

IRB 920T Introduction

ABB Robotics

Global Product Manager – Small Robots/Darren Hung



Outline

Small Robot Updates

IRB 920T Standard Version

Introduction

Target Applications

Unique Functions



IRB 920T Standard Version: Introduction

On average over 14% faster speed bringing productivity into next level

6kg/450mm

6kg/550mm

6kg/650mm



OmniCore C30

OmniCore C90XT

Better productivity with faster speed and higher flexibility

Target markets:

Auto

Tier-1

CSSR

Electronics

GI

Target applications:

Material Handling

Loading & Unloading

Assembly & Testing

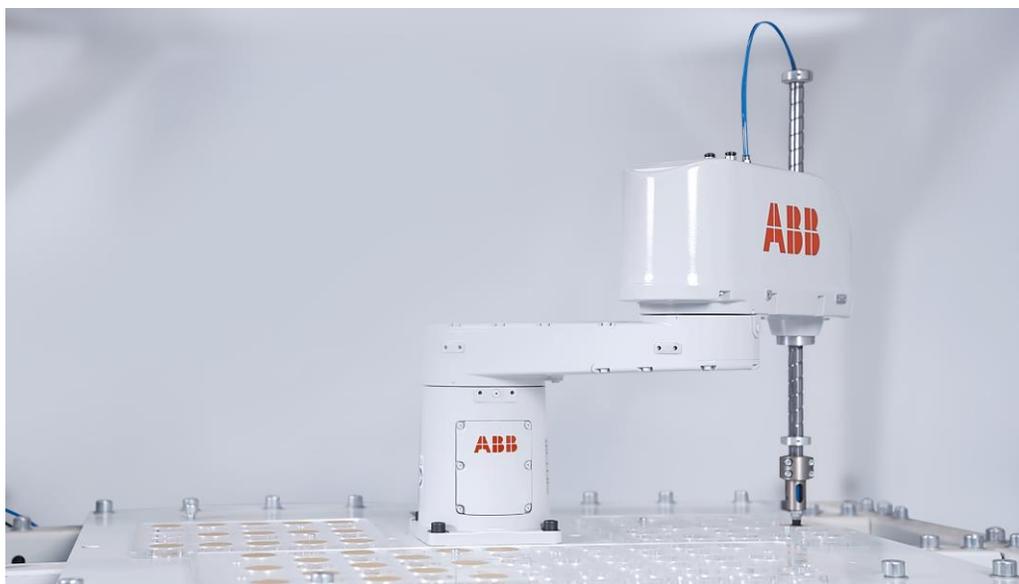
Picking & Placing

Wider small robot portfolio to accomplish more applications with bigger business opportunities

IRB 920T Standard Version: Introduction

Class-leading speed in a compact package

IRB 920T



IRB 920T SCARA has a faster speed¹ that allows more units to produce given the same time while its slimmer dimension and internal cable routing require less space or concerns over working cell layout design and implementation. Flexibility offered to select more I/O connectors and large air hose on upper arm for sophisticated applications

