

MAY 2017

# IRB 1200

## Overview

Product Management, ABB Robotics

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# Agenda

- DVP
- Overview and vision
- Main features
- Payload
- Working range
- Performance and accuracy
- Main dimensions
- Outline manipulator
- Customer benefits
- Key applications and segments
- Flexible mounting
- Protection
- Easy integration
- Controller
- Summary

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# Overview

## Differentiated value proposition



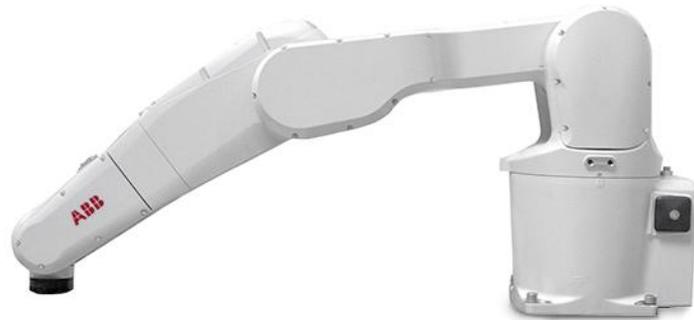
Have you ever wanted to make your machines 15% smaller and 10% faster? ABB's new IRB 1200 allows you to do exactly that.

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# Overview and vision

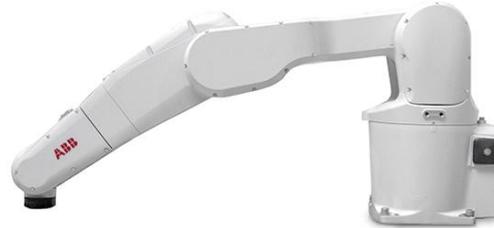
## Original vision

- To develop a compact, flexible small robot to replace IRB 140
- The main application for the robot will be Material Handling and Small Parts Assembly



# Overview and vision

## Target growth markets



### Small Parts Assembly

- § Perfect complement, or alternative, to IRB 120
- § Increases offering in Material Handling & Assembly applications

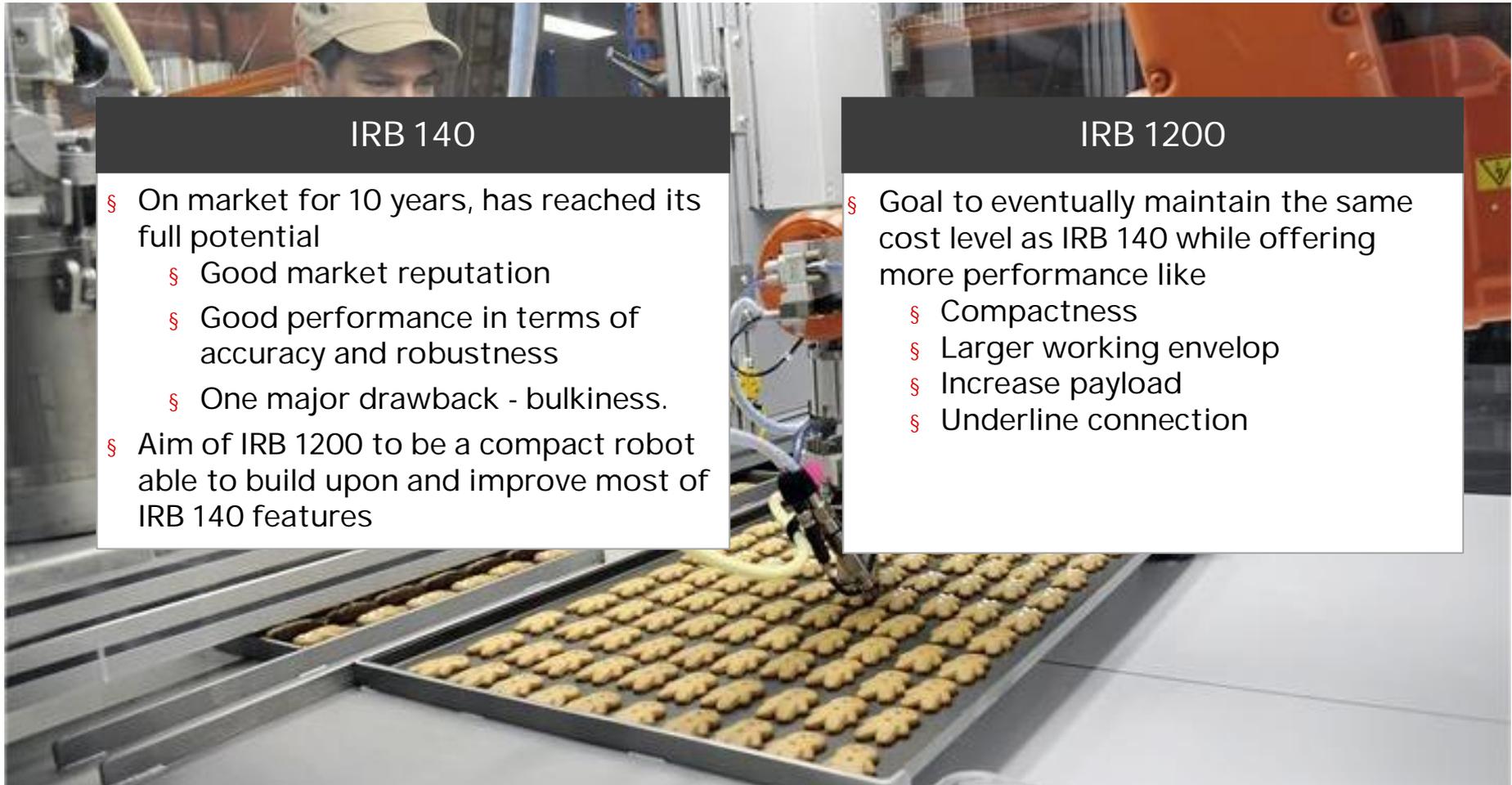
### Food & Beverage

- § Long reach while providing compactness
- § Food Grade Lubrication is available option

### Machine Tending & Material Handling

- § IP40 protection as standard; Foundry Plus 2, IP67 and Clean Room are available options
- § SafeMove2 is available option

# Overview and vision



## IRB 140

- § On market for 10 years, has reached its full potential
  - § Good market reputation
  - § Good performance in terms of accuracy and robustness
  - § One major drawback - bulkiness.
- § Aim of IRB 1200 to be a compact robot able to build upon and improve most of IRB 140 features

