 x 25 mm

**ELECTRICAL CONNECTIONS**

- Supply voltage: 200–600 V, 50/60 Hz
- Rated power: Transformer rating 4.5 kVA

**PHYSICAL**

- Robot mounting: Any angle
- Dimensions: Robot base 400 x 450 mm, Robot controller H x W x D 950 x 800 x 620 mm
- Weight: Robot manipulator 98 kg, Robot controller 250 kg

**ENVIRONMENT**

- Ambient temperature: Robot manipulator 5 – 45°C, Robot controller 5 – 52°C
- Relative humidity: Max. 95%
- Degree of protection, Manipulator: IP67
- Foundry/Wash: High pressure steam washable
- Clean Room: Class 10 (Federal Standard)/ class 4 (ISO)
- Noise level: Max. 70 dB (A)
- Safety: Double circuits with supervision, emergency stops and safety functions, 3-position enable device
- Emission: EMC/EMI-shielded

Data and dimensions may be changed without notice

**WORKING RANGE AND LOAD DIAGRAM**

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