Customer value proposition



Productivity

Faster than other SCARA robots and 14% faster than IRB 910SC, increasing output



10% lighter

than other SCARA robots, reducing cell design costs



Quality

Class-leading repeatability for high quality manufacturing



18% energy efficient*

Achieves higher performance whilst consuming the same unit power

IRB 920T Standard Version: Introduction

Competitive edges

Feature

Advantage

Benefit

Reach

450/550/650mm

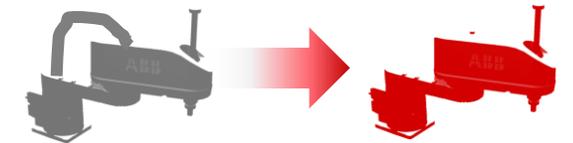
Best in class



No External Cabling

No external cable tube routing

Best in class



Speed

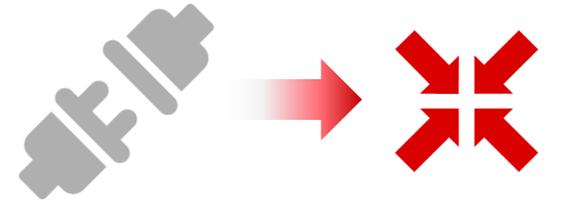
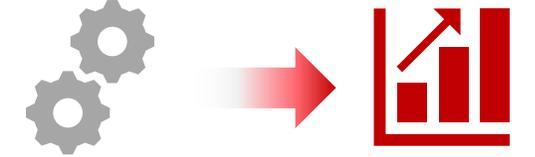
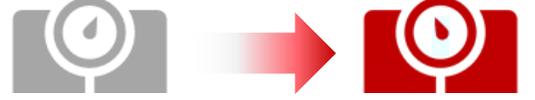
0.29~0.30 sec.¹

