

ABB ROBOTICS, DECEMBER 2015

IRB 910SC

SCARA Overview



IRB 910 SC

Agenda

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2. Overview and vision
3. Main features
4. Payload
5. Working range
6. Performance and accuracy
7. Main dimensions
8. Outline manipulator
9. Degree of protection
10. Easy integration
11. Controller
12. Customer benefits
13. Applications
14. Summary

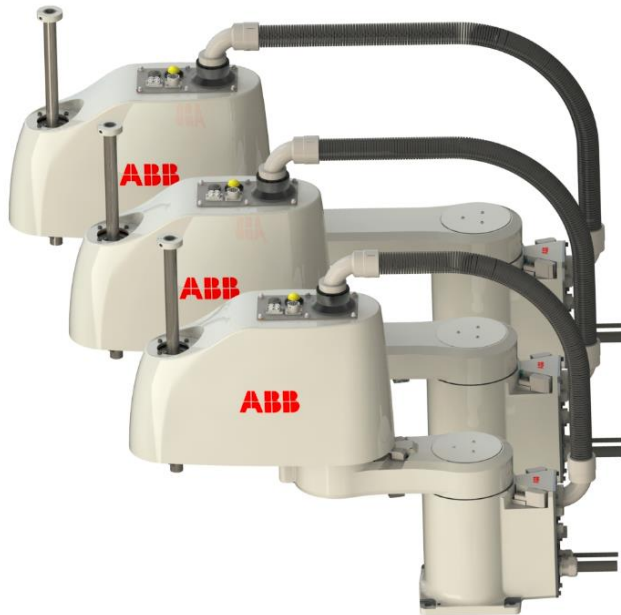
Overview

Differentiated value proposition



"fast, cost-effective and, because it's from ABB, accurate"

Overview and vision



- Original vision
 - To fill the gap in our small robot portfolio with a competitive 4 axis robot which could be used in high speed accurate small part assembly, machine tending and general pick and place solutions which would require a compact fast accurate robot

Overview and vision

Primary target markets



3C

- Assembly and test of custom chips, Automated board testing, Aerospace electronic components assembly
- Inspections of PC boards, Automated cleaning of circuit board components



Food packaging

- Meat Packaging, snack packaging, Box cutting and taping, Plastic component packaging
- Meat/ snack handling operations, Vegetable picking & cutting, Produce packaging



Medical/ Pharmaceutical

- Ideal for lab automation & drug manufacturing operations
- Custom prescription filling, Tablet packaging

Overview and vision

Target main applications



Small Parts Assembly

- Screw driving
- Inserting
- Assembly/ disassembly
- Mounting



Material Handling

- Picking and placing
- Parts transfer
- Parts handling
- Sorting



Inspection

- Product inspection
- Testing
- Quality control

Overview and vision

IRB 910SC vs. IRB 120



IRB 910SC

IRB 910SC offers unmatched four axis performance while still having the power of ABB's rapid and IRC-5 platform

It has been designed to be lightweight and portable, boasts a small footprint with superior speed and accuracy



IRB 120

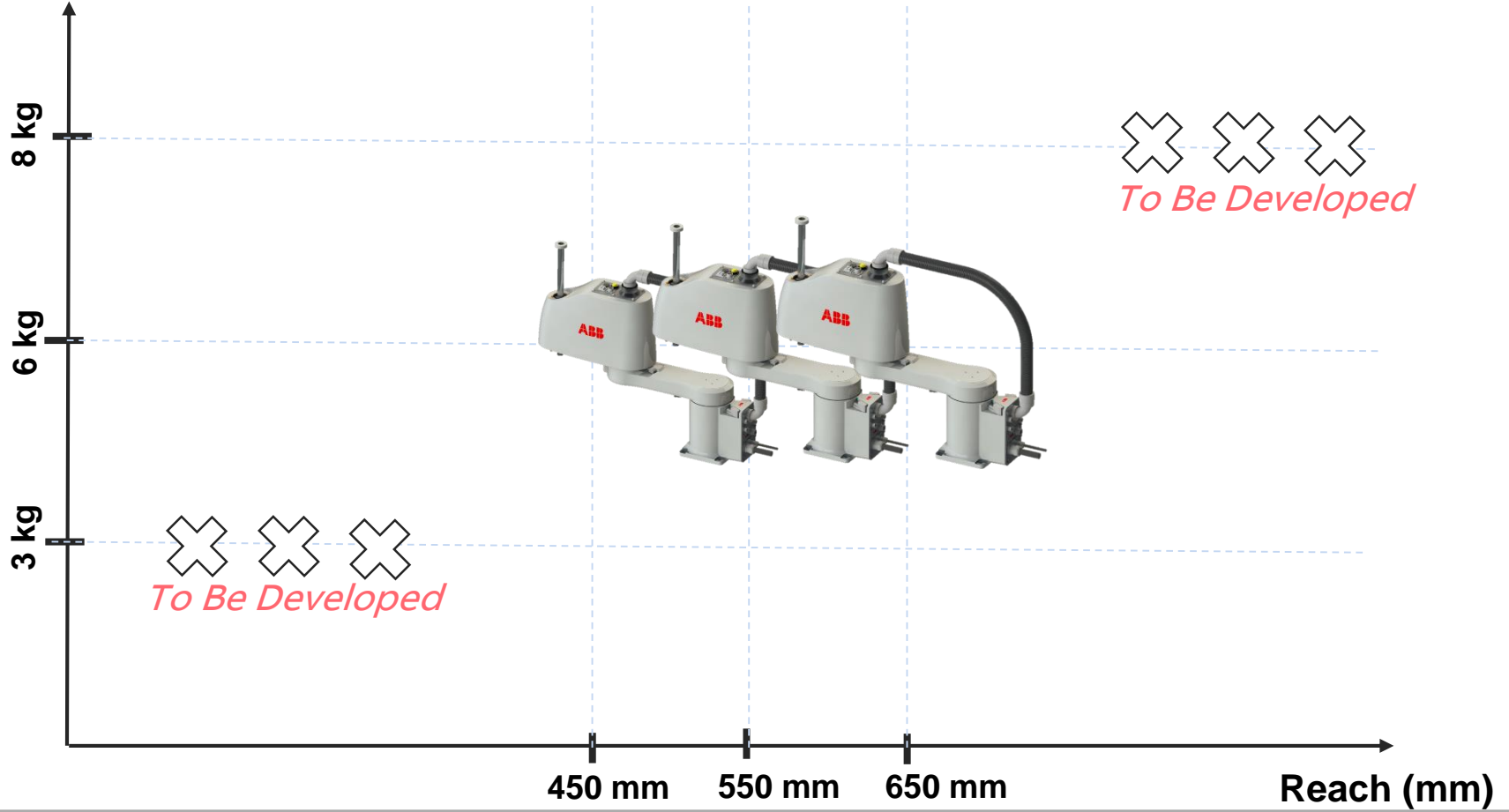
IRB 120 offers all the functionality and expertise of the ABB range in a much smaller packaging

Its reduced weight of only 25kg and compact design enables it to be mounted virtually anywhere on the production line, with superior control and path accuracy

Overview and vision

SCARA portfolio

Payload (kg)

