

# FANUC Robot R-2000*i*C

FANUC CORPORATION

**Export Control:**

- ☐ Controlled (Related item No. of  
Foreign Exchange Order Attachment List of Japan: )
- ☒ Non-controlled for item No. 2 to 15 of  
Foreign Exchange Order Attachment List of Japan

# Full-model change of R-2000iB

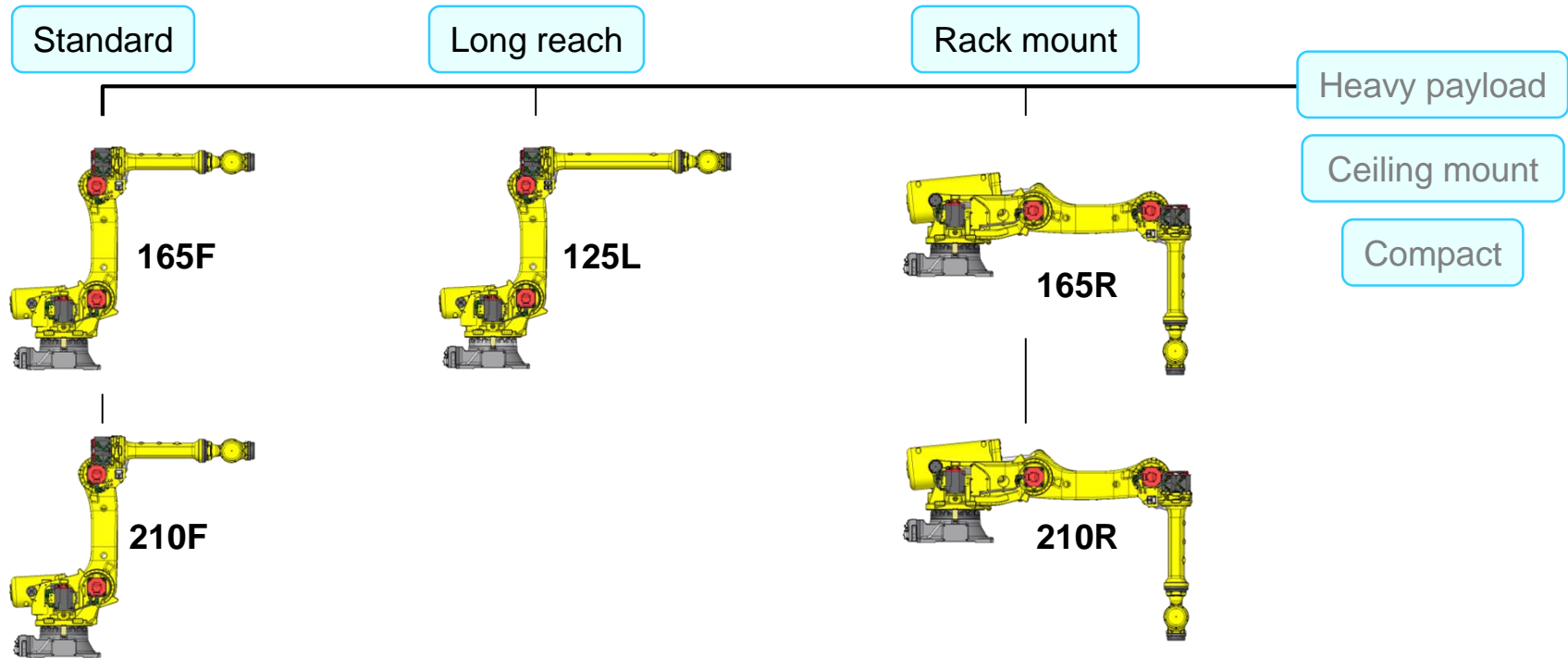
Over 70,000 units of previous model R-2000iB have been operating throughout the world since 2006.