Leading in class



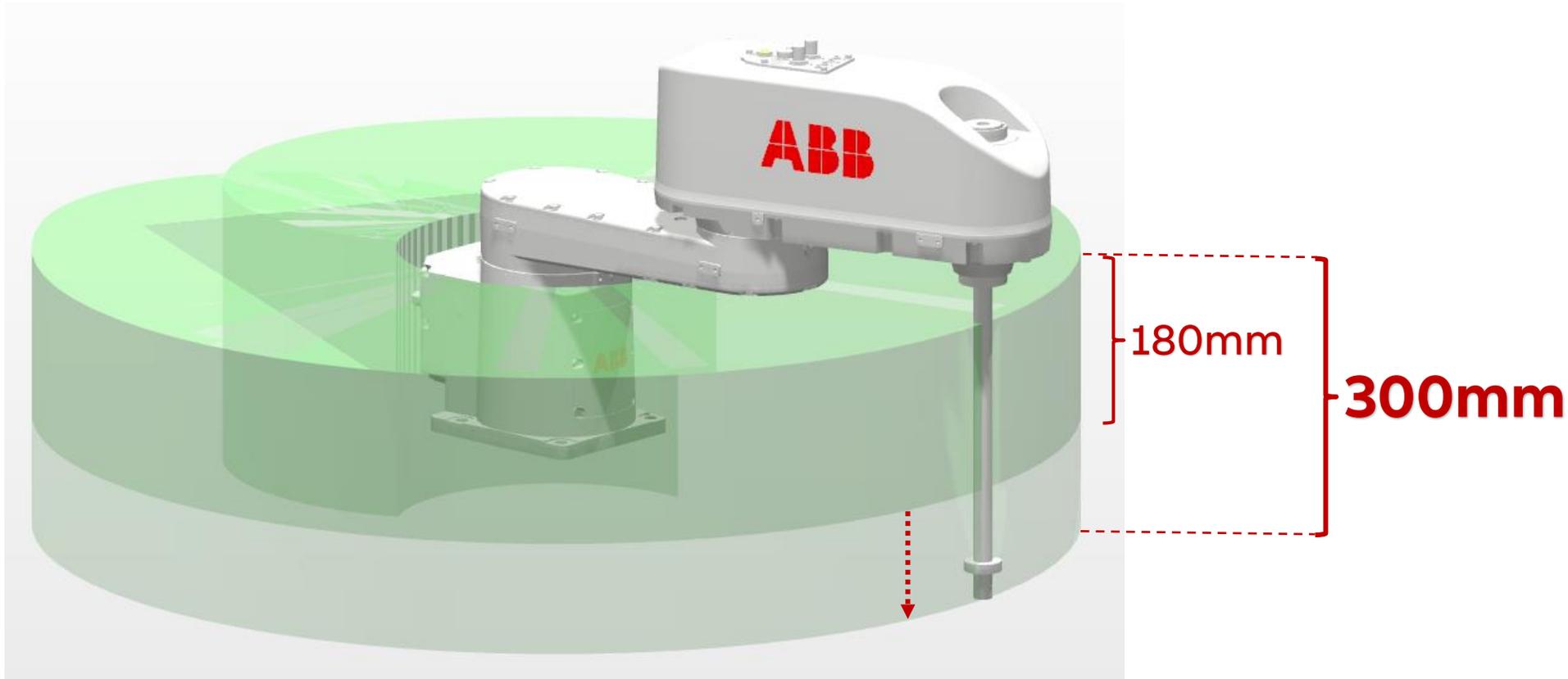
IRB 920T Standard Version: Introduction

Competitive edges

	Feature	Advantage	Benefit
Integrated Signal Supply	C1: 12 Wires (30V 1.5A) C2: 8 Wires (30V 1A or 1 Gbits/s)	Best in class	
Integrated Air Supply	Ø6x2+Ø4x2 (Max. 6 bar)	Best in class	
Light Weight	5%~10% Lighter	Best in class	

IRB 920T Standard Version: Introduction

Extended stroke as an option



120mm longer stroke to support more applications which require z-dimension reachability