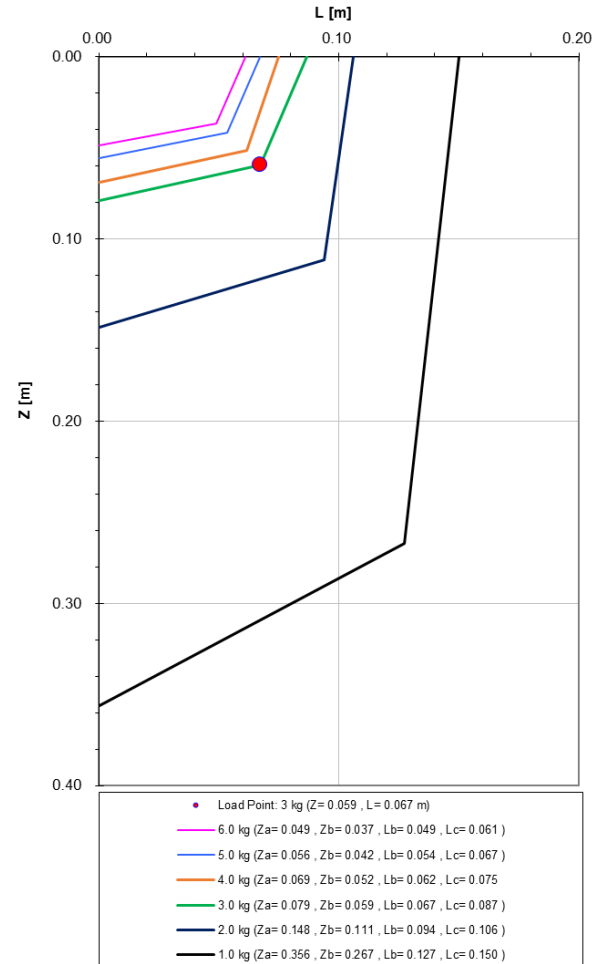


Main features

| | IRB 910SC - 3/ 0.45 | IRB 910SC - 3/ 0.55 | IRB 910SC - 3/ 0.65 |
|-----------------------------|---------------------|---------------------|---------------------|
| Payload | Maximum 6kg | | |
| Reach | 450 mm | 550 mm | 650 mm |
| Weight | 24.5 kg | 25 kg | 25.5 kg |
| Footprint | 160mmx160mm | | |
| Shaft Diameter | 20 mm | | |
| Degree of Protection | IP20 | | |
| Mounting Position | Table top | | |
| Controller | IRC 5 Compact | | |
| Supply Voltage | 200-600 V, 50/60Hz | | |
| Power Consumption | 200 W | | |

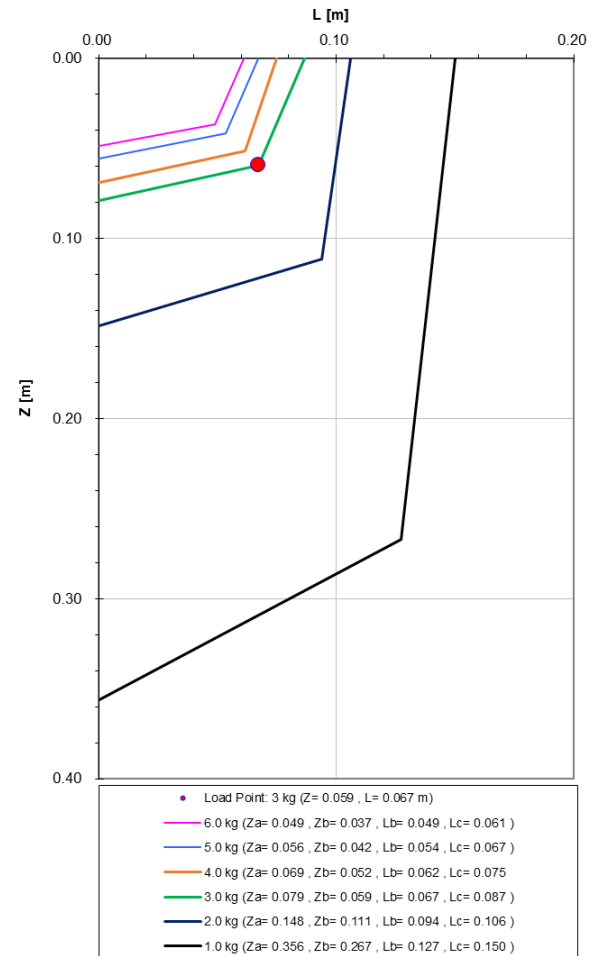
Payload range

IRB 910SC – 3/ 0.45



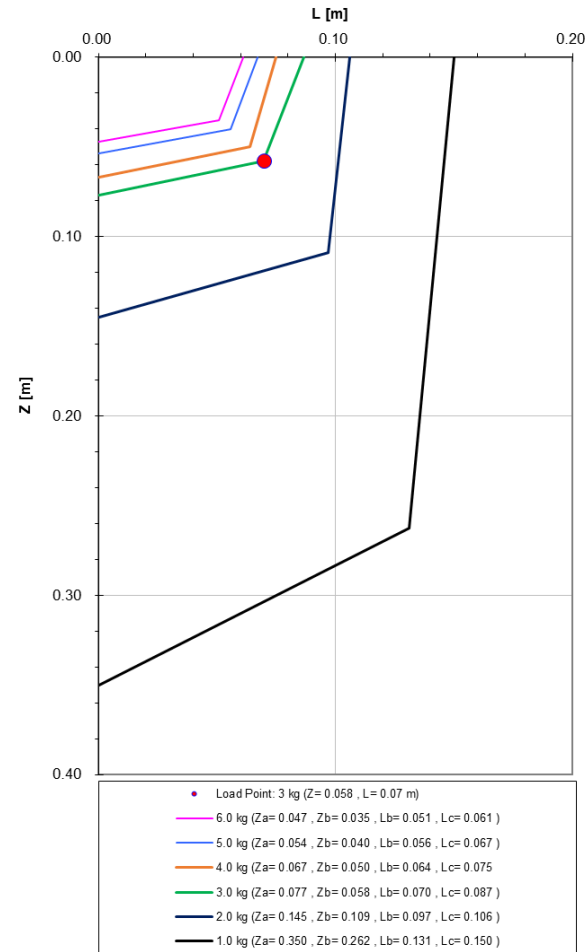
Payload range

IRB 910SC – 3/ 0.55



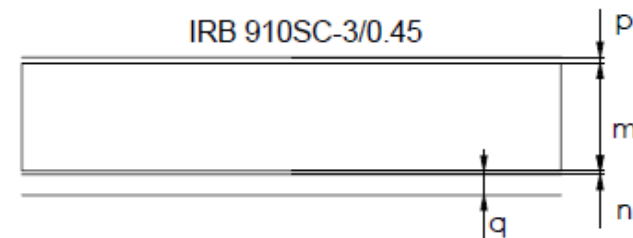
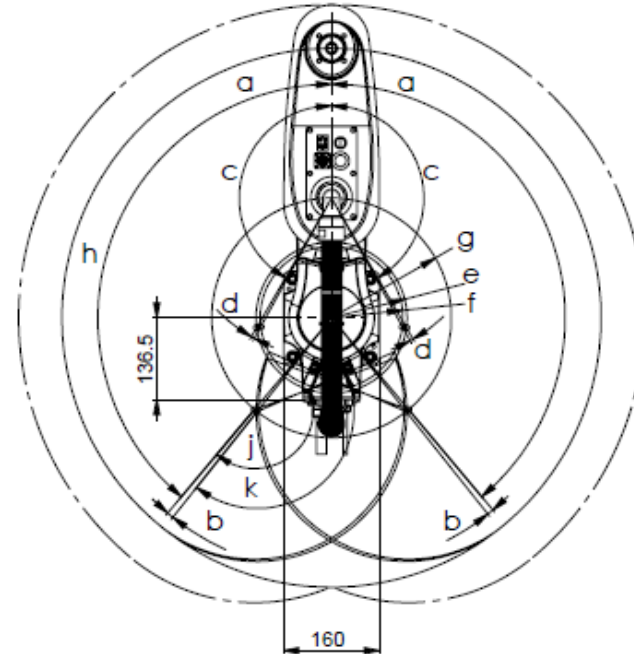
Payload range