R-2000iC

- ◆ High reliability proven by past results
- ◆ More convenient use due to slimmer body
- ◆ Higher productivity due to speeding up
- ◆ Extensive application due to enhanced wrist load capability
- ◆ Less varieties of spare parts due to common units among main models
- ◆ No need of spare entire cable assembly due to modular configuration
- ◆ New motor
  - Quick-release connector, - Enhanced waterproof

# Line up

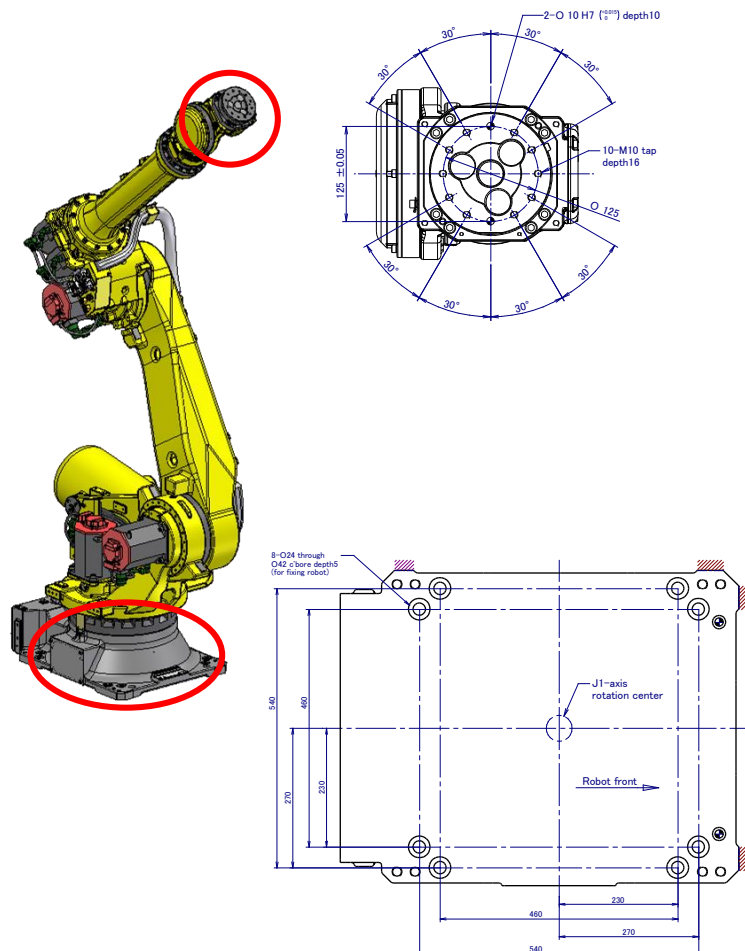


- **Various options for multiple applications**



# Successor to R-2000iB

**Identical mounting face with R-2000iB**

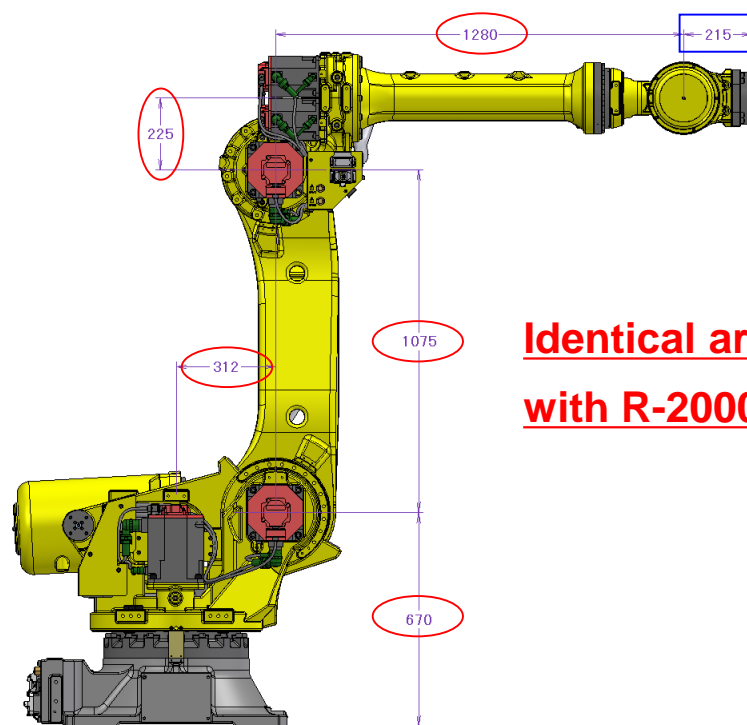


**Identical installation with R-2000iB**

**Succeeding compatibility and high reliability**

**Common compact wrist**

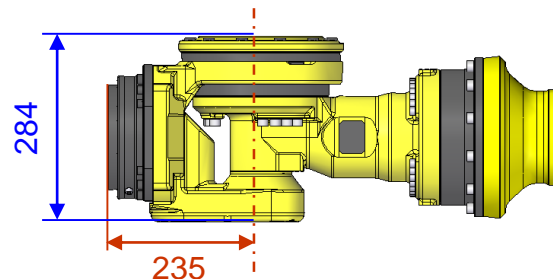
(Same dimension with R-2000iB/165F's)



