



Nicolas De Keijser, Product Manager, Small robots

ABB's smallest robot - IRB 120

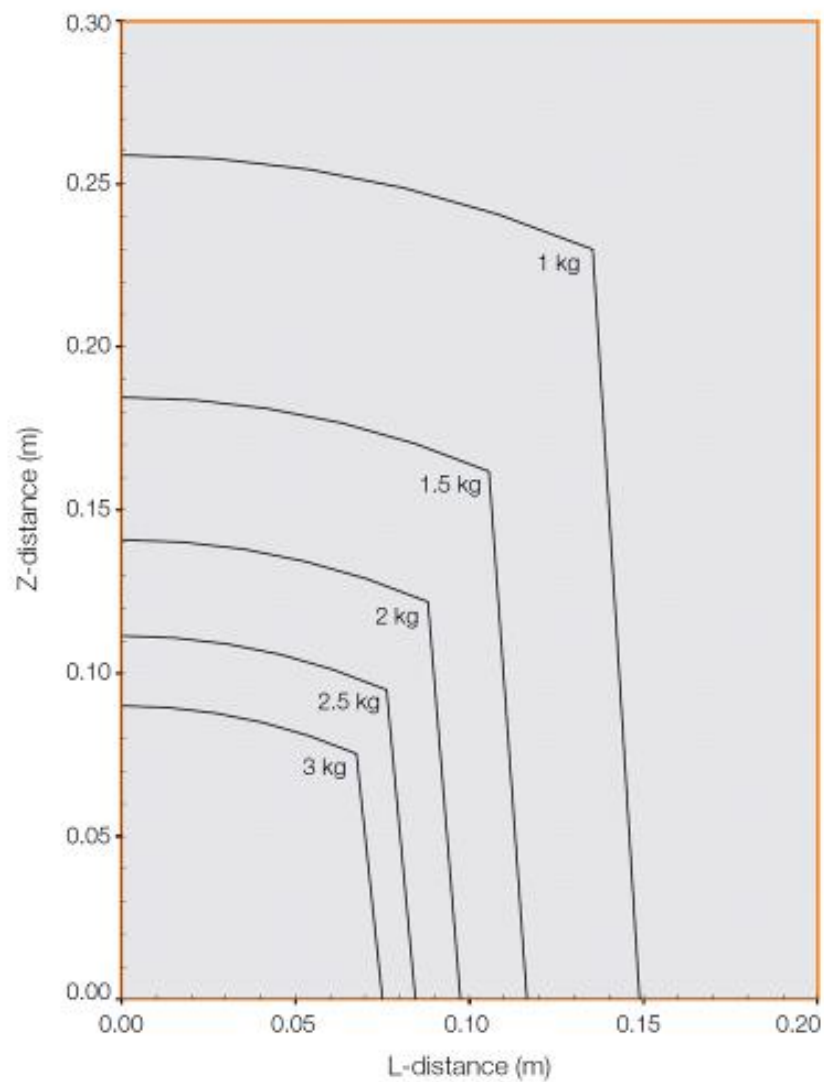
For flexible & compact production

Main Features



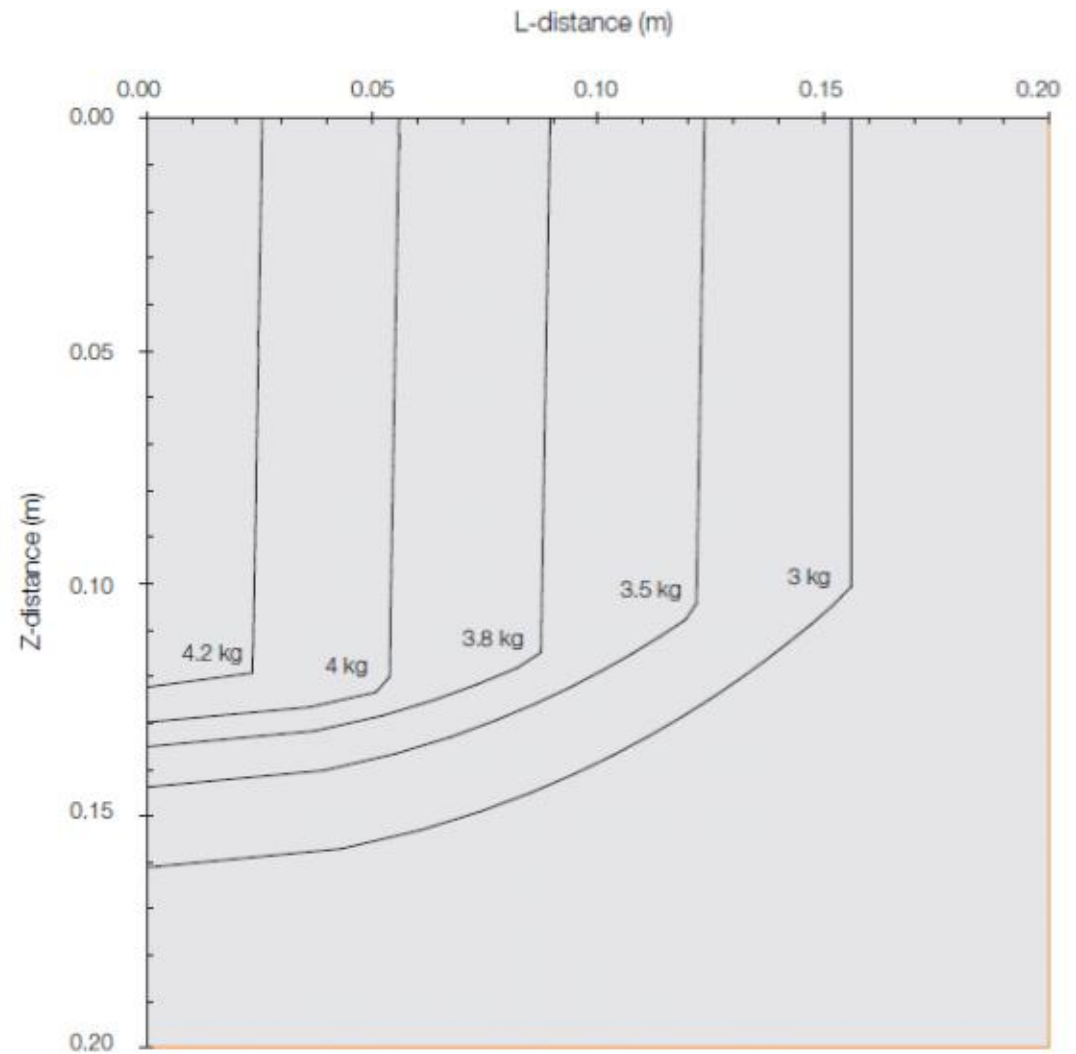
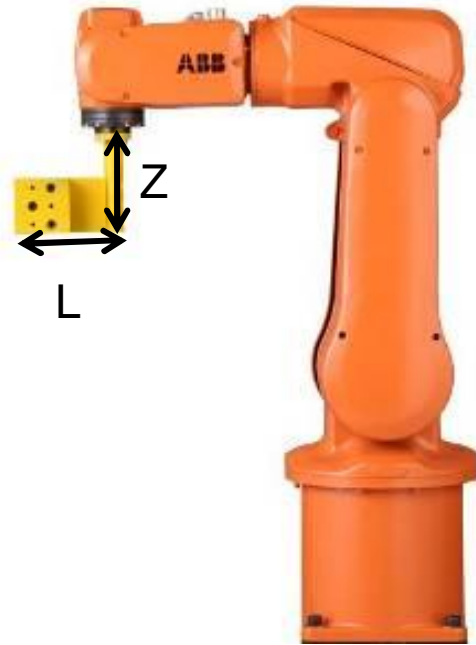
- Six axis manipulator
- Payload: 3 kg
- Reach: 580 mm
- Fastest 6-axis robot in ABB range
- Accuracy: ± 0.01 mm
- Foot print: 180 mm squared
- Weight: 25 kg
- All mounting positions
- IP 30 as standard
- All motors and cabling enclosed
=> easy to integrate
- Option: Clean Room ISO Class 5
(IPA certified)