## IRB 1200

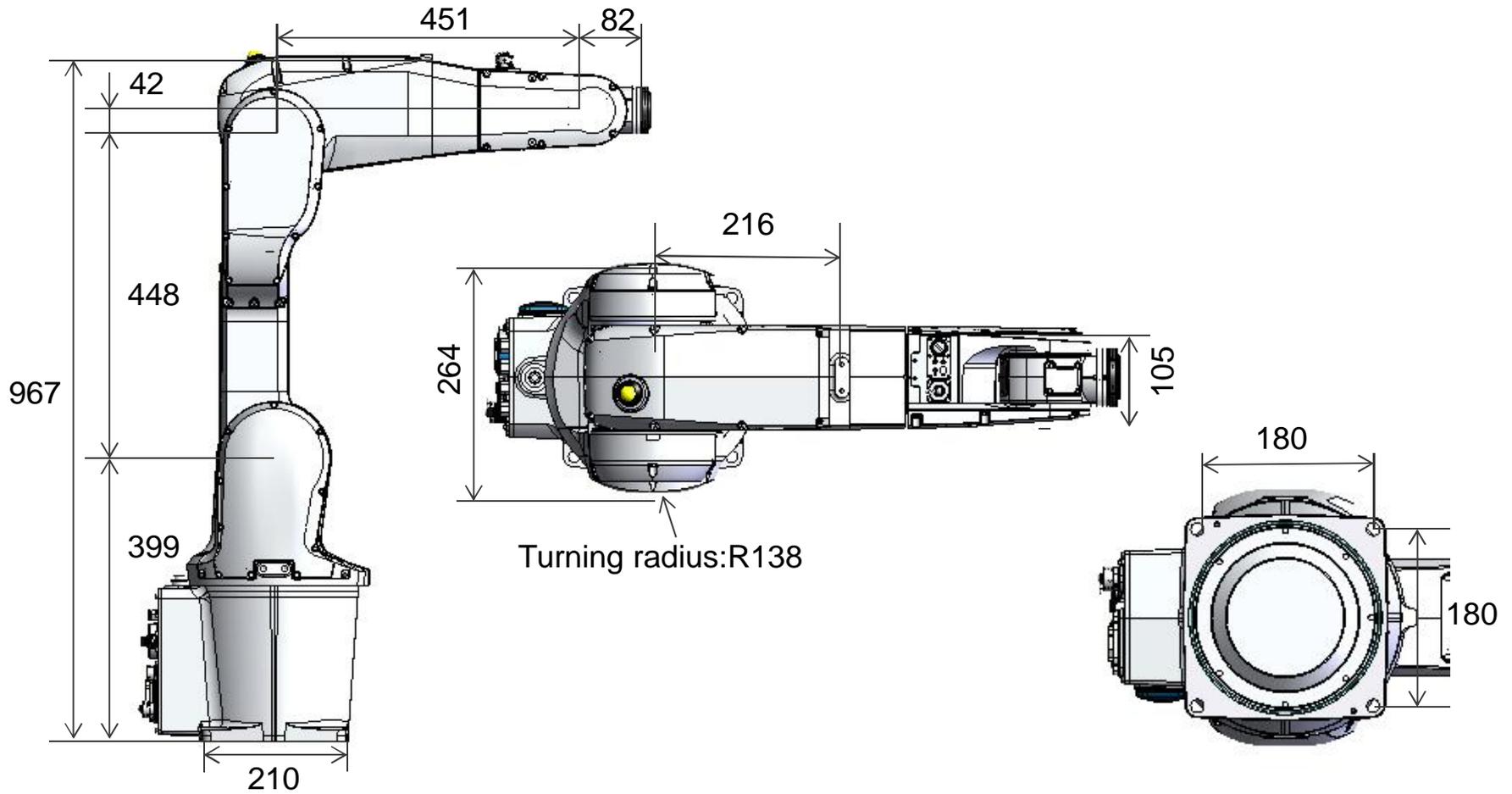
- § Goal to eventually maintain the same cost level as IRB 140 while offering more performance like
  - § Compactness
  - § Larger working envelop
  - § Increase payload
  - § Underline connection

# Main features

	IRB 1200 – 5/.09	IRB 1200 7/.07
Payload	5 kg	7 kg
Reach	901 mm	703 mm
Accuracy	.02 mm	.02 mm
Footprint	210mm*210 mm	210mm*210 mm
Customer interface	Underlying connection as option	Underlying connection as option
Weight	52 kg	54 kg
Mounting position	Floor, wall, ceiling	Floor, wall, ceiling
IP Protection	IP 40 as standard, IP 67, Foundry Plus 2 s option	IP 40 as standard, IP 67, Foundry Plus 2 as option
Clean Room	Available	Available
SaveMove2	Available	Available
Food Grade Lubrication	Available	Available