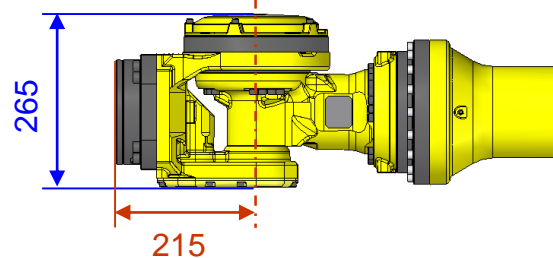
**Identical arm length with R-2000iB**

# Slimmer body

R-2000iB/210F

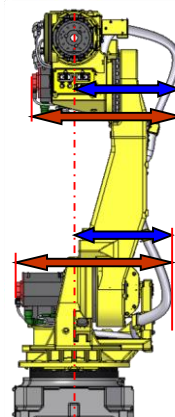


R-2000iC/210F

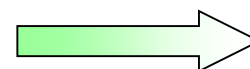


More convenient use

R-2000iB/210F

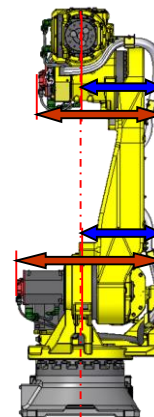


J3 axis  
One-sided width -22%  
Total width -16%

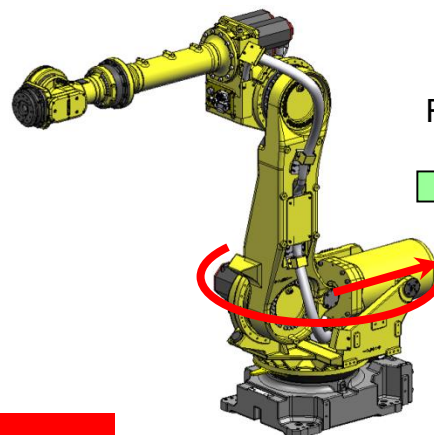


J2 axis  
One-sided width -17%  
Total width -6%

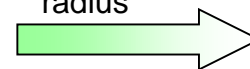
R-2000iC/210F



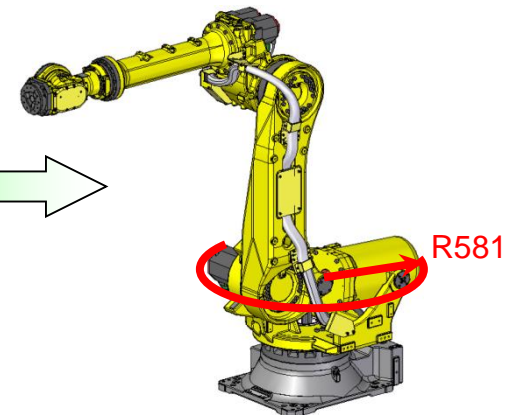
R-2000iB/210F



Rotation  
radius



R-2000iC/210F

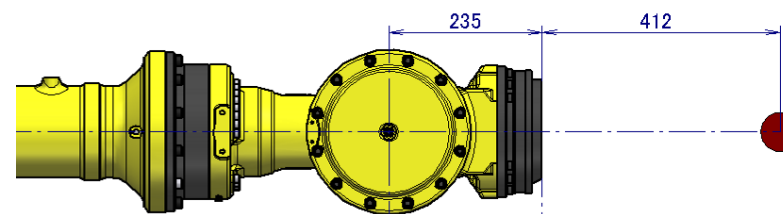


# Speed up & Enhanced wrist load capability

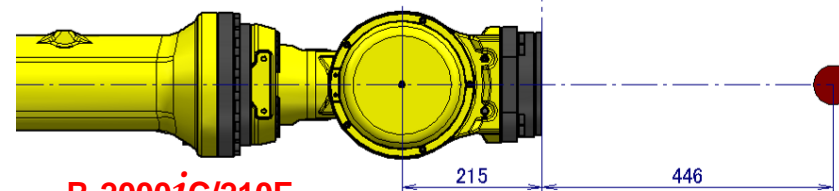
210F

		R-2000iB /210F	R-2000iC /210F	Conventional ratio
Max. load at wrist [kg]		210	210	-
Reach [mm]		2655	2655	-
Max. speed [deg/sec]	J1	95	120	26% up
	J2	90	105	17% up
	J3	95	110	17% up
	J4	120	140	17% up
	J5	120	140	17% up
	J6	190	220	16% up
Allowable load moment at wrist [Nm]	J4	1333	1360	5% up (Converted to actual capability)
	J5	1333	1360	
	J6	706	735	4% up
Allowable load inertia at wrist [kgm <sup>2</sup> ]	J4	141.1	147	4% up
	J5	141.1	147	
	J6	78.4	82	5% up
Mass [kg]		1240	1090	12% down

Allowable distance of load gravity center from mounting face [load:210kg]



R-2000iB/210F



R-2000iC/210F

# Speed up & Enhanced wrist load capability 165F,125L

		R-2000iB /165F	R-2000iC /165F	Conventional ratio
