



Nicolas De Keijser, Product Manager, Small robots

ABB's smallest robot - IRB 120

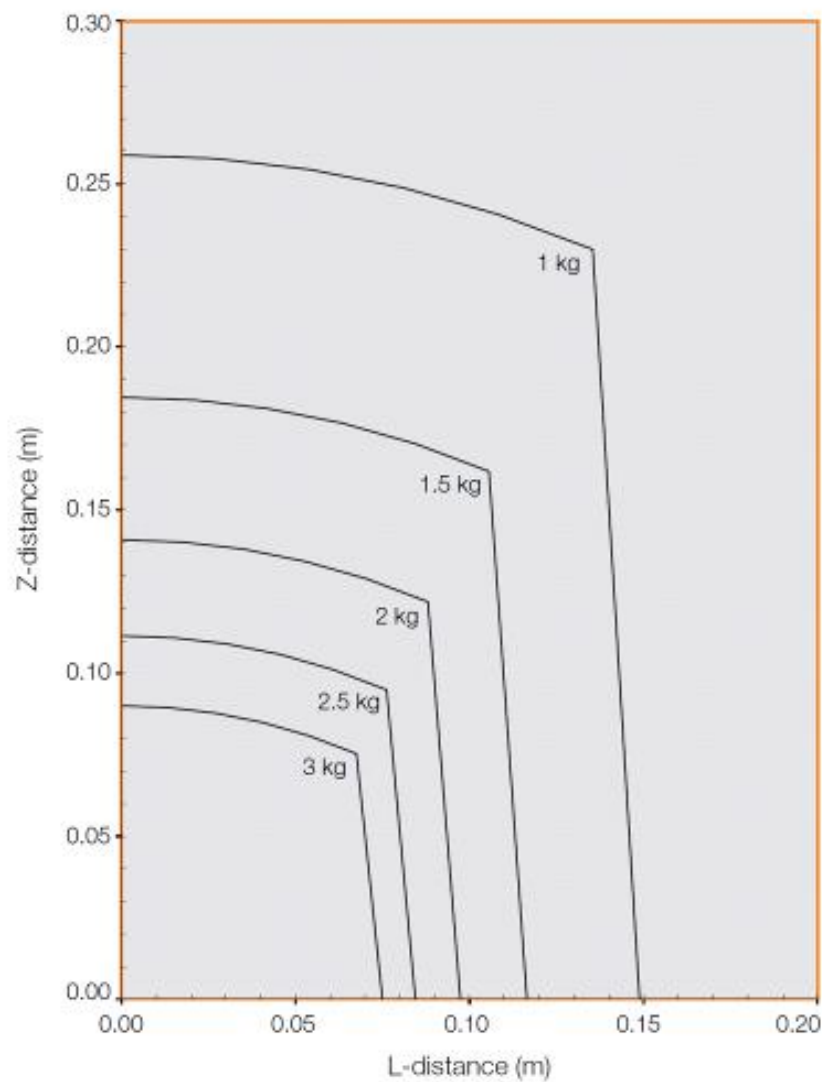
For flexible & compact production

Main Features



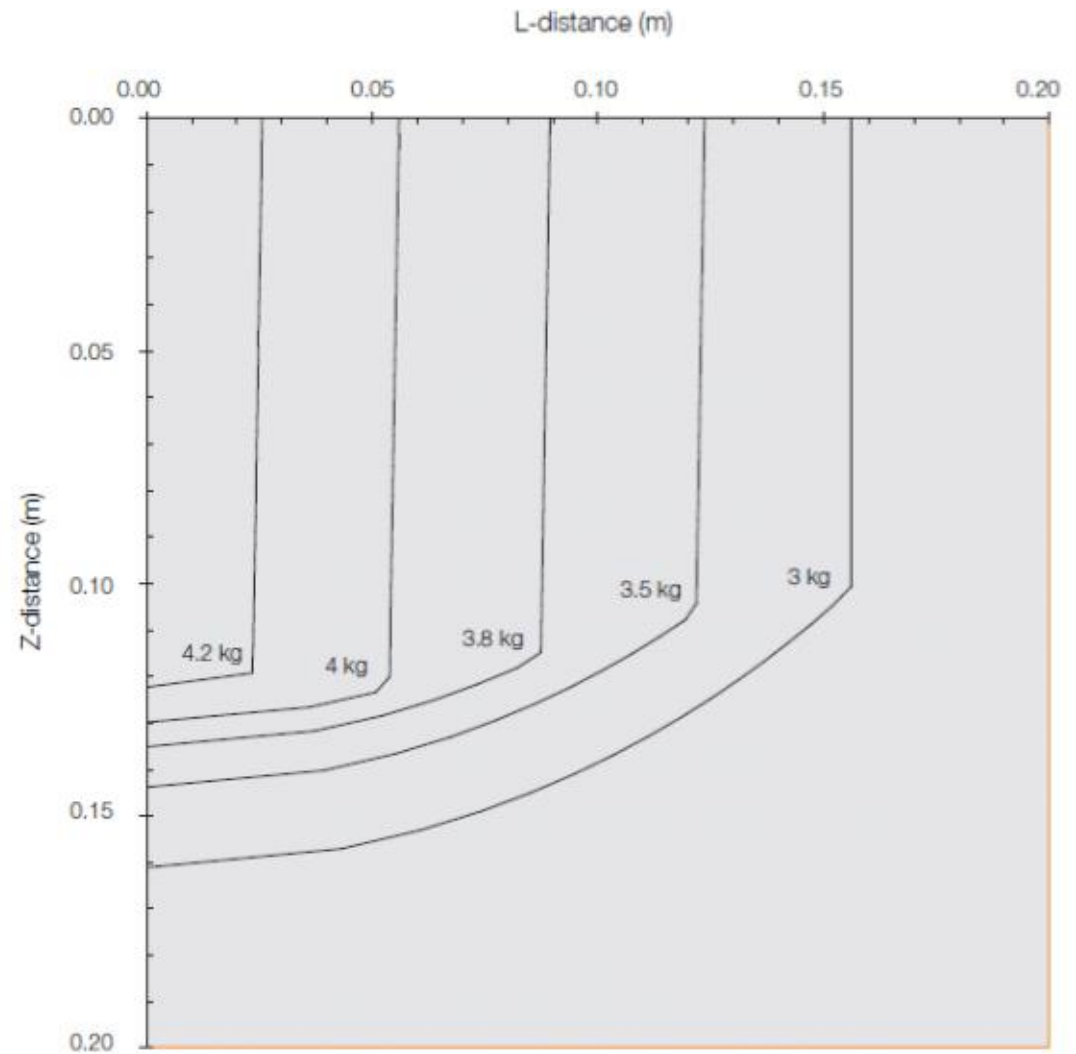
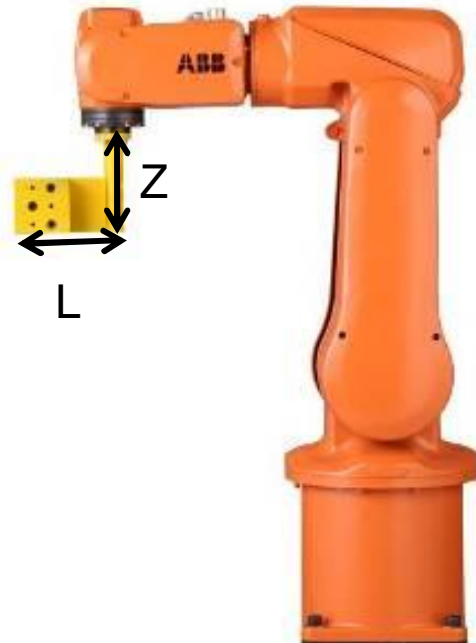
- Six axis manipulator
- Payload: 3 kg
- Reach: 580 mm
- Fastest 6-axis robot in ABB range
- Accuracy: ± 0.01 mm
- Foot print: 180 mm squared
- Weight: 25 kg
- All mounting positions
- IP 30 as standard
- All motors and cabling enclosed => easy to integrate
- Variant: IRB 120T
- Optional Clean Room ISO Class 5 (IPA certified)