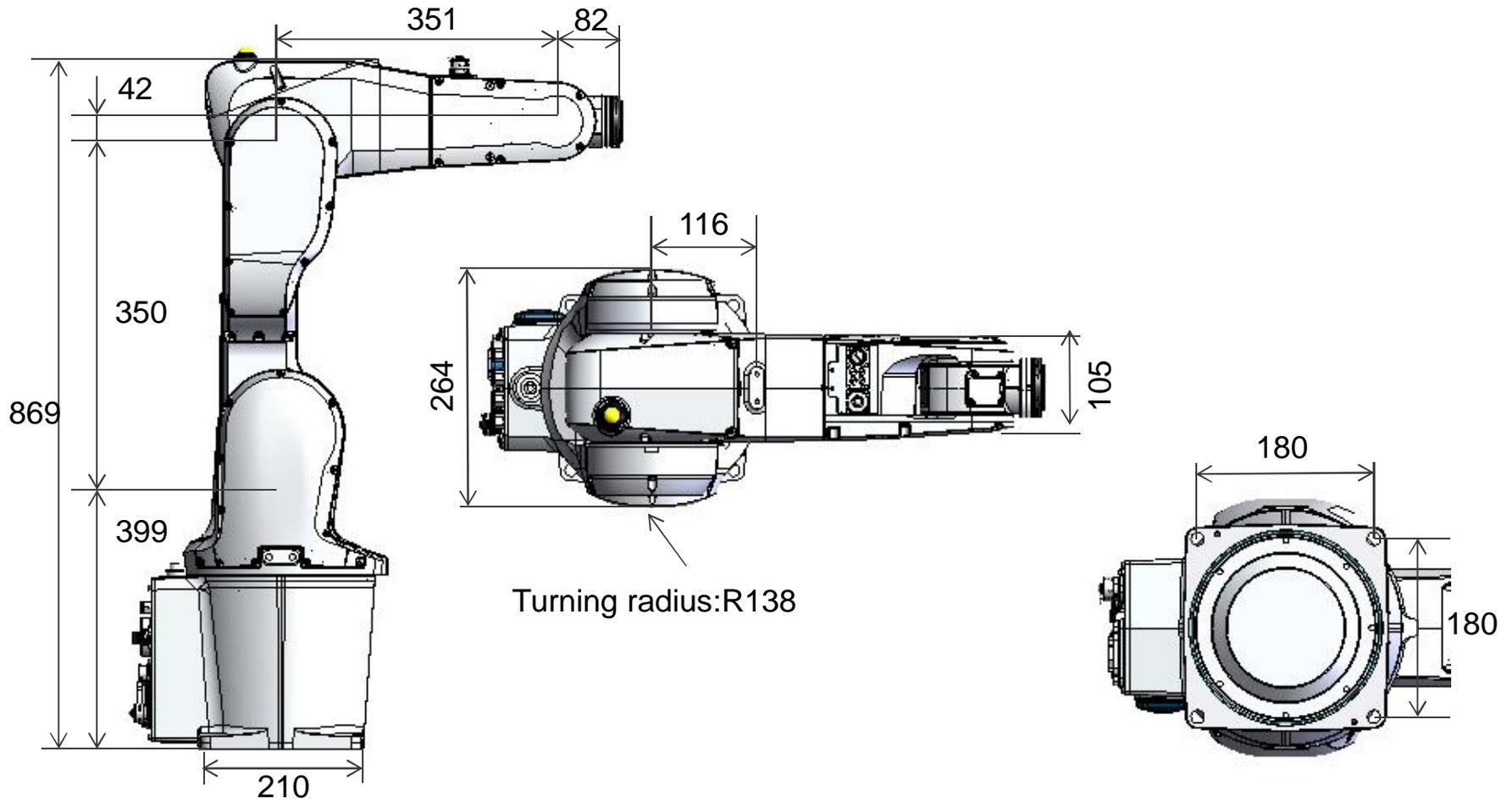
# Main dimensions

IRB 1200-5/0.9



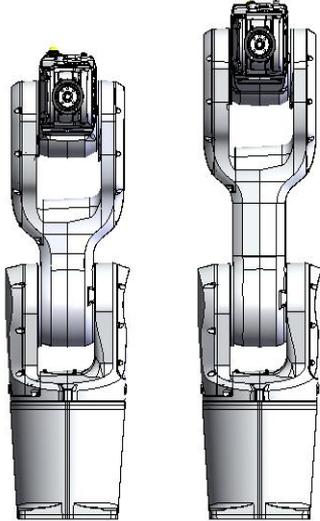
# Main dimensions

IRB 1200-7/0.7

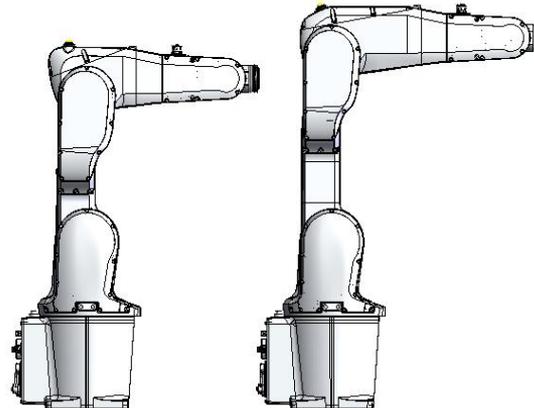


# Outline manipulator

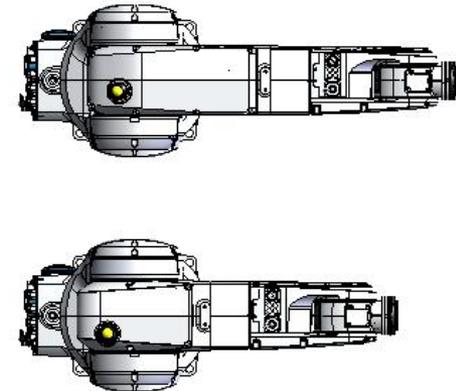
IRB 1200-5/0.9 vs IRB 1200-7/0.7



Front view



Side view

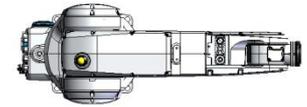
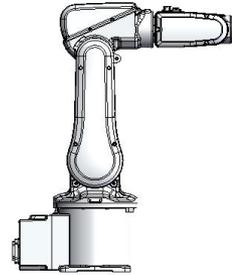
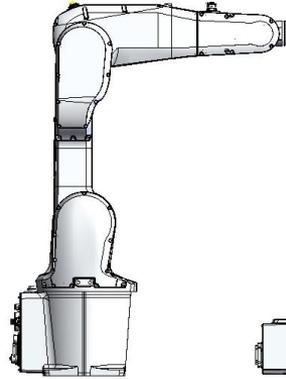


Top view

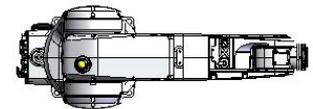
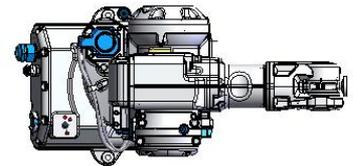
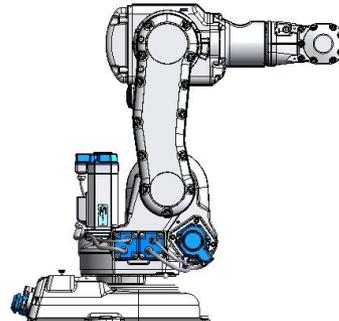
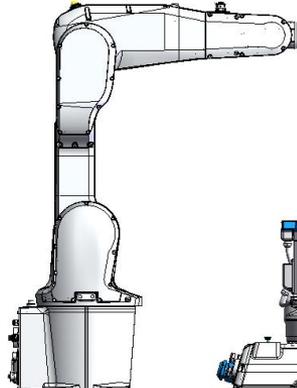
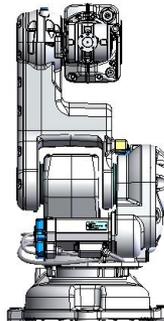
# Outline manipulator

IRB 1200-5/0.9 vs IRB 120 & IRB 140

IRB 1200-5/0.9  
VS  
IRB 120



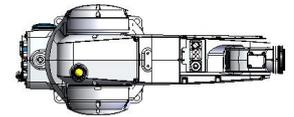
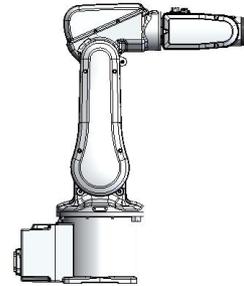
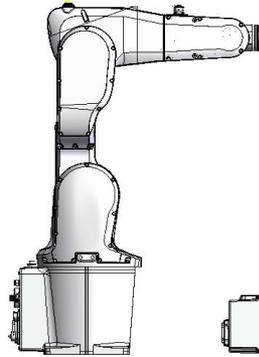
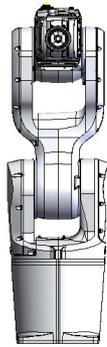
IRB 1200-5/0.9  
VS  
IRB 140



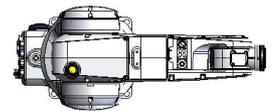
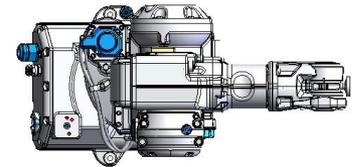
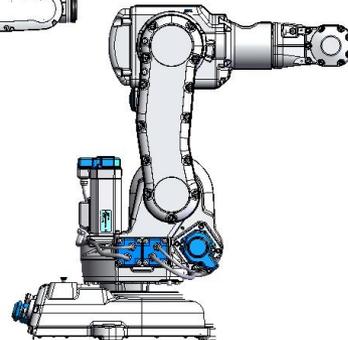
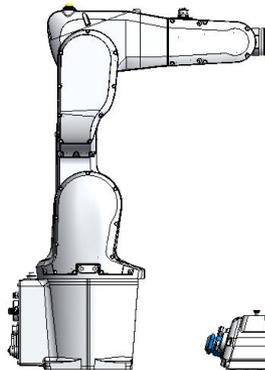
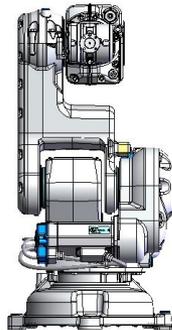
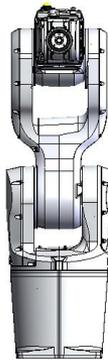
# Outline manipulator

IRB 1200-7/0.7 vs IRB 120 & IRB 140

IRB 1200-7/0.7  
VS  
IRB 120

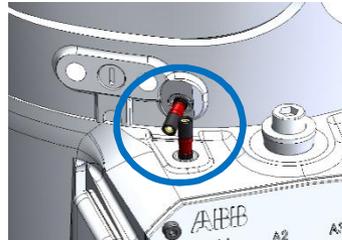
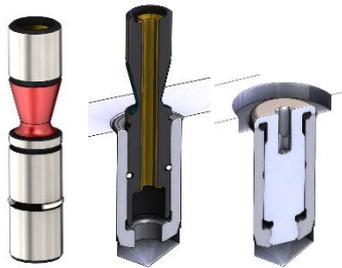
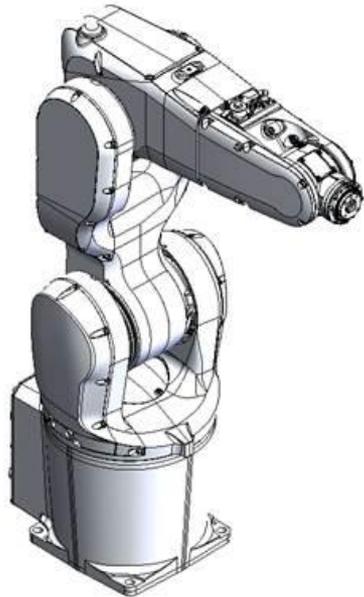