Max. load at wrist [kg]		165	165	-
Reach [mm]		2655	2655	-
Max. speed [deg/sec]	J1	110	130	18% up
	J2	110	115	5% up
	J3	110	125	14% up
	J4	150	180	20% up
	J5	150	180	20% up
	J6	220	260	18% up
Allowable load moment at wrist [Nm]	J4	921	940	2% up
	J5	921	940	
	J6	461	490	6% up
Allowable load inertia at wrist [kgm <sup>2</sup> ]	J4	78.4	89	14% up
	J5	78.4	89	
	J6	40.2	46	14% up
Mass [kg]		1170	1090	7% down

		R-2000iB /125L	R-2000iC /125L	Conventional ratio
Max. load at wrist [kg]		125	125	-
Reach [mm]		3005	3100	3% up
Max. speed [deg/sec]	J1	110	130	18% up
	J2	110	115	5% up
	J3	110	125	14% up
	J4	170	180	6% up
	J5	170	180	6% up
	J6	260	260	-
Allowable load moment at wrist [Nm]	J4	588	710	21% up
	J5	588	710	
	J6	343	355	3% up
Allowable load inertia at wrist [kgm <sup>2</sup> ]	J4	58.8	72	22% up
	J5	58.8	72	
	J6	22.5	40	78% up
Mass [kg]		1190	1115	6% down

# Speed up & Enhanced wrist load capability 165R,210R

		R-2000iB /165R	R-2000iC /165R	Conventional ratio
Max. load at wrist [kg]		165	165	-
Reach [mm]		3095	3095	-
Max. speed [deg/sec]	J1	110	115	5% up
	J2	100	110	10% up
	J3	110	125	14% up
	J4	150	180	20% up
	J5	150	180	20% up
	J6	220	260	18% up
Allowable load moment at wrist [Nm]	J4	921	940	2% up
	J5	921	940	
	J6	461	490	6% up
Allowable load inertia at wrist [kgm <sup>2</sup> ]	J4	78.4	89	14% up
	J5	78.4	89	
	J6	40.2	46	14% up
Mass [kg]		1480	1370	7% down