Load diagram with 0.3 kg armload Up to 3 kg

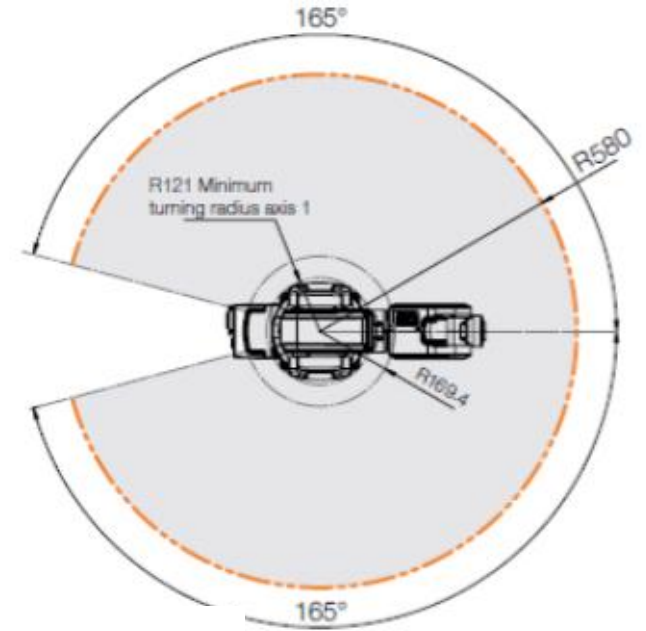
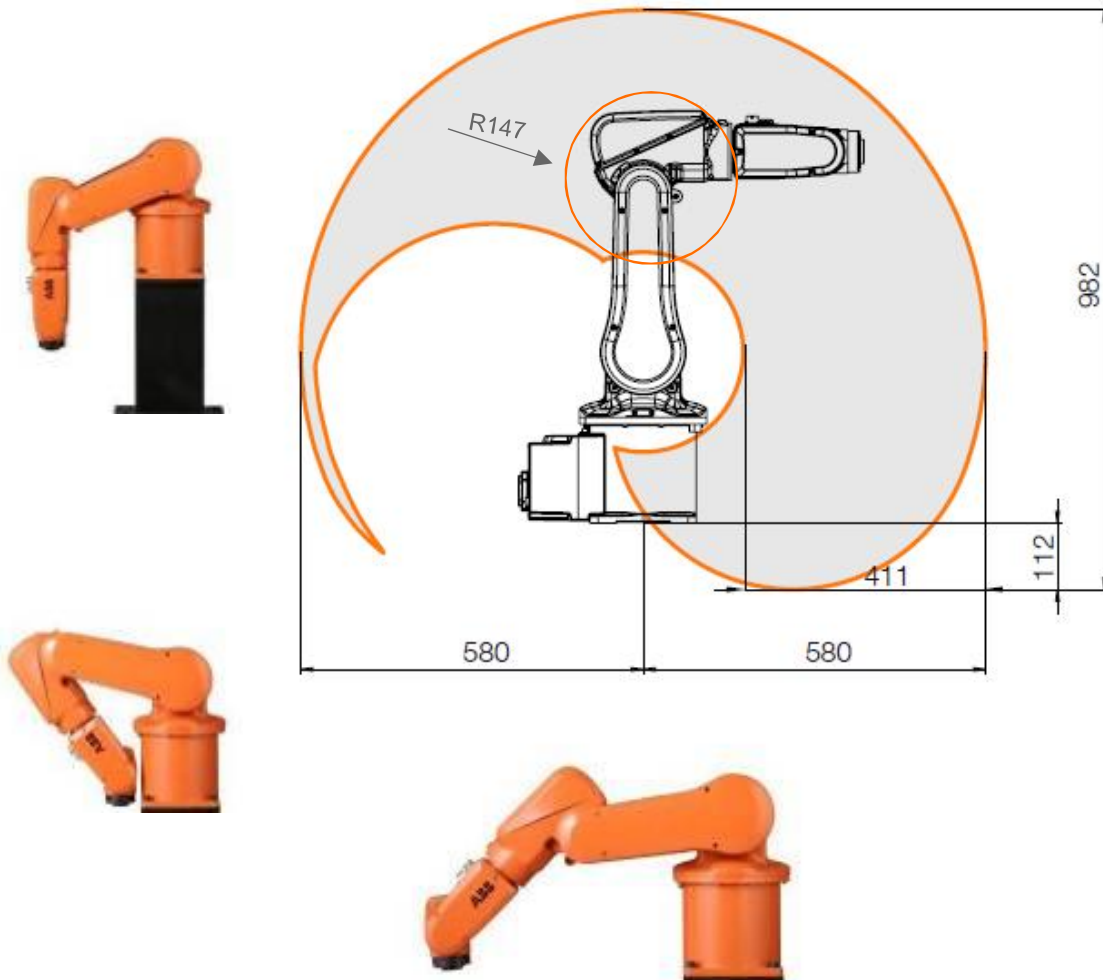