IRB 910SC – 3/ 0.65



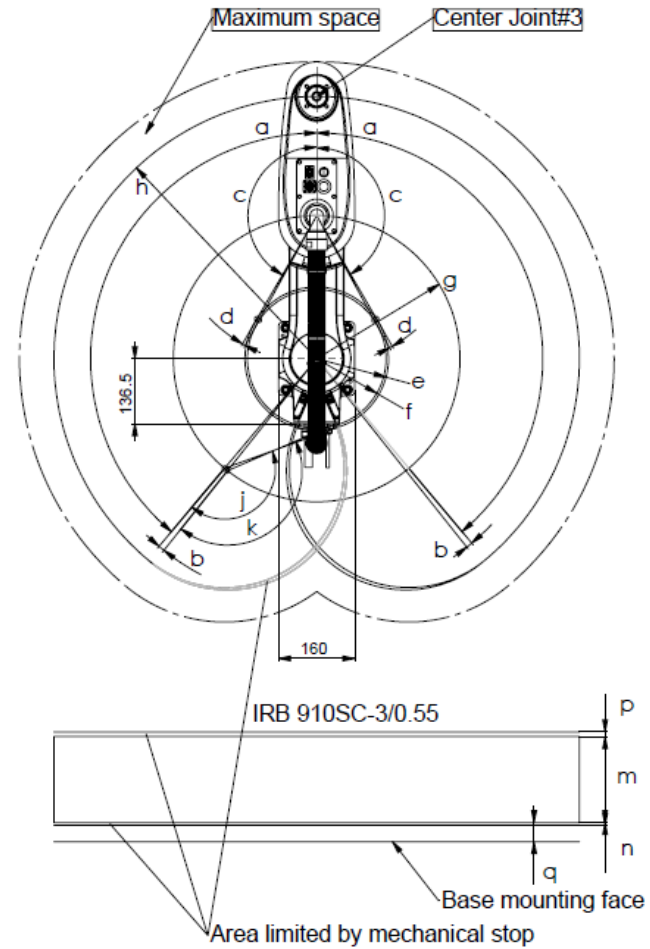
Work range

IRB 910SC – 3/ 0.45



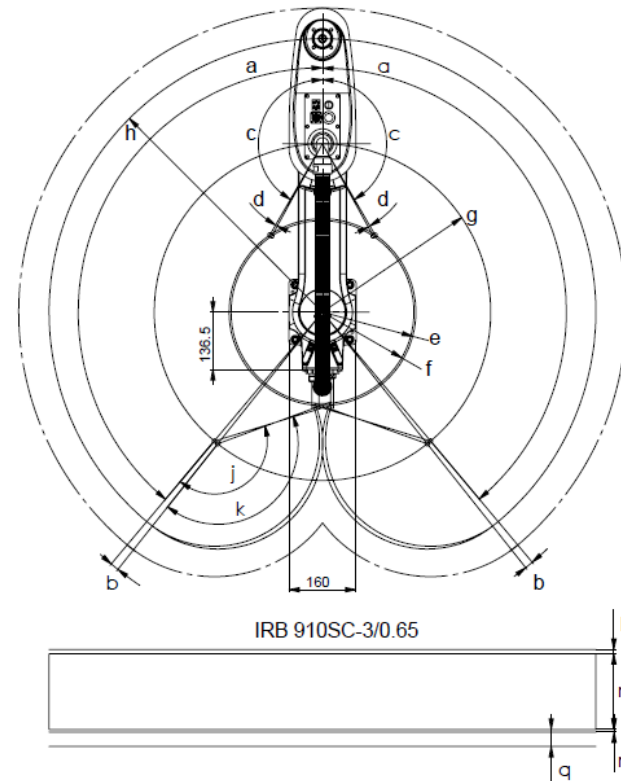
Work range

IRB 910SC – 3/ 0.55



Work range

IRB 910SC – 3/ 0.65



Work range

Axis movement/ Maximum speed

Movement

| Axis movement | IRB 910SC-3/0.45 | | IRB 910SC-3/0.55 | | IRB 910SC-3/0.65 | |
|-----------------|------------------|---------------|------------------|---------------|------------------|---------------|
| | Working range | Maximum speed | Working range | Maximum speed | Working range | Maximum speed |
| Axis 1 Rotation | ±140 deg | 415 deg/s | ±140 deg | 415 deg/s | ±140 deg | 415 deg/s |
| Axis 2 Rotation | ±150 deg | 659 deg/s | ±150 deg | 659 deg/s | ±150 deg | 659 deg/s |
| Axis 3 Up/ Down | 180mm | 1.02m/s | 180mm | 1.02m/s | 180mm | 1.02m/s |
| Axis 4 Rotation | ±400 deg | 2400 deg/s | ±400 deg | 2400 deg/s | ±400 deg | 2400 deg/s |

Disclaimer: The numbers contained herein are provisional and subject to change

Performance and accuracy

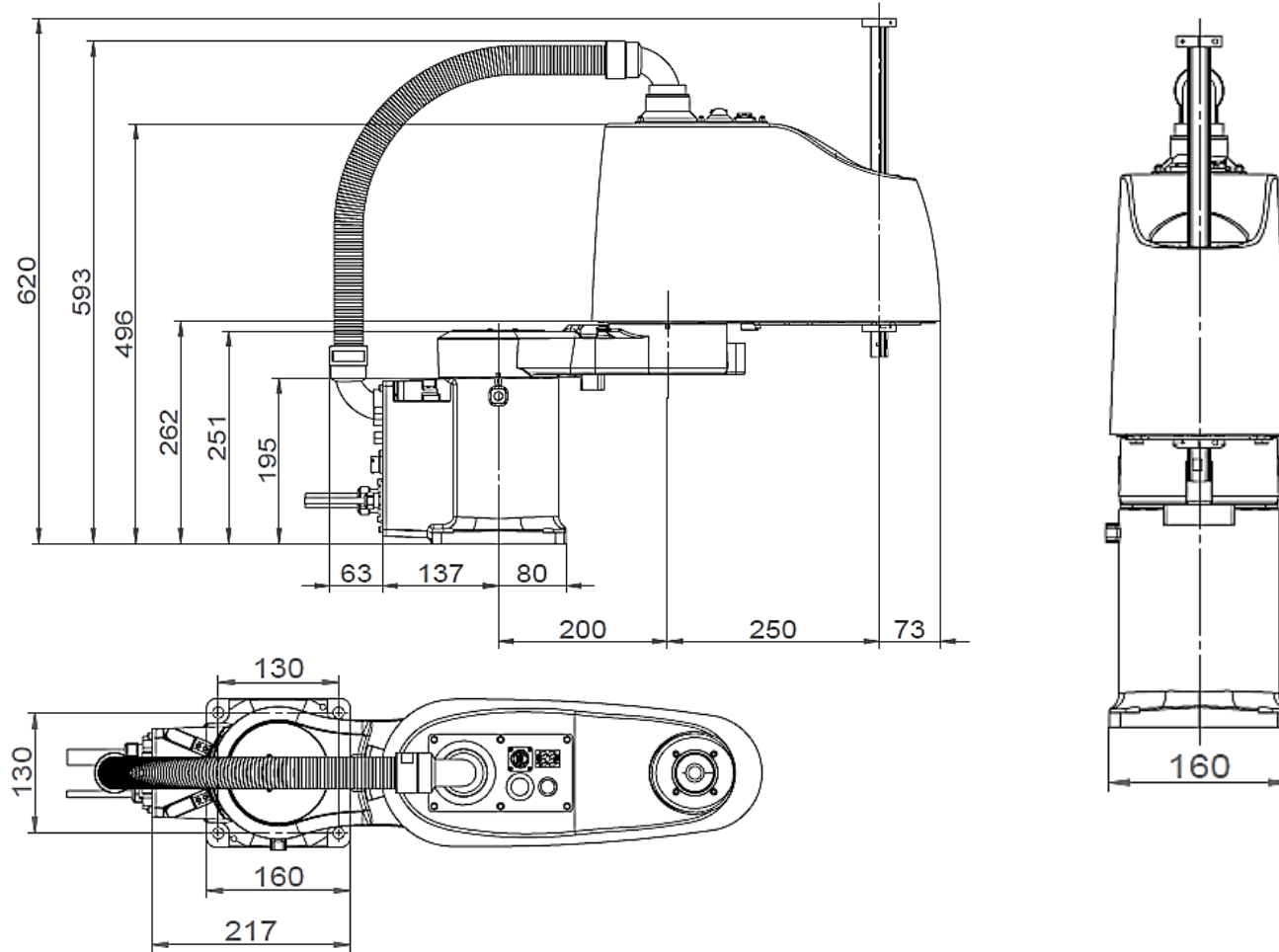
| Movement | IRB 910SC - 3/ 0.45 | | IRB 910SC - 3/ 0.55 | | IRB 910SC - 3/ 0.65 | |
|-----------------|---------------------|---------------|---------------------|---------------|---------------------|---------------|
| | Working range | Maximum speed | Working range | Maximum speed | Working range | Maximum speed |
| Axis 1 Rotation | ±140 deg | 415 deg/s | ±140 deg | 415 deg/s | ±140 deg | 415 deg/s |
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| Axis 3 Up/ Down | 180mm | 1.02m/s | 180mm | 1.02m/s | 180mm | 1.02m/s |
| Axis 4 Rotation | ±400 deg | 2400 deg/s | ±400 deg | 2400 deg/s | ±400 deg | 2400 deg/s |