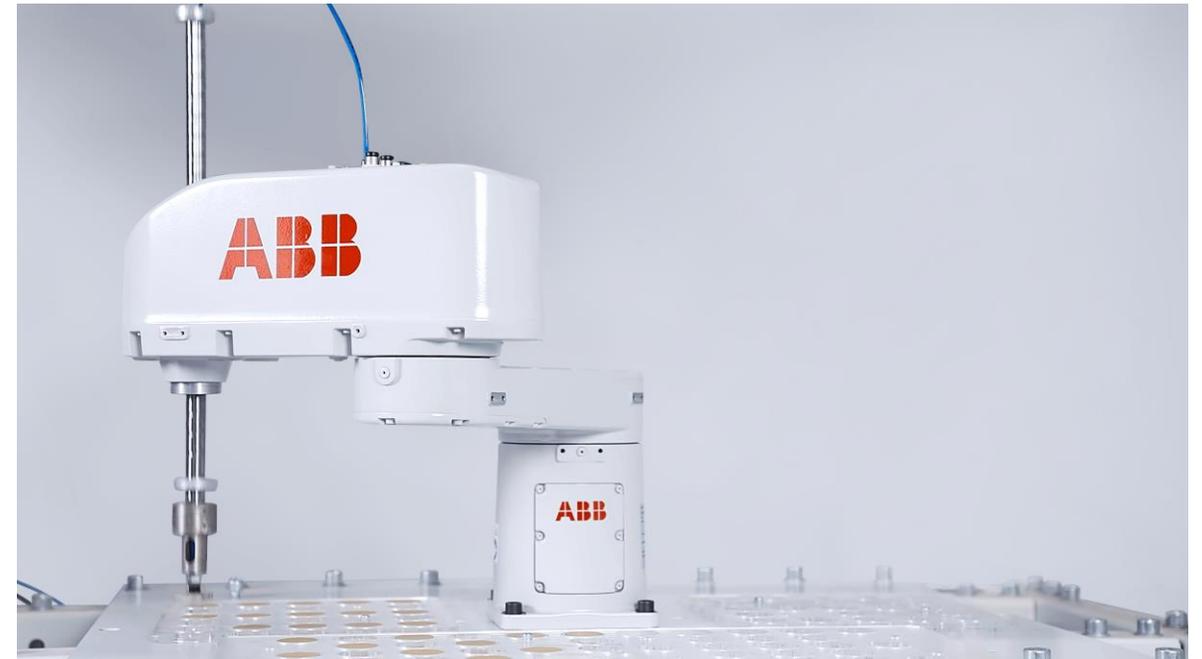
IRB 920T Standard Version: Introduction

Outstanding performance

Specifications

Robot version	IRB 920T-6/0.45	IRB 920T-6/0.55	IRB 920T-6/0.65
Reach (m)	0.45	0.55	0.65
Max. Payload (kg)	6	6	6
Number of axes	4		
Protection	IP30 (Standard)		
Mounting	Floor		
Controller	Omnicores		
Integrated signal and power supply	20 Signals on wrist (Optional)		
Integrated air supply	Φ6 x 2 + Φ4 x 2 air on wrist (Max. 6 Bar) (Optional)		
Integrated ethernet	One 1000 Base-T ethernet port (Optional)		
Performance (according to ISO 9283)			
Repeatability, RP (mm)	0.01mm	0.02mm	0.02mm
1 kg picking cycle			
25 x 300 x 25 mm ¹	0.30s	0.29s	0.30s
Physical			
Robot base	170x193mm		
Robot weight (kg)	22	23	24