Load diagram with vertical wrist & no arm-load

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 (T)
+165° to -165 °	250 °/s
+110° to -110 °	250 °/s
+70° to -110 °	250 °/s
+160° to -160 °	320 °/s (420 °/s)
+120° to -120 °	320 °/s (590 °/s)
+400° to -400 °	420 °/s (600 °/s)

Performance & Accuracy

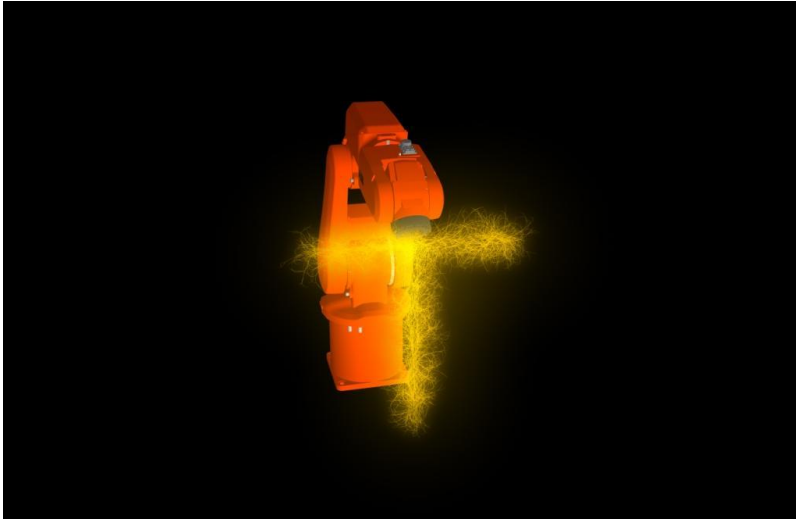


- 1 kg picking cycle 25 x 300 x 25 mm
 - IRB 120: 0.58 s
 - IRB 120T = 0.52s

- 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)