| Performance | IRB 910SC - 3/ 0.45 | IRB 910SC - 3/ 0.55 | IRB 910SC - 3/ 0.65 |
|------------------------------|---------------------|---------------------|---------------------|
| 1 kg Picking Cycle | 0.370 s | 0.380 s | 0.385 s |
| Max TCP Velocity | 6.2 m/s | 6.9 m/s | 7.6 m/s |
| Max TCP Acceleration | 65 m/s ² | 60 m/s ² | 55 m/s ² |
| Acceleration Time 0-1m/s | 0.04 s | 0.05 s | 0.06 s |
| Axis 3 (Z stroke) Down Force | 250 N | 250 N | 250 N |
| Maximum Speed | | | |
| <i>Axis 1+ Axis 2</i> | 6.13 m/s | 6.86 m/s | 7.58 m/s |
| <i>Axis 3</i> | 1.02 m/s | 1.02 m/s | 1.02 m/s |
| <i>Axis 4</i> | 2400 deg/s | 2400 deg/s | 2400 deg/s |
| Position Repeatability | | | |
| <i>Axis 1+ Axis 2</i> | ±0.015 mm | ±0.015 mm | ±0.015 mm |
| <i>Axis 3</i> | ±0.01 mm | ±0.01 mm | ±0.01 mm |
| <i>Axis 4</i> | ±0.005 deg | ±0.005 deg | ±0.005 deg |

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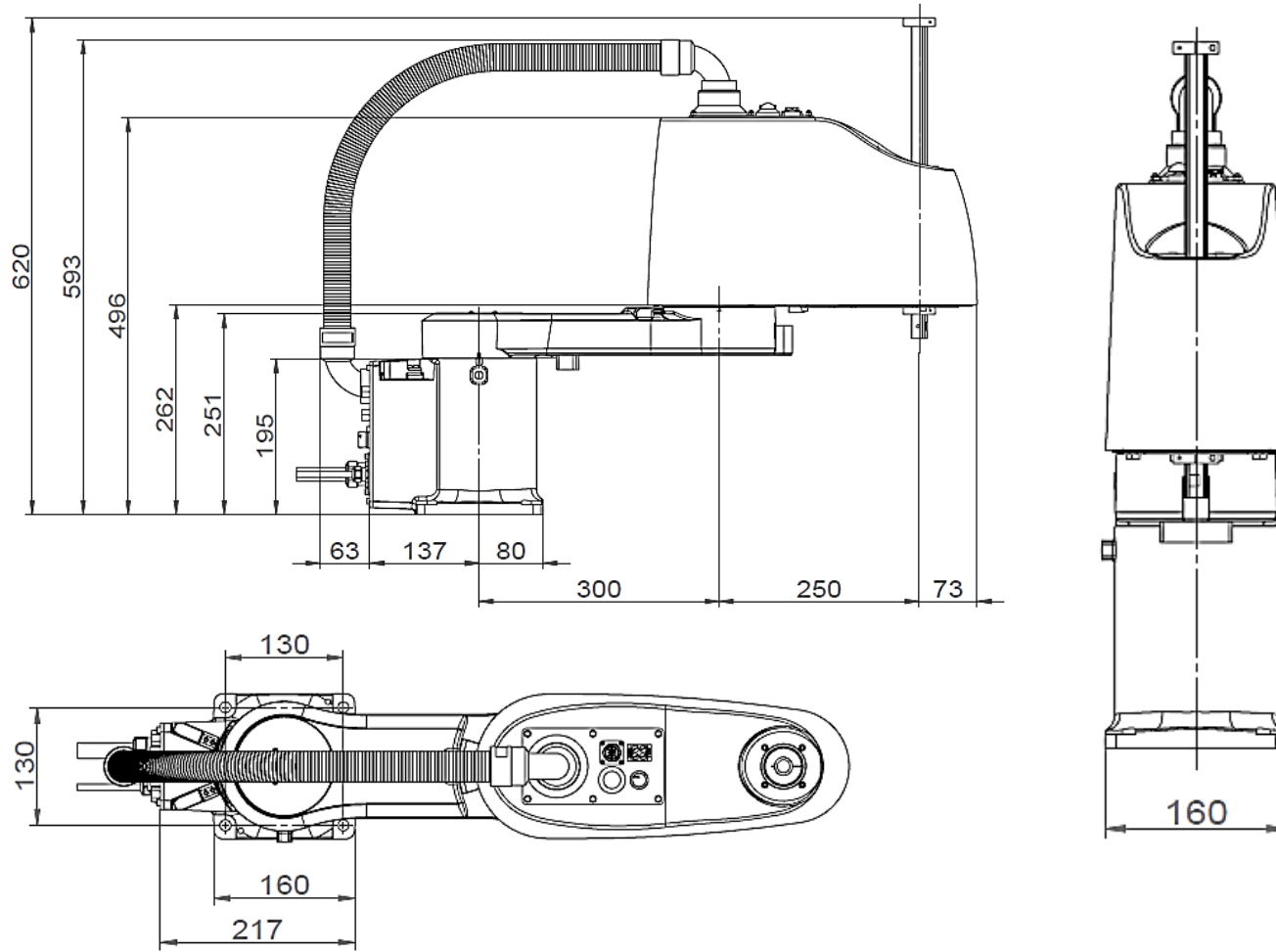
Main dimensions