Load diagram with 0.3 kg armload Up to 3 kg

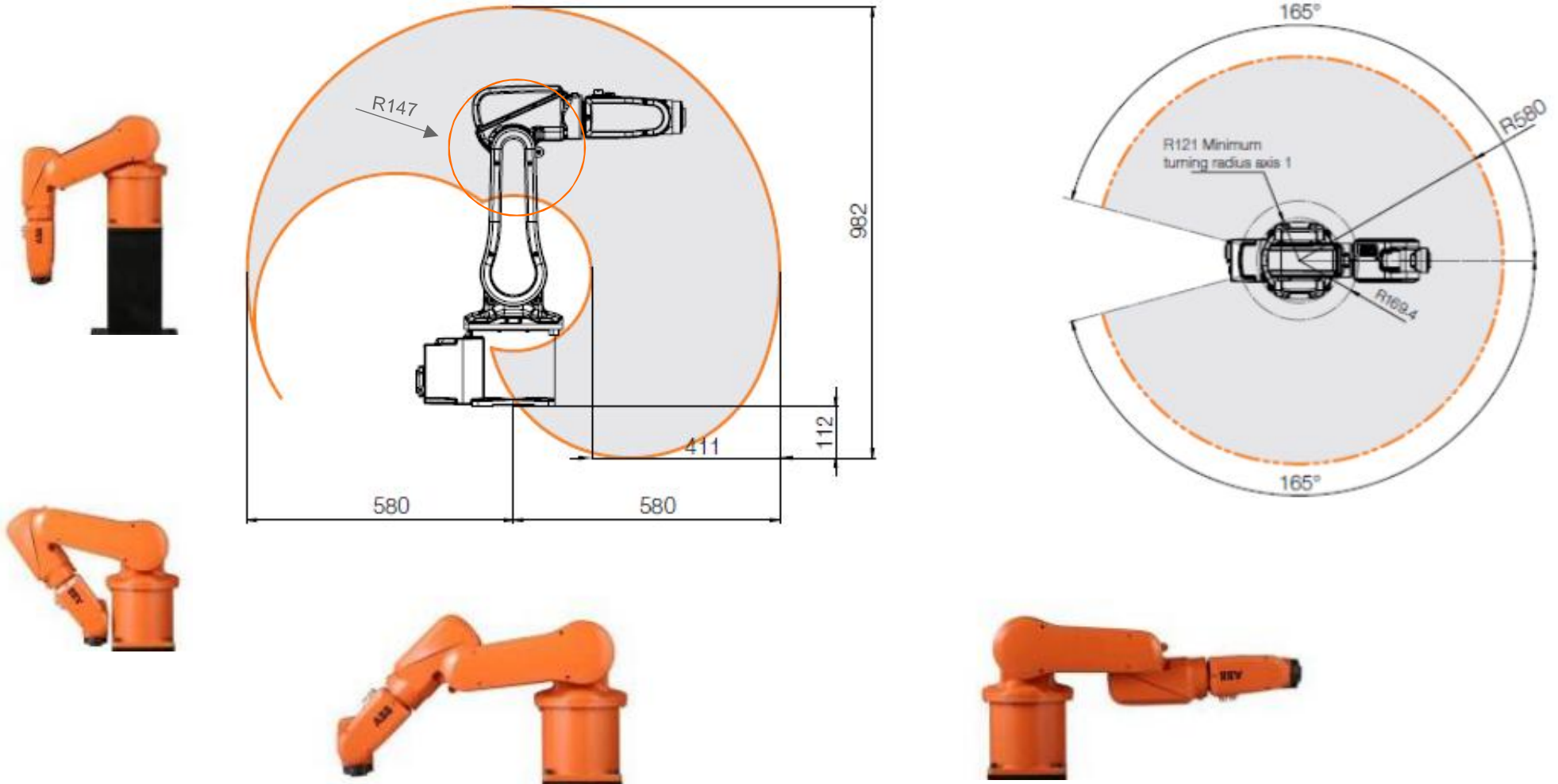


Load diagram with vertical wrist & no arm-load

Up to 4.2 kg



Working Range at center of 5th axis Reaching 580 mm



Working range / Velocity



- **Axis 1 Rotation**
- **Axis 2 Arm**
- **Axis 3 Arm**
- **Axis 4 Wrist**
- **Axis 5 Bend**
- **Axis 6 Turn**

Range	Max speed
+165° to -165 °	250 °/s
+110° to -110 °	250 °/s
+70° to -90 °	250 °/s
+160° to -160 °	320 °/s
+120° to -120 °	320 °/s
+400° to -400 °	420 °/s

Performance & Accuracy



- 1 kg picking cycle 25 x 300 x 25 mm
 - IRB 120: **0.58 s**
 - IRB 140T = 0.77s

- Max TCP velocity: **6.2 m/s** (calculated)
- Max TCP acceleration: **28 m/s²** (calculated)
- Acceleration time 0-1 m/s: **0.07 s** (calculated)

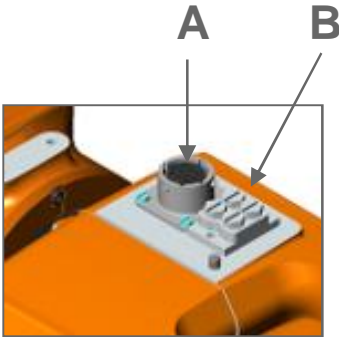
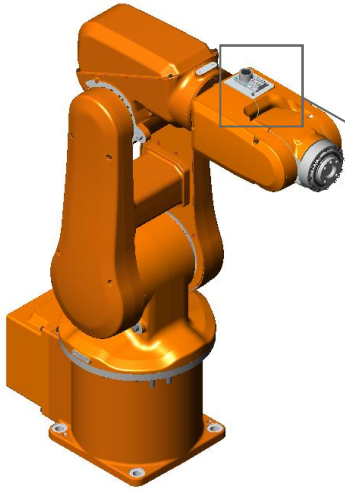
- Accuracy: **0.01 mm** (repeatability)