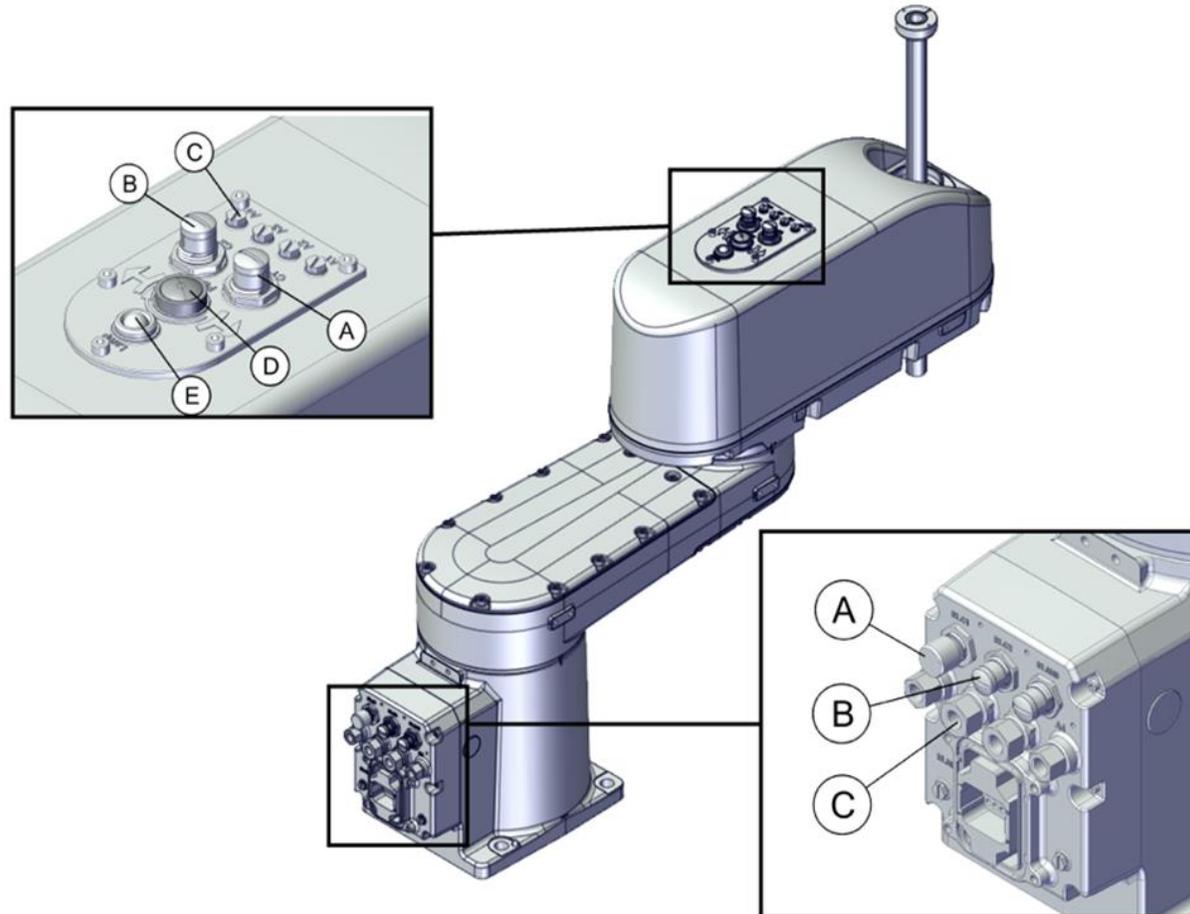
Front & Rear View



IRB 920T Standard Version: Introduction

Customer interfaces

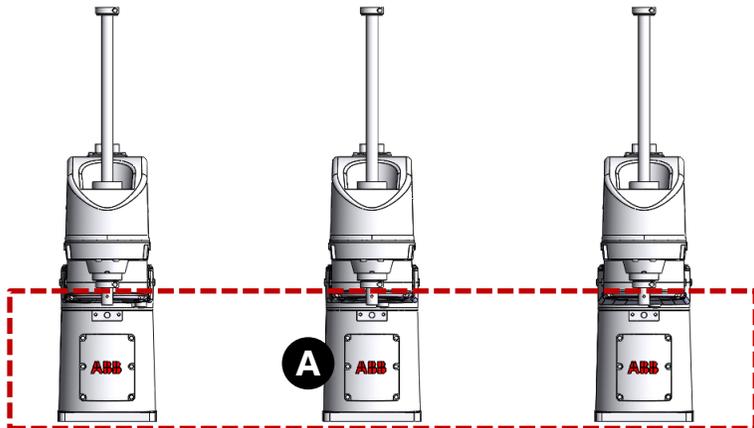
- A. 12 x customer signals 30V, 1.5A
- B. 8 x customer signals 30V, 1A or 1Gbits/s
- C. 4 x air, 6bar (outer hose diameter 6mm x 2 + outer hose diameter 4mm x 2)
- D. Brakes Release (axis 3 and 4)
- E. Lamp



IRB 920T Standard Version: Introduction

IRB 920T design concept

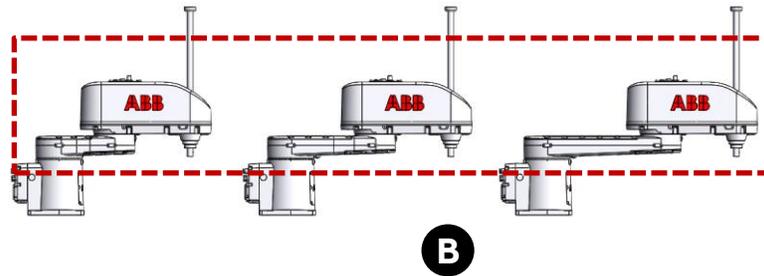
Front View



- ✓ Easier to change battery
- ✓ No need to replace grease/lubrication
- ✓ Flexible to do layout with fewer inference of floor cable

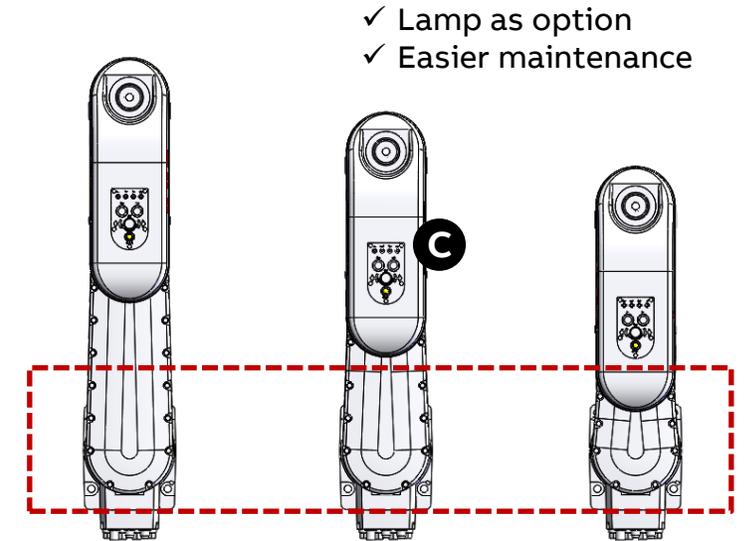
Side View

- ✓ The upper arm are shared across three variants
- ✓ Screw holes on the side for application use