IRB 910SC – 3/ 0.45



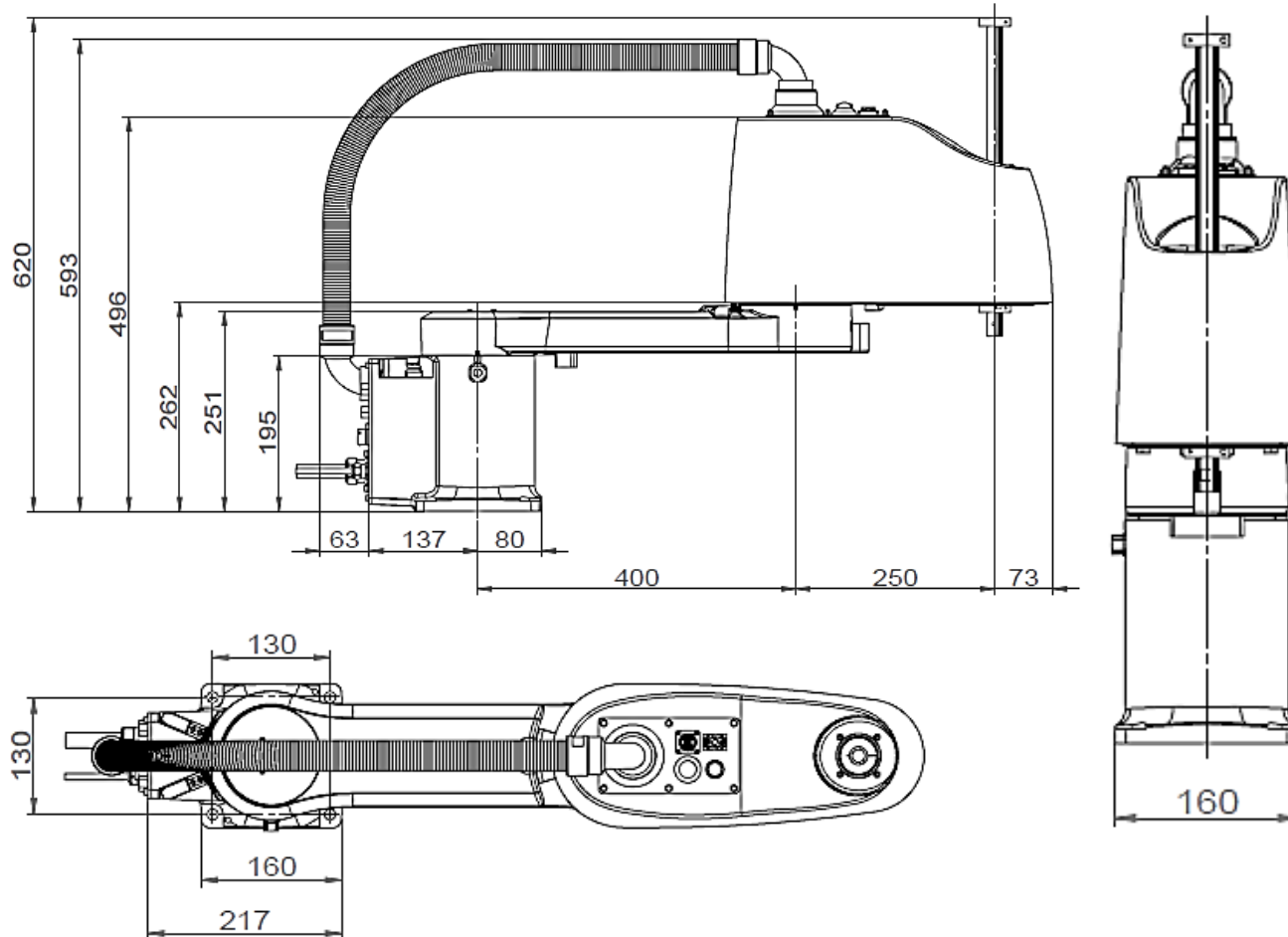
Main dimensions

IRB 910SC – 3/ 0.55



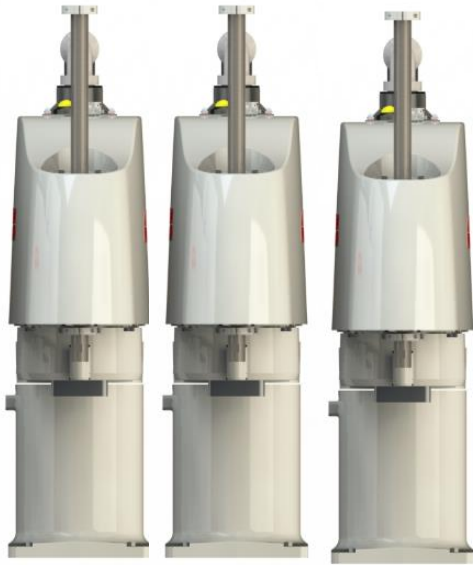
Main dimensions

IRB 910SC – 3/ 0.65



Outline manipulator

IRB 910SC three variances comparison



Front view



Side view



Top view

Outline manipulator

IRB 910SC – 3/ 0.55 Vs. IRB 120



Front view



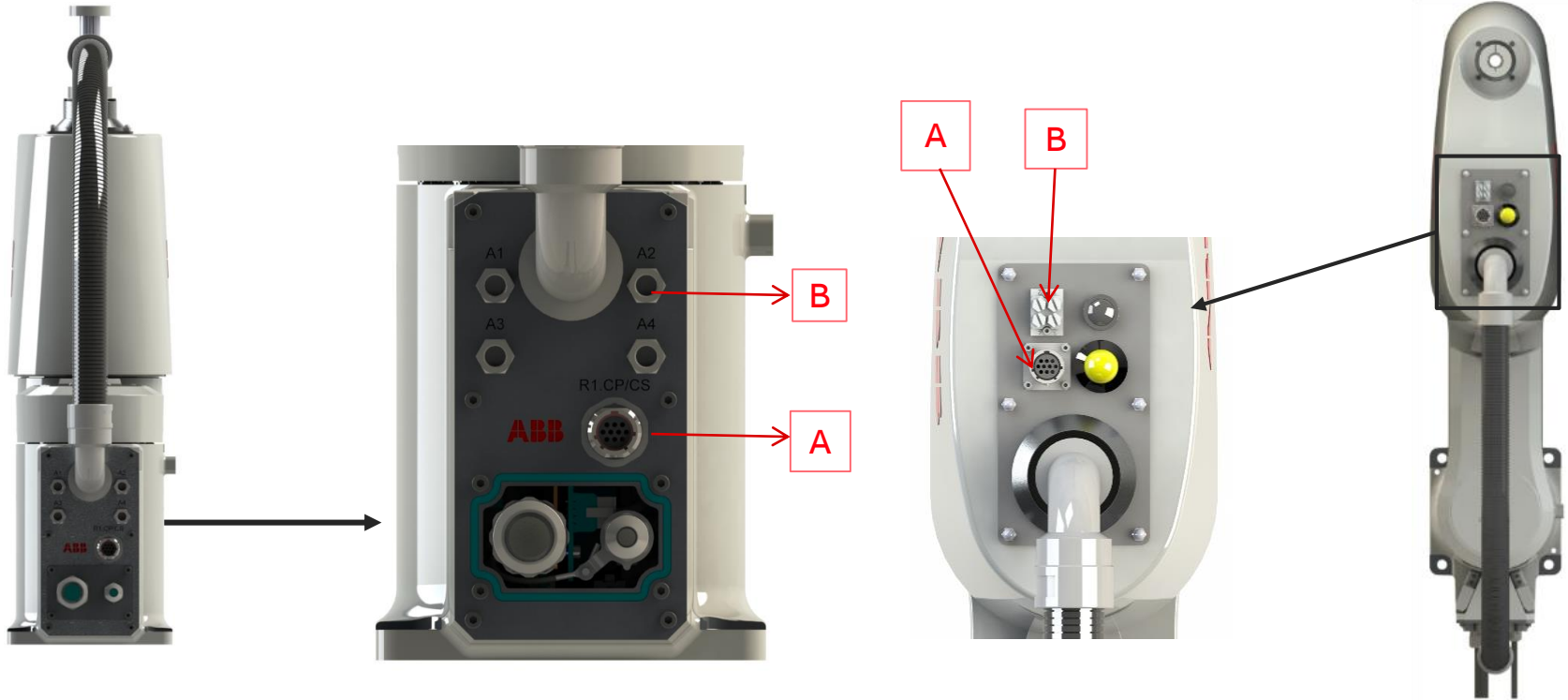
Side view



Top view

Easy integration

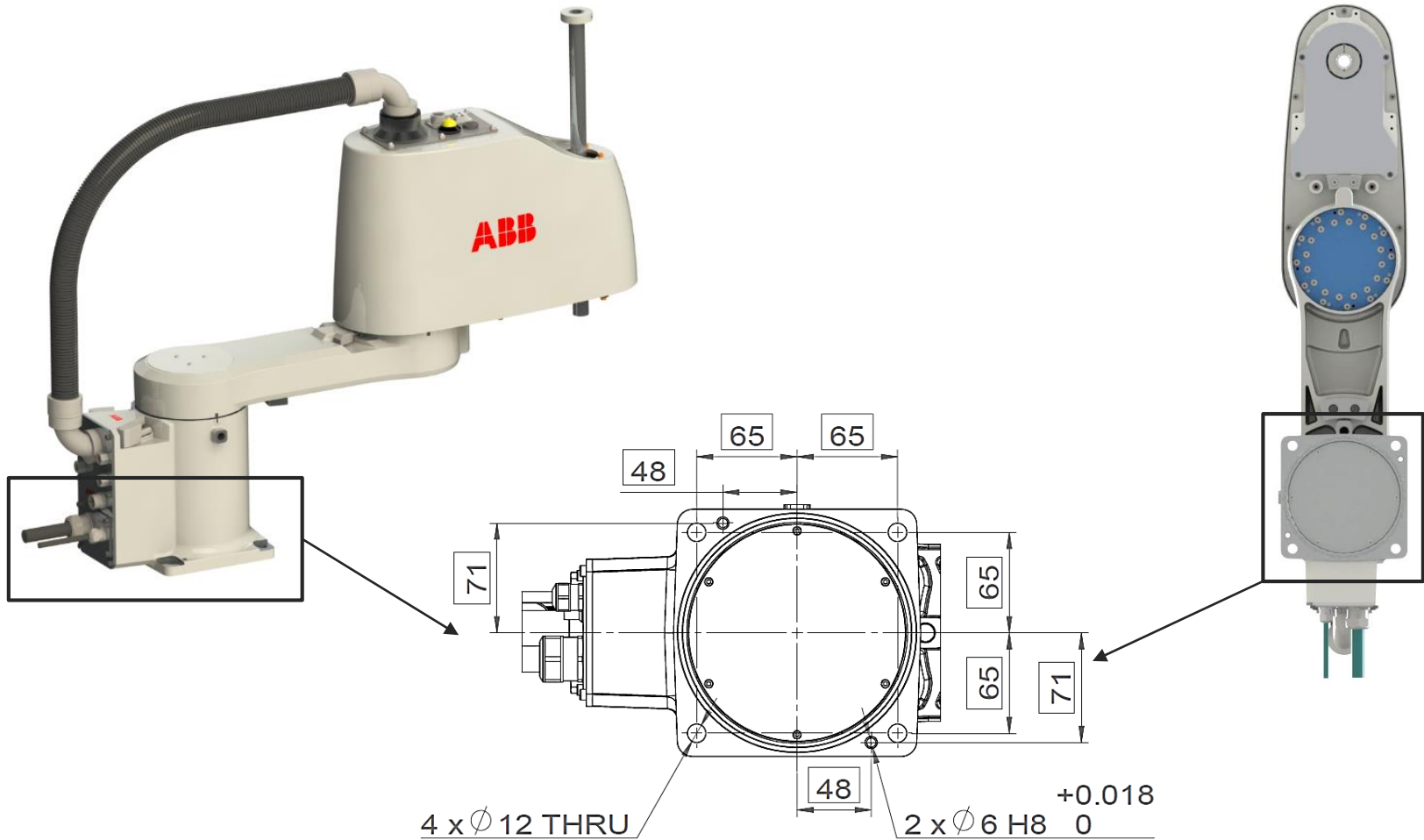
Customer interfaces



| Position | Connection | Description | Number | Value |
|----------|--------------|-----------------------|--------|-------------------------|