IRB 1200-7/0.7  
VS  
IRB 140

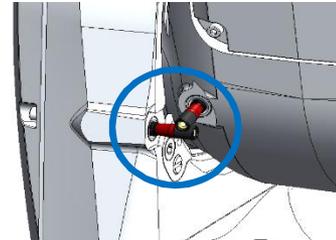


# Outline manipulator

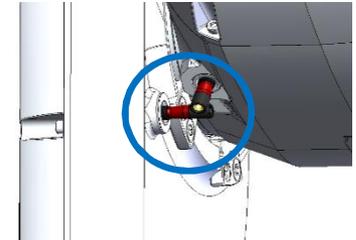
## New Calibration (pin-to-pin)



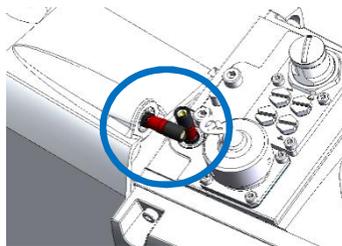
Axis 1



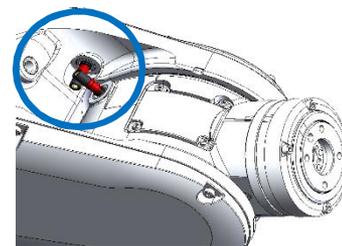
Axis 2



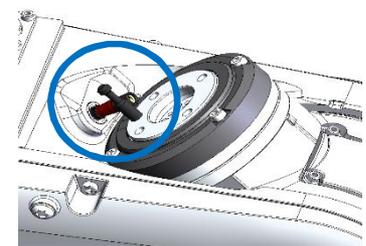
Axis 3



Axis 4



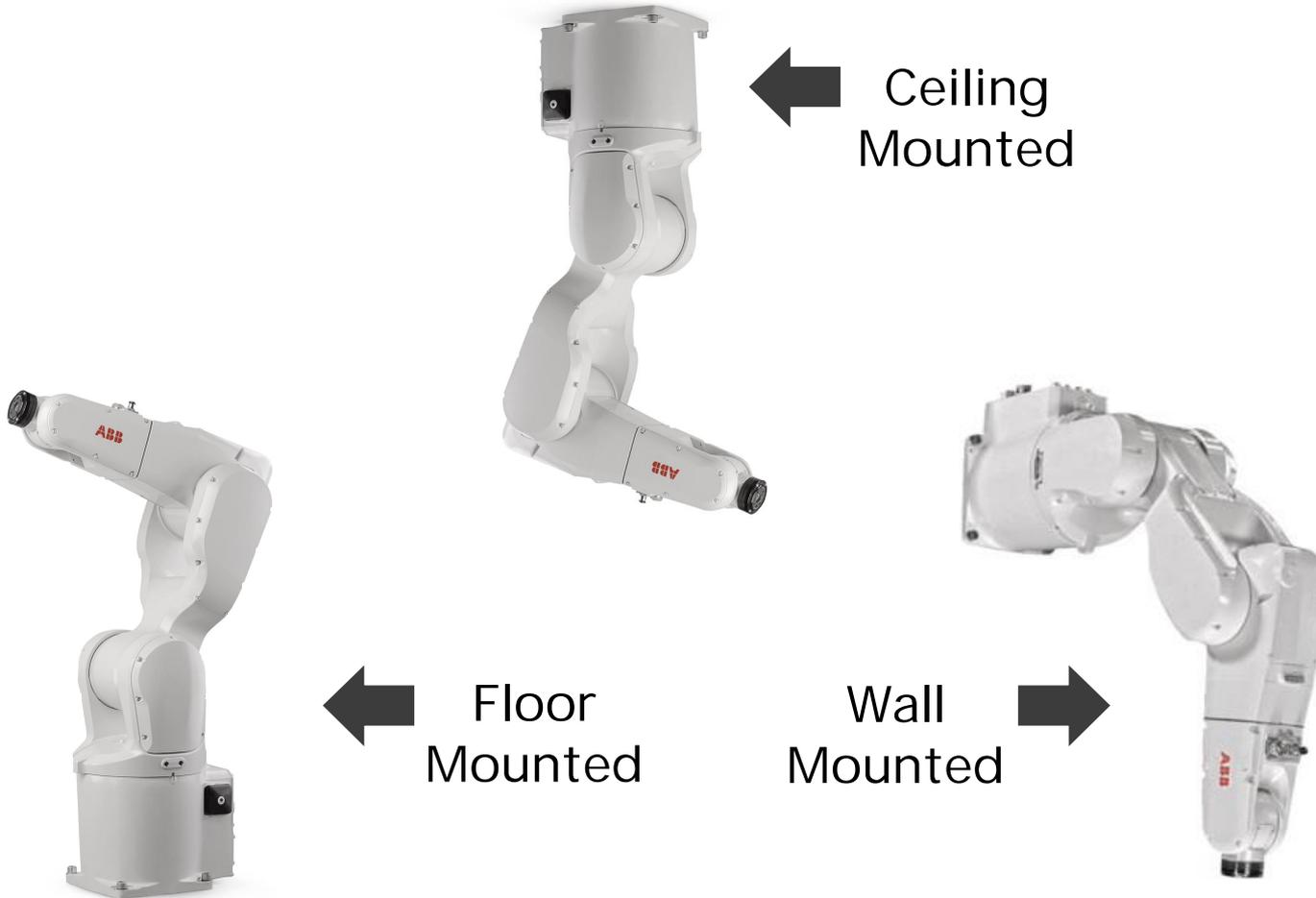
Axis 5



Axis 6

# Flexible mounting

All angles



# Protection

IP



IP 40 (standard)

- § Cost Saving
- § Less and lower cost parts
- § Less Testing
- § It is good enough for most application