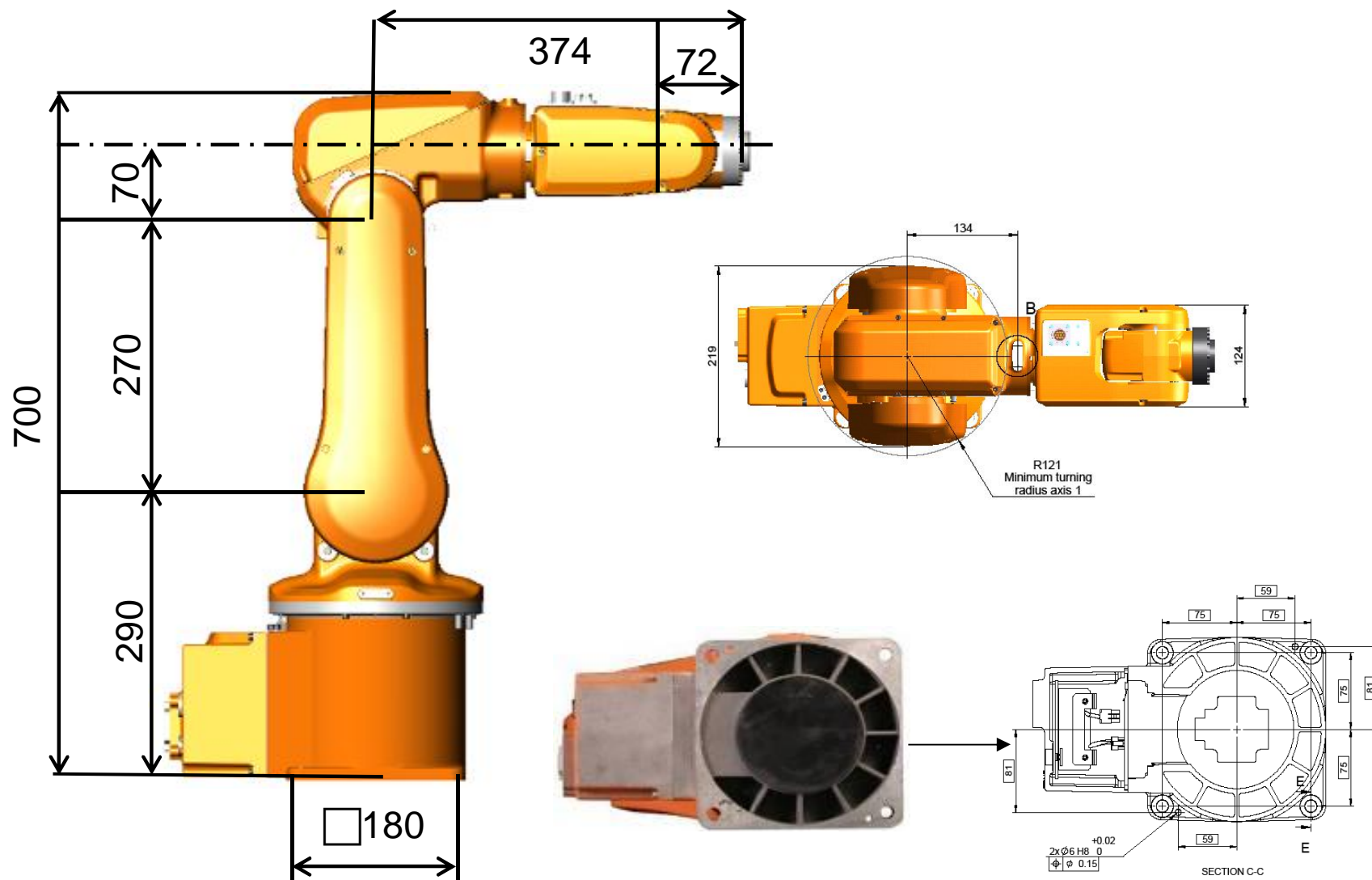
- Accuracy: **0.01 mm** (repeatability)

IRB 120 T



- Up to 25% improvement in cycle time
- Ideal for pick & place application with extensive re-orientation of the product
- Well suited for pick and packing applications and guided operations with PickMaster 3™
- Very high wrist axis speed
 - Axis 4: 420°/s
 - Axis 5: 590°/s
 - Axis 6: 600°/s

Main Dimensions

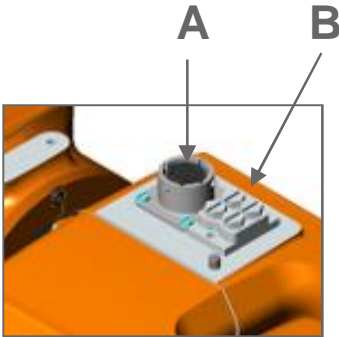
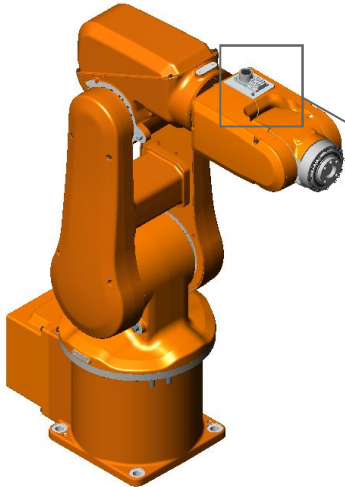