| A | (R1)R3.CP/CS | Customer power/signal | 10 | 49V, 500mA |
| B | Air | Max. 5 bar | 4 | Inner hose diameter 4mm |

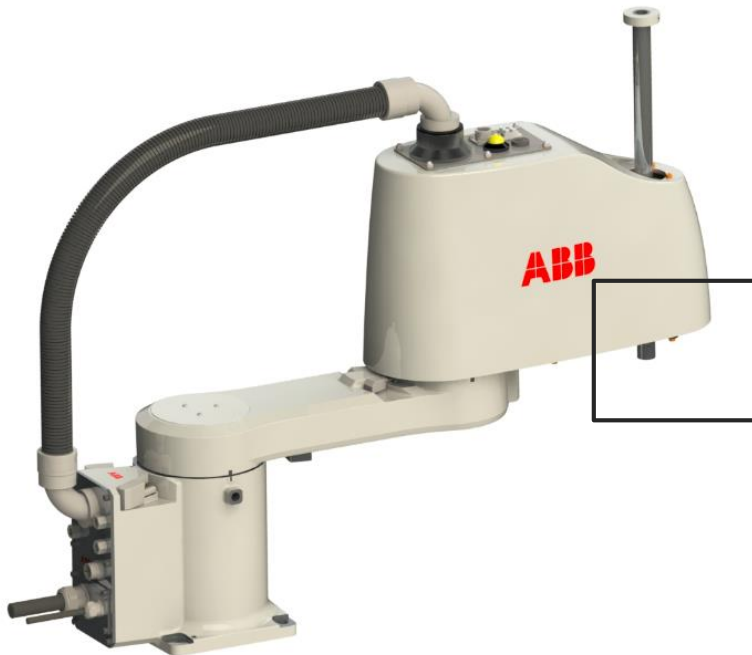
Easy integration

Mounting interfaces



Easy integration

Camera mounting interfaces



Controller

IRC5 Compact

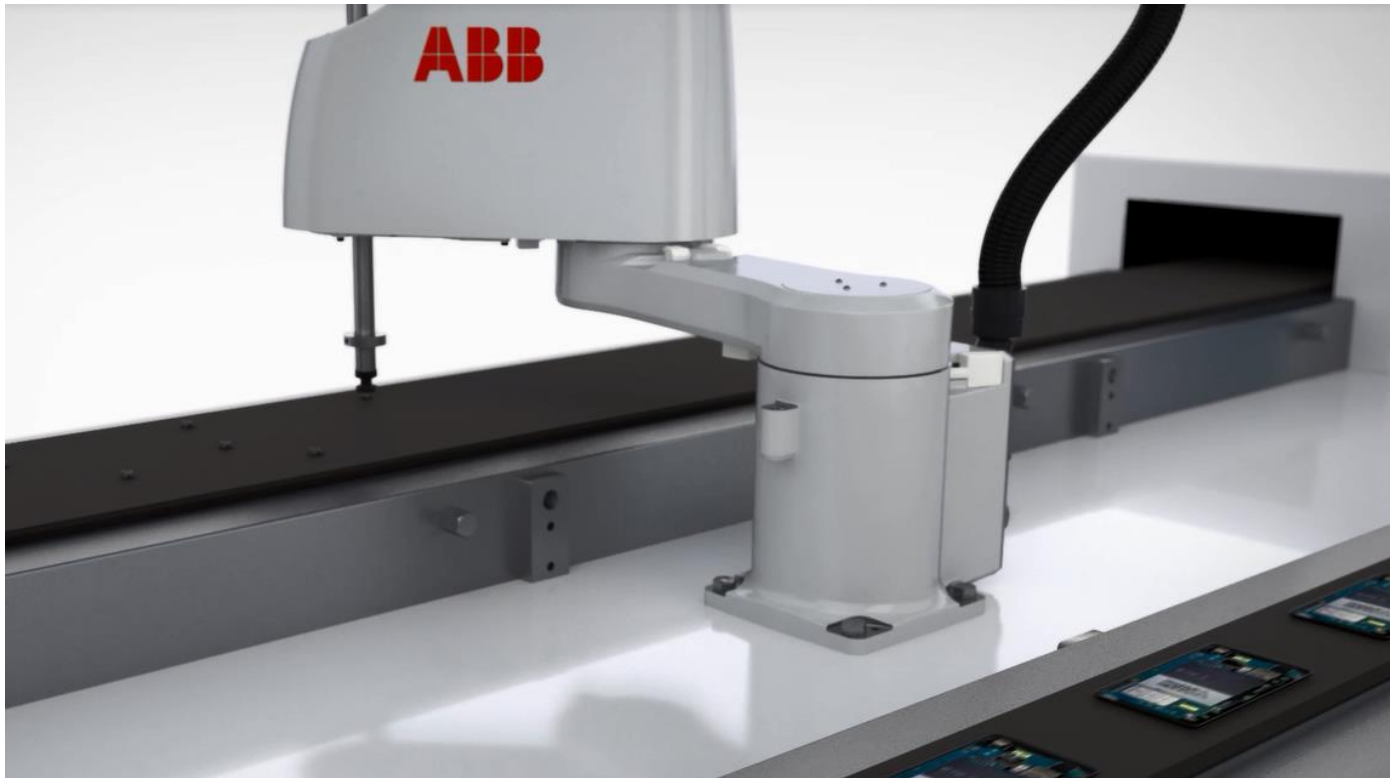


- The IRC5 Compact controller is a desktop sized robot controller designed for segments such as 3C market. The compact controller protection degree is class IP20
- Low cost
- Portable(28.5 kg)
- External connectors
- Built-in 16 in /16 out