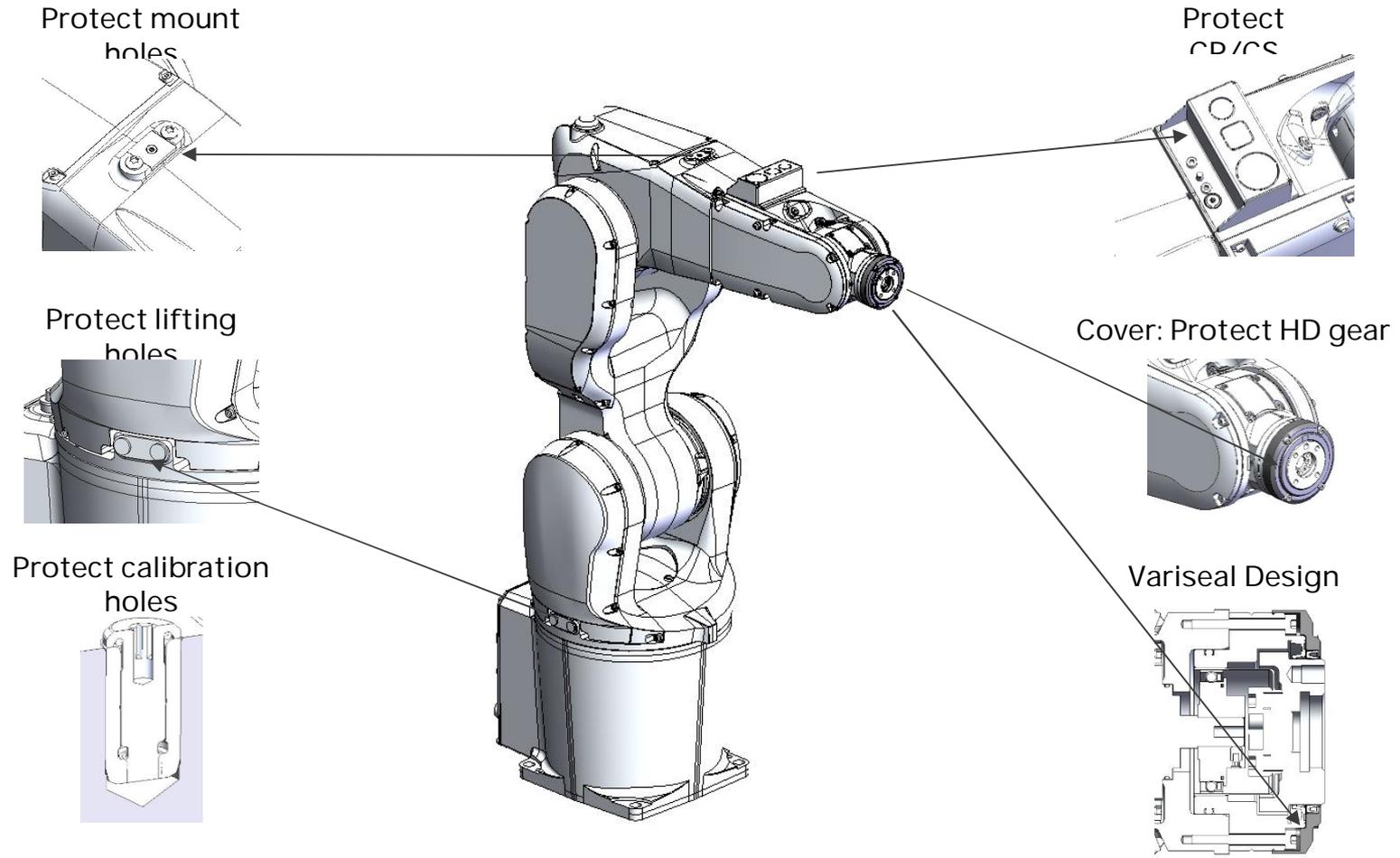
IP 67 & Foundry Plus 2 (optional)

Clean Room & Food Grade Lubrication (optional)