Flexible mounting

All angles

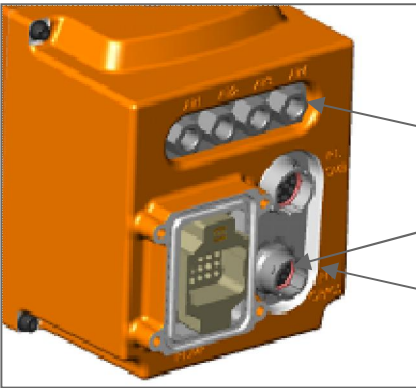


Easy to integrate Customer interfaces



A 10 x customer signals
49V, 500mA

B 4 x air
max diameter 4mm
5 bar



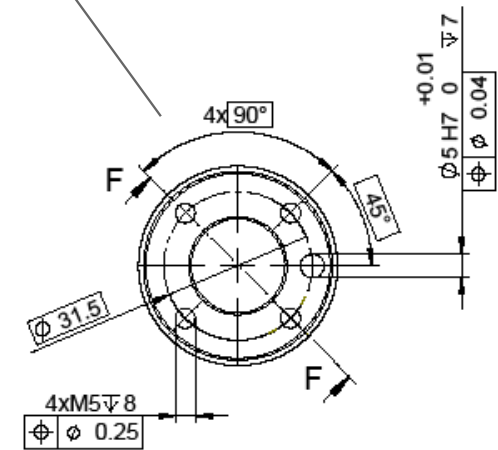
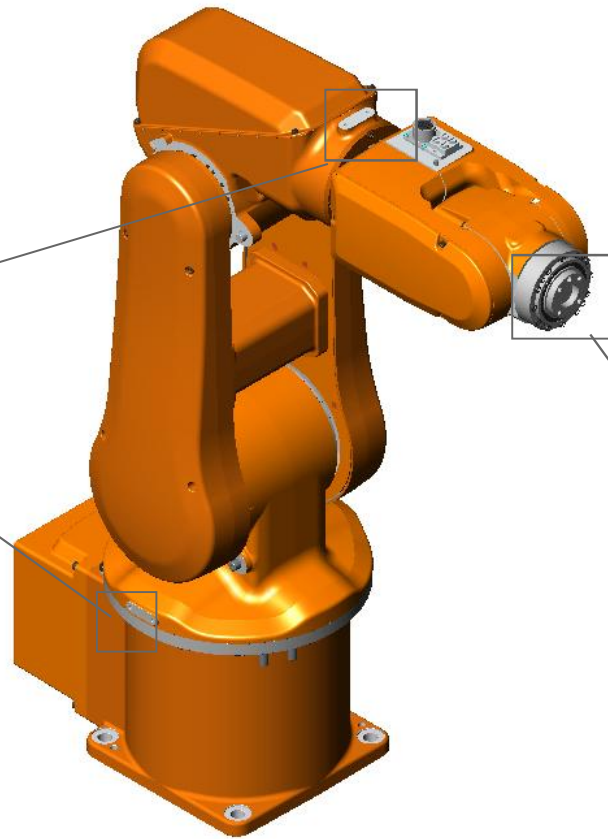
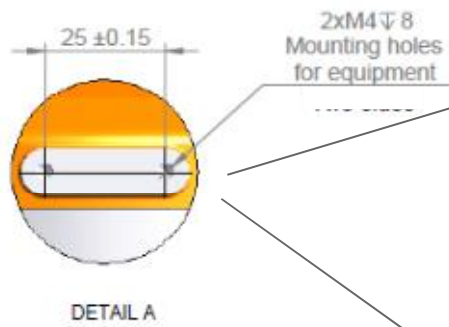
B

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

A

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



- Clean room ISO Class 5 certified by IPA according to ISO 14644-1
 - 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 mounting holes
- Unpainted stainless steel mechanical stops
- Special glue-seals to avoid particles generation in sensible area's
- No external cabling
- Robot entirely wrapped in 2 layers of protective plastic

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
- IRB 120 T variant

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