Customer benefits

Fast and accurate

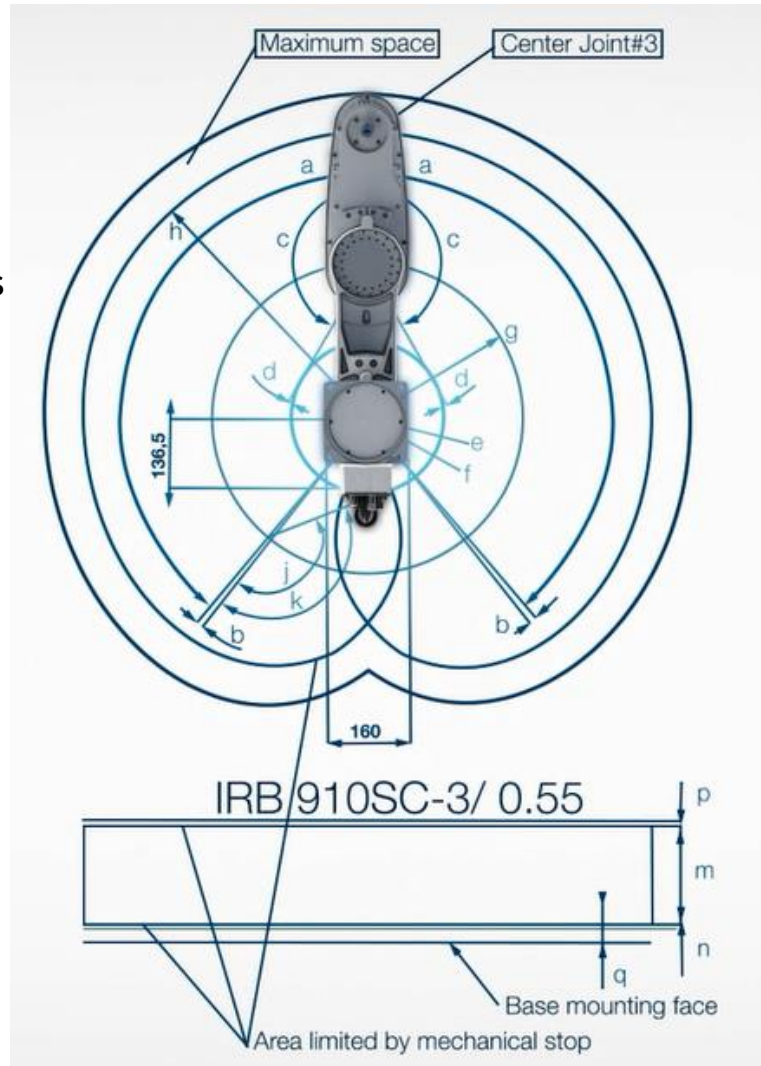
Shorter cycle time with pin point accuracy gives you a better ROI



Customer benefits

Large working envelope

Enables the best possible use of a compact design which then enables you to handle more tasks in a defined area



Customer benefits

Compact floor Mounting

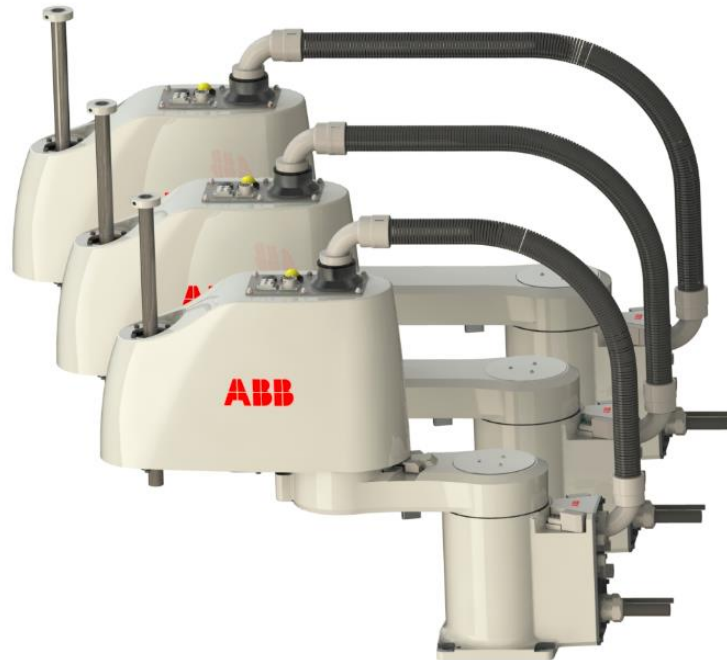
Smaller cell design better cell layout giving a smaller footprint allowing better use of floor space



Customer benefits

Three Variants

Common spares and platform across all models. This makes it possible to have less spares for the range



Customer benefits

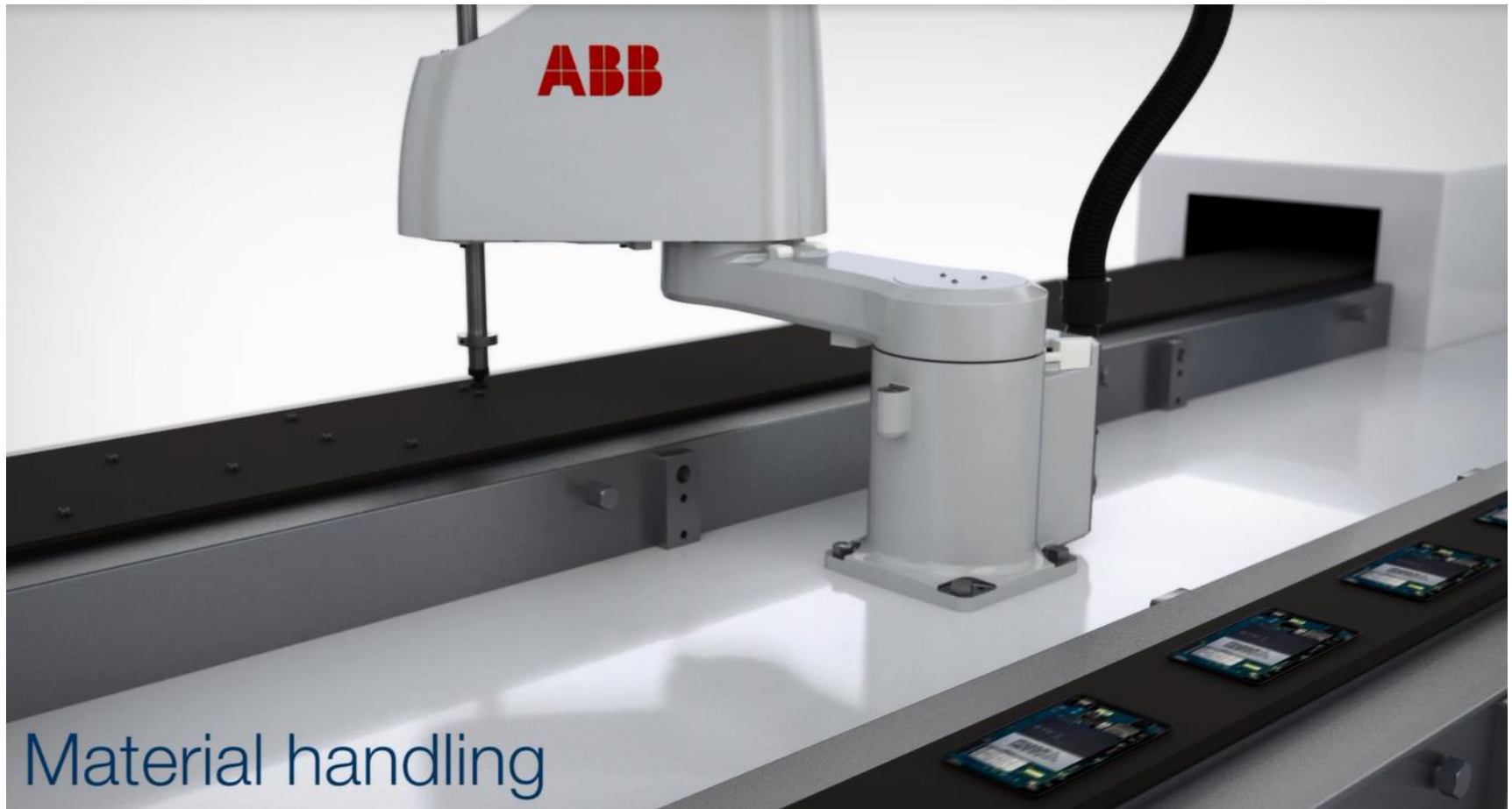
Internal Air and signals

There is no need to route cables and air outside the robot, ABB has tested the solution so you don't need to worry about lifetime of the solution