- § ISO Class 3 for Clean Room
- § Food Grade Lubrication

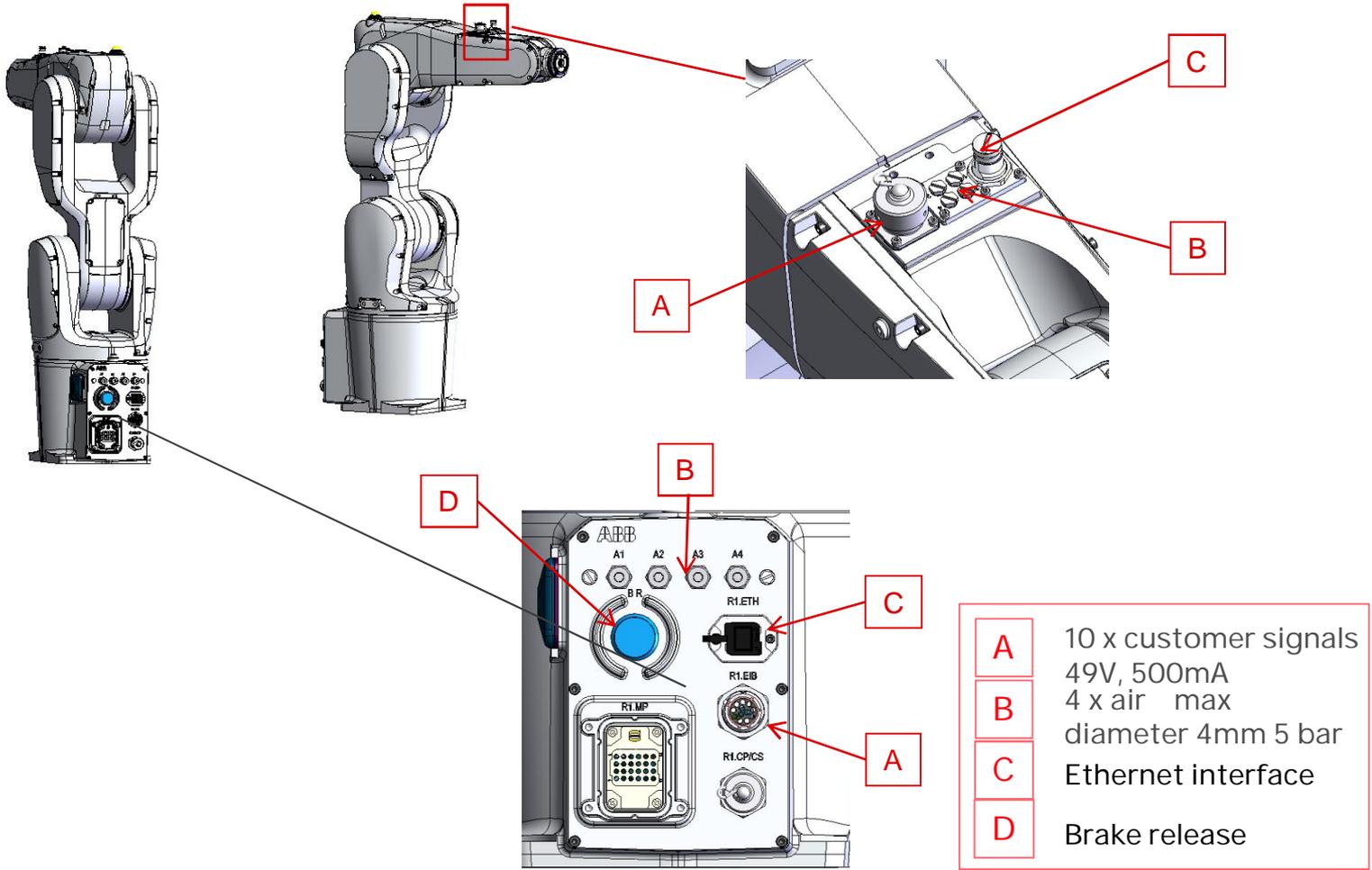
# Protection

## Foundry Plus 2



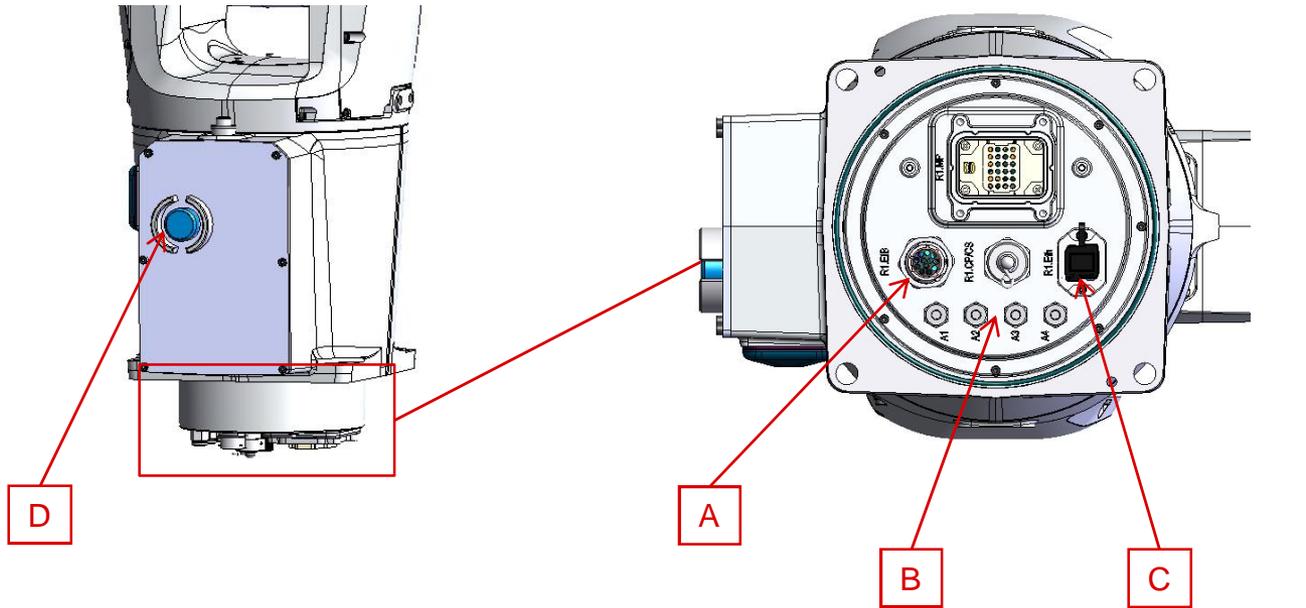
# Easy integration

## Customer interfaces



# Easy integration

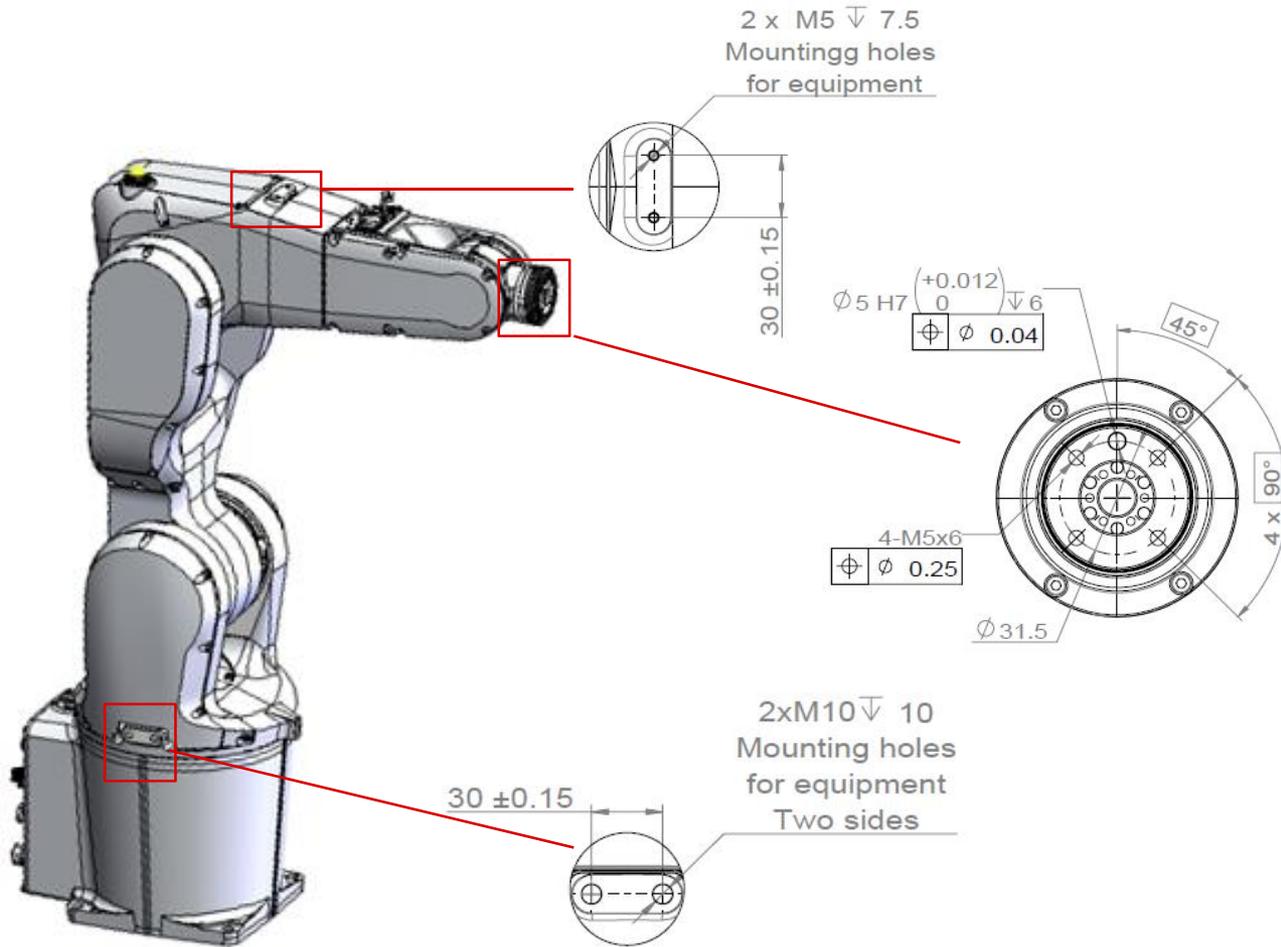
## Underlying connections



- A** 10 x customer signals  
49V, 500mA
- B** 4 x air max  
diameter 4mm 5 bar
- C** Ethernet interface
- D** Brake release

# Easy integration

## Mounting interfaces



# Controller



**IRC single cabinet**

§ "The Standard"



**IRC 5 Compact**

- § Compact size
- § Low cost
- § Portable(27.5kg)
- § External connectors
- § Built-in 16 in /16 out

# Customer benefits



Enclosure Structure Design - Including internal wiring and air

Underline Connection as Option - New in ABB portfolio

Shortest Turning Radius in Class - Only 138mm around 21% shorter than the average

Compact Footprint - Around 50% less than IRB 140

Short Cycle Time - Decreasing 27% from the IRB 120

Larger Work Envelop - Around 20% larger than the average in class

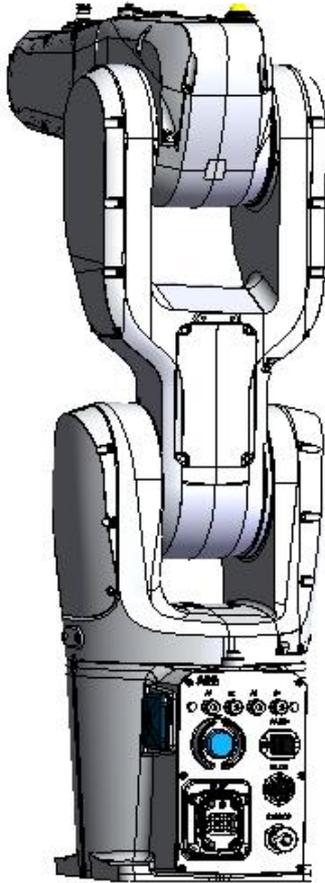
IP-67 & Foundry Plus 2 as Option - Built to withstand harsh environments

Ethernet Communication - Easy to integrated with other equipment

Two Models in One Design - What we are providing is a family



# Customer benefits



Enclosed design, which allows all wiring and air to go through the inside of the robot