Flexible mounting

All angles

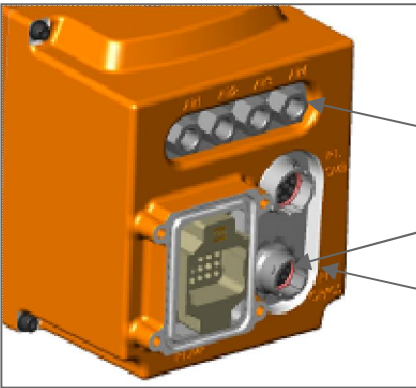


Easy to integrate Customer interfaces



A 10 x customer signals
49V, 500mA

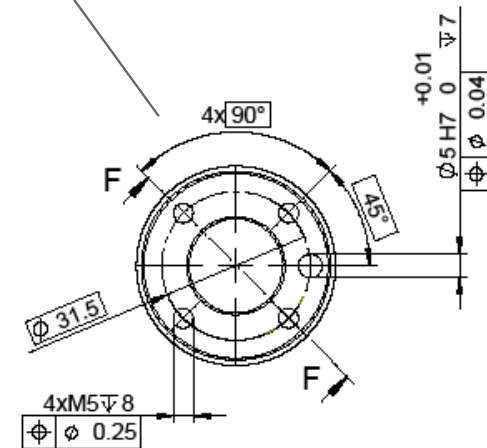
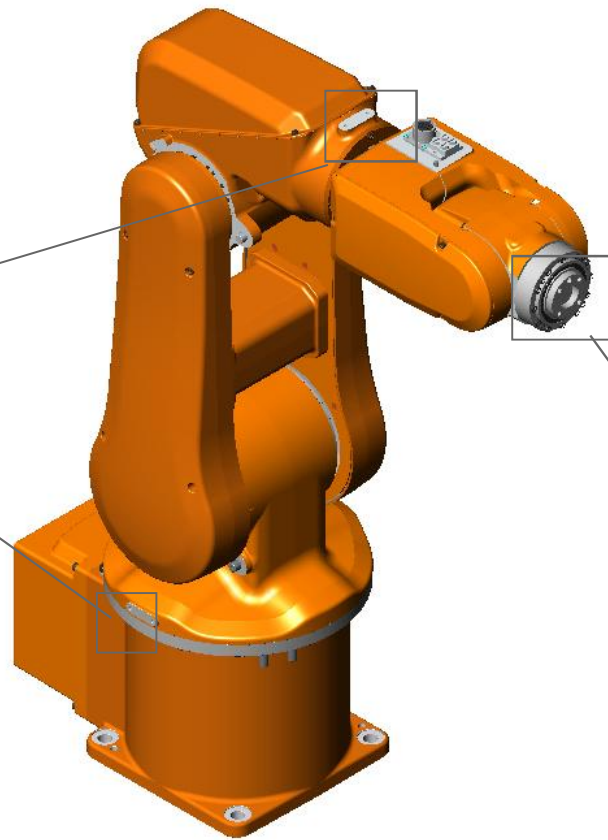
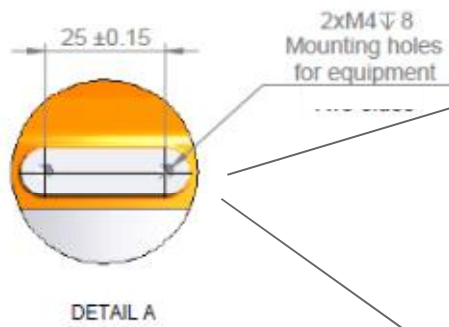
B 4 x air
max diameter 4mm
5 bar



•Customer cable to be done by customer
•No brake release on arm but on controller

Easy to integrate

Mounting interfaces



Only 25 kg

4xM5, PCD 31.5
Acc to ISO 9409-1:2004(E)



IRB 120 Clean Room ISO class 5

Certified by IPA



- ISO 5 certified by IPA
 - ISO Class 5 at 50% speed
 - ISO Class 4 at 100% speed
- Special 4-layer paint including a varnish clear coat
- Easy to wipe clean
- Unpainted aluminum mounting holes
- Unpainted stainless steel mechanical stops
- Special glue-seals to avoid particles generation in sensible area's
- No external cabling

Segments & application requirements Summary

- Compact & light weight arm
- Compact & light weight controller
- Best-in class pose & path accuracy
- Flexible mounting – all angles
- Integrated cabling for minimal integration work
- Shortest cycle time
- Optimized payload & reach for small part handling & assembly
- Very compact turning radius
- Smooth surfaces for easy cleaning
- Optional Clean Room ISO class 5

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