- ✓ It is reachable for TCP to move below the base plate

Top View



- ✓ Lamp as option
- ✓ Easier maintenance

IRB 920T Standard Version: Introduction

Smaller and Yet Perform Better

Advantages

- ❑ Over 14% faster speed¹
- ❑ No external tube cabling design
- ❑ A wide variety of 3 variants in 450/550/650mm reaches
- ❑ Over 18% more energy efficiency¹
- ❑ Over 5% weight reduction¹
- ❑ Double the number of I/Os connection¹
- ❑ IP30, IP54 and Clean Room support²

Benefits

- ❑ Higher productivity given short cycle time
- ❑ No worries over external cable interference
- ❑ Flexibility to fit in application with adequate reach selection
- ❑ Friendly for environmental sustainability
- ❑ Lighter weight to mitigate impact over shop floor design
- ❑ Up to 20 I/Os for more sophisticated applications
- ❑ More options for various occasions such as harsh and clean environment

IRB 920T Standard Version: Target Applications

Targeted Industry: Solution for All Business Lines

Electronics



General Industry



IRB 920T Standard Version: Target Applications

Typical application requirement and IRB 920T fits

Application	Payload & Reach	Accuracy & Repeatability	Speed	Protection	Motion Control
Loading & Unloading	●●●●○	●●●○○	●●●○○	●●○○○	●●○○○
Assembly	●●●○○	●●●●●	●●●●○	●●○○○	●●●●●
Picking & Placing	●●●●○	●●●○○	●●●●●	●●○○○	●●●○○

- 6kg/450mm
- 6kg/550mm
- 6kg/650mm



- IP 30
 - Clean Room ISO 4/5
 - IP54
- 2nd wave release!

ABB Unique Function – Richer Selection for I/O Connection

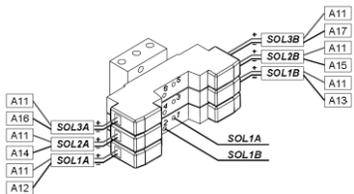
Universal connectors and air hoses



Supporting universal M12 connectors up to 24 I/O connectors as option on the upper arm



Supporting up to $\Phi 6$ air hoses as option on the upper arm



IRB 1300 supports up to 9 air hoses as option on the upper arm¹

Internal Cabling Option



IRB 1100

Up to 16 I/O

$\Phi 4 \times 4$



IRB 1200

Up to 16 I/O

$\Phi 4 \times 4$



IRB 1300

Up to 24 I/O

$\Phi 6 \times 4$



IRB 910INV

Up to 16 I/O

$\Phi 6 \times 2 + \Phi 4 \times 2$



IRB 920T

Up to 20 I/O

$\Phi 6 \times 2 + \Phi 4 \times 2$

ABB Unique Function – ESD Compliant

Comply IEC 61340-5-1 & ANSI ESD S20.20 directive

1 Mechanical Design High quality metal structure design guarantees good conductivity without residual charges

2 Grounding Well-grounded body ensures way to quickly discharge

3 ESD Testing Certify resistance measurement test

ESD Compliant Design



IRB 1100

1+2+3



IRB 1200

1+2+3



IRB 1300

1+2+3



IRB 910INV

1+2+3



IRB 920T

1+2+3

New Generation OmniCore Controller

Will unleash new levels of value



Customer value proposition



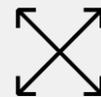
Productivity

Best-in-class motion control, cycle times, and path accuracy



Sustainability

Lower power consumption¹ to save **20%** energy



Scalable, tailored

1000+ functions, wide variety of controllers and applications to fit all needs



Next-level digital

Cyber-secure out-of-box connectivity enables higher uptime and better productivity

ABB