Reduced maintenance

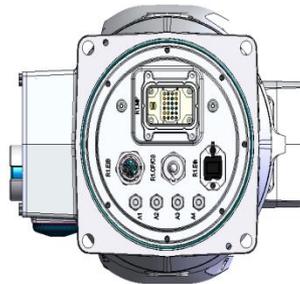
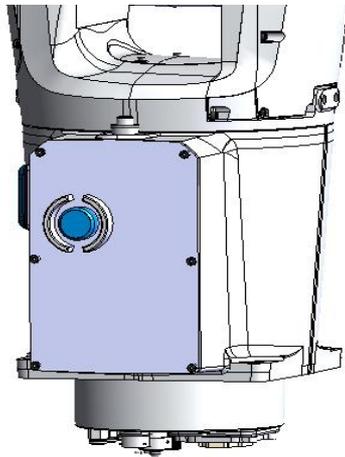
Less risk of cable and air hose damaged

Can be used in confined spaces

Easy to keep clean

– No risk of dust collecting on cables

# Customer benefits



Underlying connection

New design in the ABB portfolio

Saves working space

Better cell layout

- Equipment can be placed closer to, or around, robot without interference

Robot is more streamlined, making it very easy to clean in food or CNC environments

# Customer benefits

Underlying Connection

Benefits

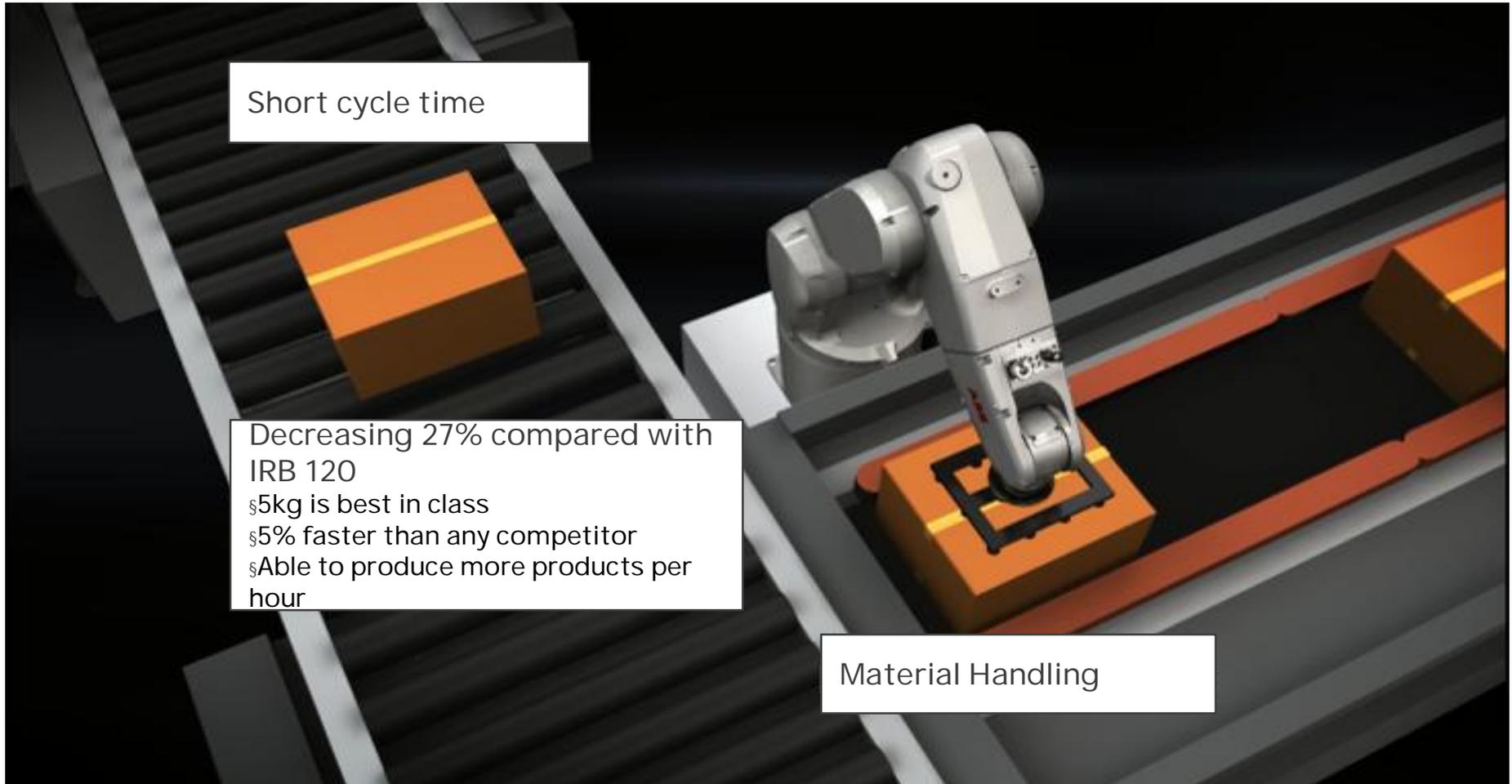
- § Shorter cycle time
- § Smaller footprint,
- § Less interference when roof mounting