Applications

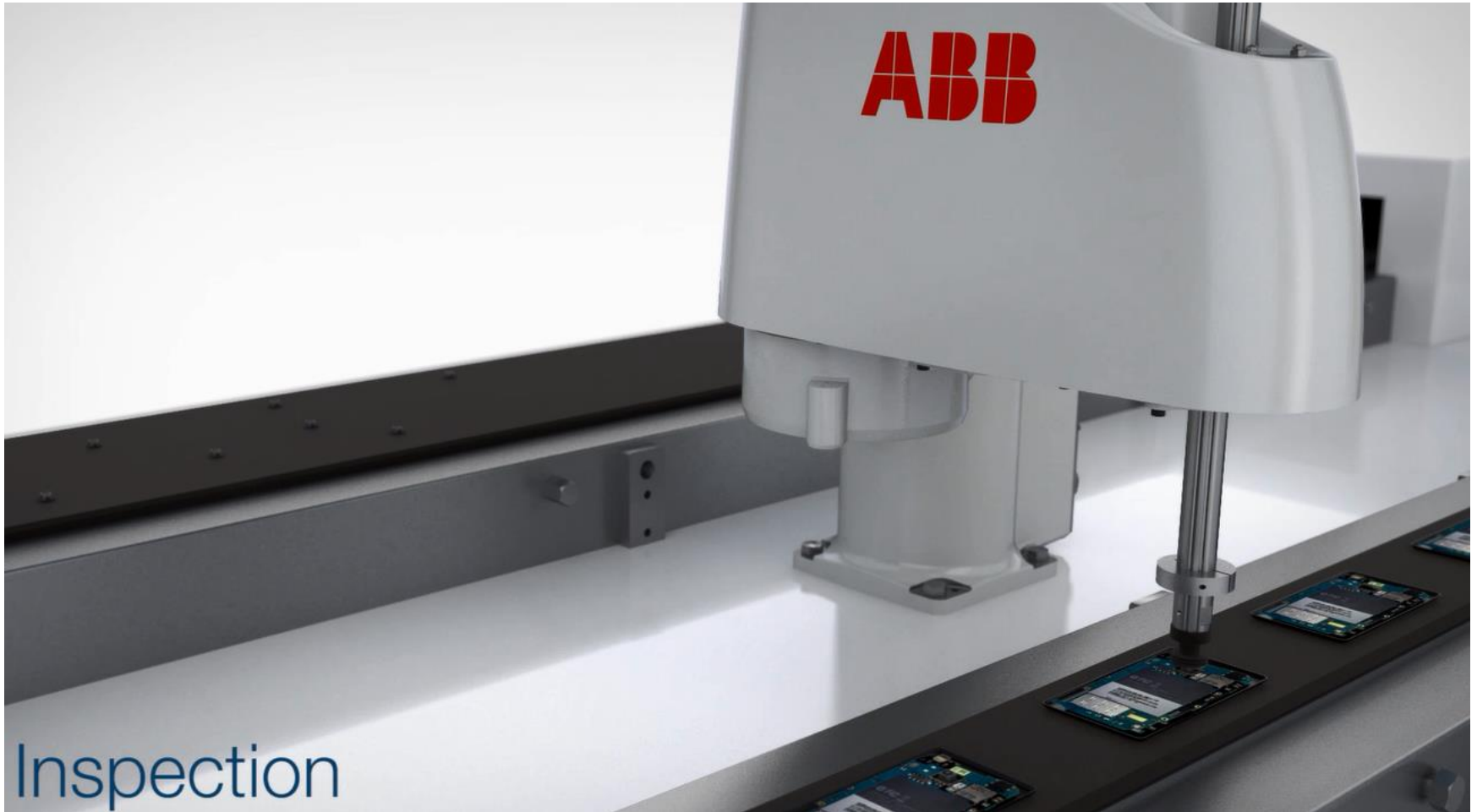
High Speed packing material handling



Material handling

Applications

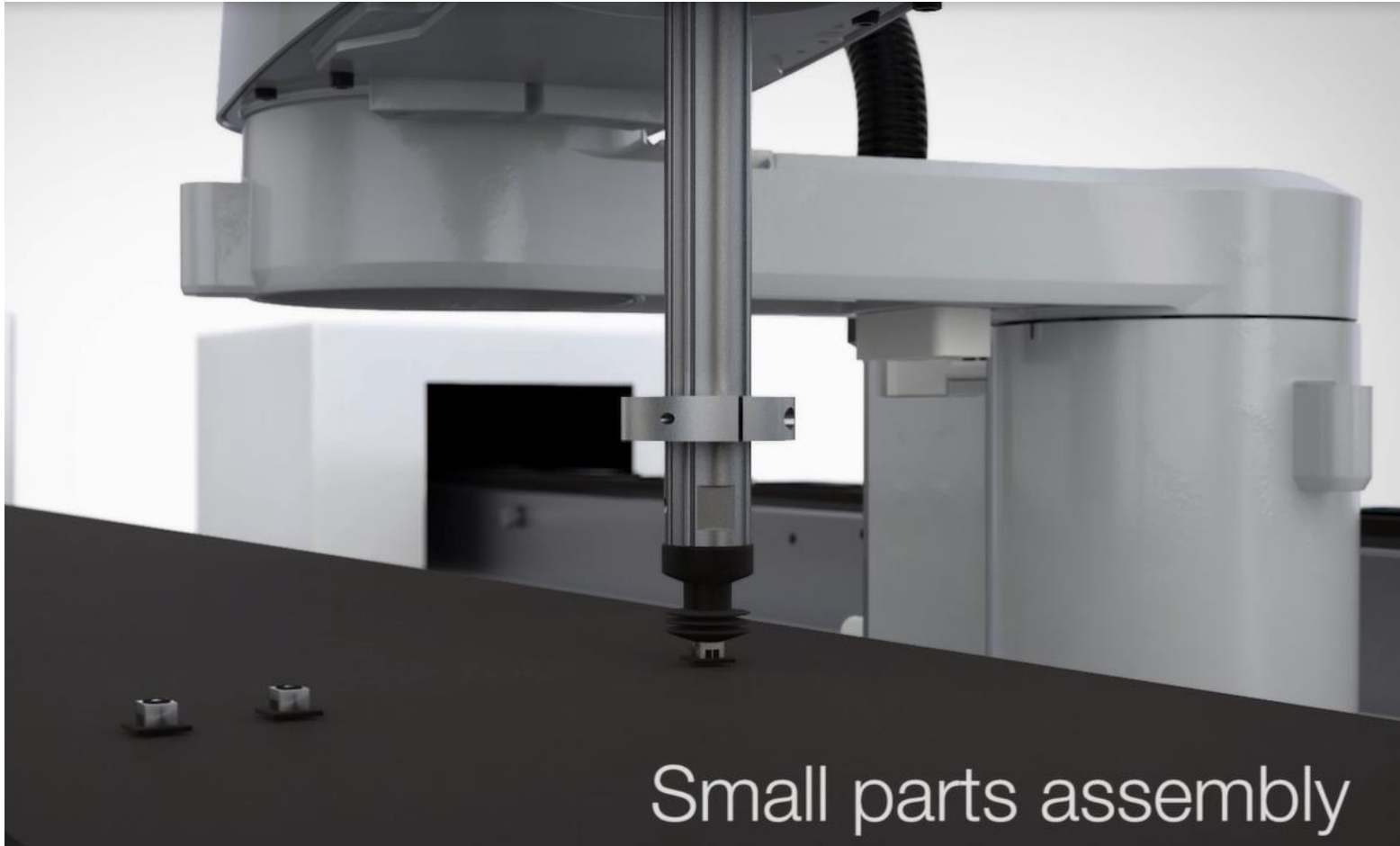
Inspection



Inspection

Applications

3C Electronics assembly



Summary



- The SCARA is a product designed to be simple to integrate. Cost effective whilst providing a good return on investment. Fast and accurate and very simple structure which makes it easier for first time robotics users

ABB