Placement

- § Closer to the machine or process

Machine Tending in CNC

# Customer benefits

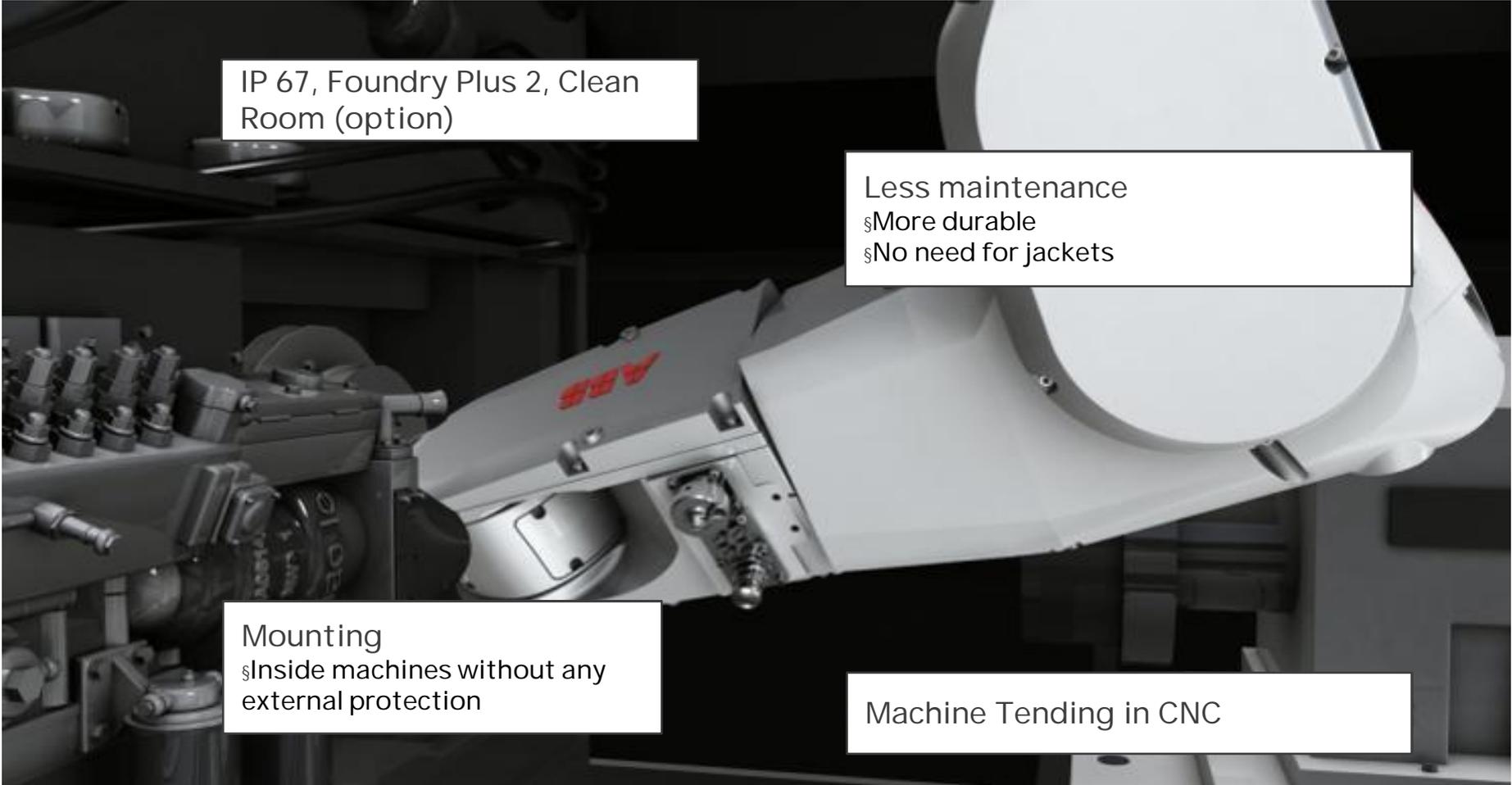


Short cycle time

Decreasing 27% compared with IRB 120  
§5kg is best in class  
§5% faster than any competitor  
§Able to produce more products per hour

Material Handling

# Customer benefits



IP 67, Foundry Plus 2, Clean Room (option)

Less maintenance  
§ More durable  
§ No need for jackets

Mounting  
§ Inside machines without any external protection

Machine Tending in CNC

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# Customer benefits



New small robot family

Consisting of two variants

- Require fewer spare parts
- 5kg and 7kg components interchangeable



# Key applications and segments

## Applications

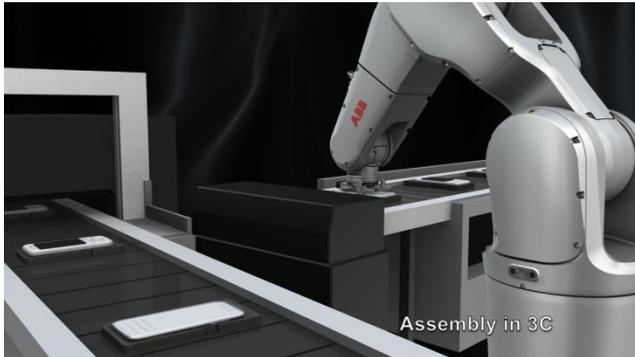
- Assembly
- Material Handling
- Machine Tending
- Laser Marking
- Polishing
- Die Casting
- Packaging

## Segments

- Small parts assembly
- Food & Beverage
- Pharmaceutical
- Medical
- Plastics
- Foundry
- Metal Fab
- Solar
- Automotive

# Key applications and segments

## Assembly



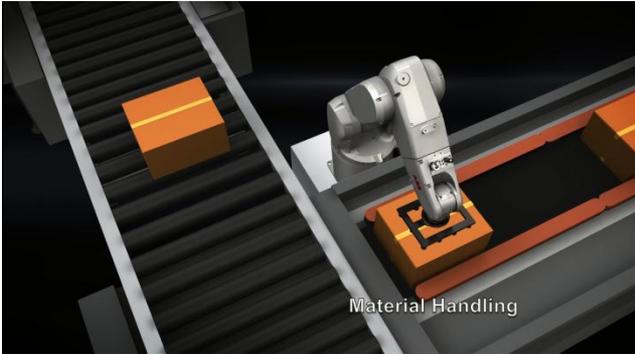
### Small Parts Assembly

- § IRB 1200 is the perfect alternative/complementary for IRB 120 in small parts assembly
- § Optimized payload and reach for small part handling and assembly
  - § 5kg with 900mm
  - § 7kg with 700mm
- § Underline connection design to be easy clean and save working space



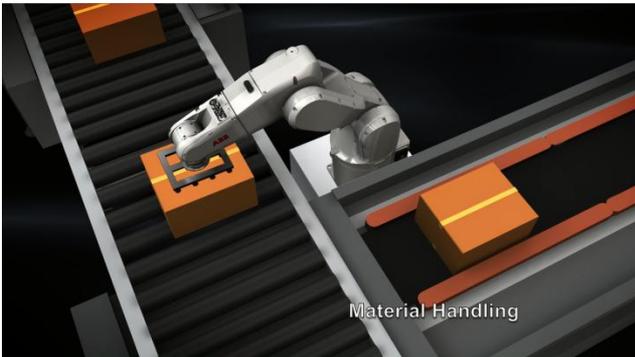
# Key applications and segments

## Material handling



## Food & Beverage

- § Short cycle time to increase the production efficiency
- § Large working envelop with shortest turning radius in the class
- § Compact design allows the robot only need small cell to do operation



# Key applications and segments

## Machine tending



### CNC machine tending

- § High IP protection - IP 67
- § Foundry Plus 2 as option, superior resistance to corrosion and capability to withstand high-pressure steam washing
- § Compact design to be easily integrated with CNC machine.
- § Inverted mounting option to save the floor space and optimize the motion range

# Key applications and segments

## Polishing and dispensing



Polishing



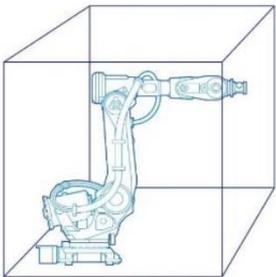
Dispensing

### Small parts assembly

- § Vision systems are easily integrated
- § Smooth surface and internal cabling makes the robot easy to clean
- § Speed and accuracy let robot do a better job

# IRB1200 SafeMove2

The smallest ABB robot to feature SafeMove2



- § SafeMove2\*, ABB's safety solution, introduced to IRB1200 for the first time
  - SafeMove2, certified PLd cat. 3 in accordance with ISO13849
  - Makes collaborative applications with ABB small robots possible
- § IRB1200 with SafeMove2 to deliver the benefit to customer:
  - Enables lean, flexible and more economic robot solutions
    - Fully integrated flexible software solution
    - Powerful configuration tools reducing commissioning times
  - Designed to keep humans and equipment completely safe
  - Facilitates human/robot collaboration
    - Flexible safety rated speed and position monitoring
- § IRB1200 SafeMove2 support both IRC5 Single & IRC5C compact controllers

# IRB1200 Food Grade Lubrication



- Food grade lubricant (NSF H1) to ensure food compatible for both IRB1200-7/0.7 & -5/0.9 variants
- Clean Room ISO Class 3 to ensure low contamination risk
- Smooth surface and special paint for easier cleaning
- Protection: IP67 protection, easy to clean for F&B industry
- Screw: normal screws w/ additional cleanroom paint
- Tool Flange: black chrome plating, same as cleanroom
- Typical assembly, testing, cleaning process, and two layer's packing to ensure the level of cleanness

# Summary



- New design: Loaded with features which allow for 15% smaller cells that have 10% shorter cycle times
- Compact: Large useable working area in a small package leads to shorter cycles and more compact machines
- Easy to integrate: Four air ducts, 10 customer signals and Ethernet, all routed inside the robot from flange to foot
- Flexible family: Two variants (700 mm reach/7 kg payload; 900 mm reach/5kg payload); Mountable at any angle
- Durable: IP 40 protection as standard with IP 67 & Foundry Plus 2 protection as an option; ISO 3 support in Clean Room environment



**ABB**