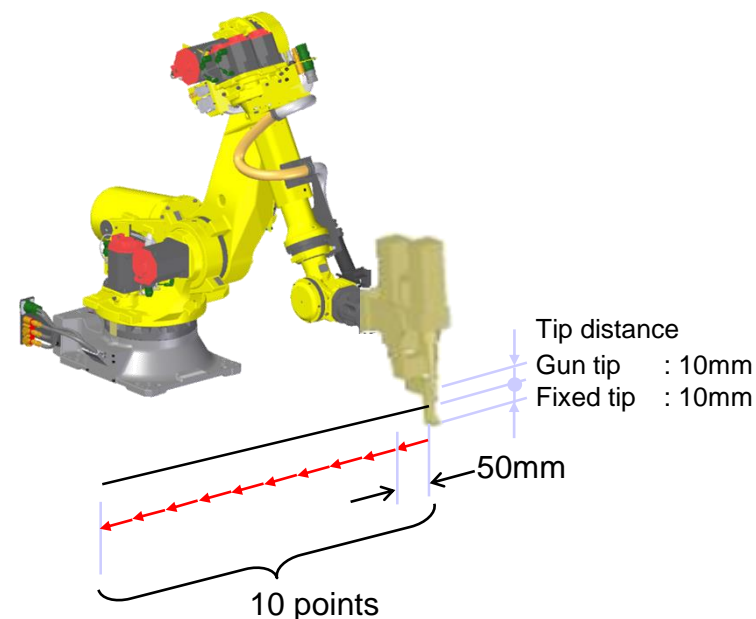
		R-2000iB /200R	R-2000iC /210R	Conventional ratio
Max. load at wrist [kg]		200	210	3% up
Reach [mm]		3095	3095	-
Max. speed [deg/sec]	J1	90	105	17% up
	J2	85	97	14% up
	J3	95	110	16% up
	J4	120	140	17% up
	J5	120	140	17% up
	J6	190	220	17% up
Allowable load moment at wrist [Nm]	J4	1333	1360	5% up (Converted to actual capability)
	J5	1333	1360	
	J6	706	735	4% up
Allowable load inertia at wrist [kgm <sup>2</sup> ]	J4	141.4	147	4% up
	J5	141.4	147	
	J6	78.4	82	5% up
Mass [kg]		1540	1370	11% down



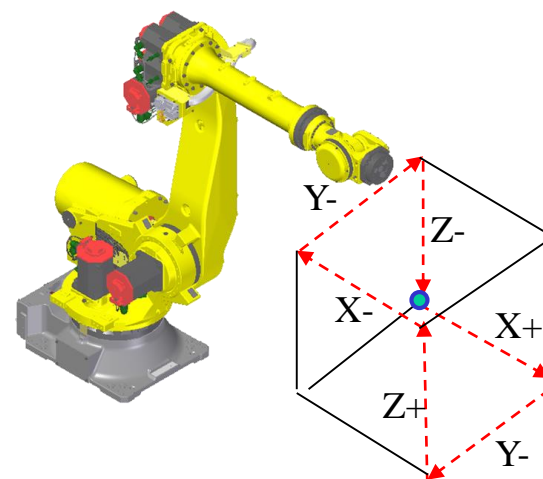
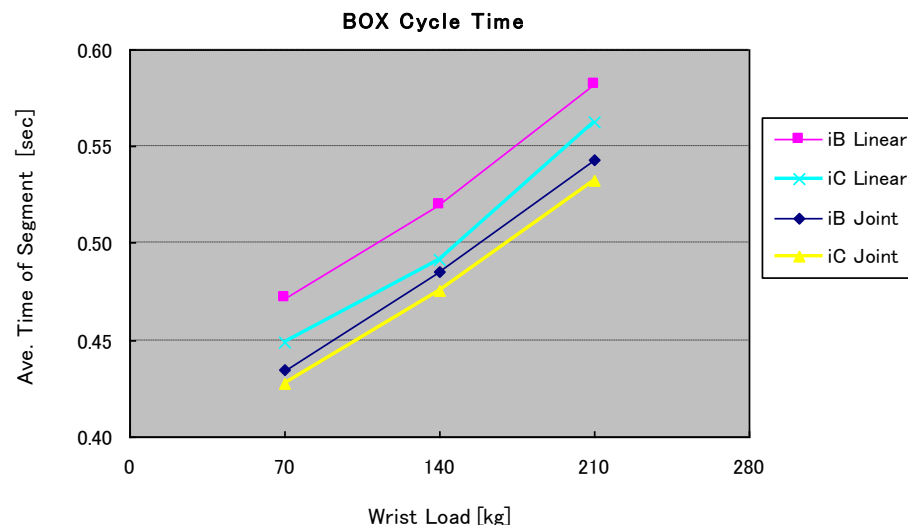
# Speeding up on spot welding motion

## • Drastically reducing cycle time

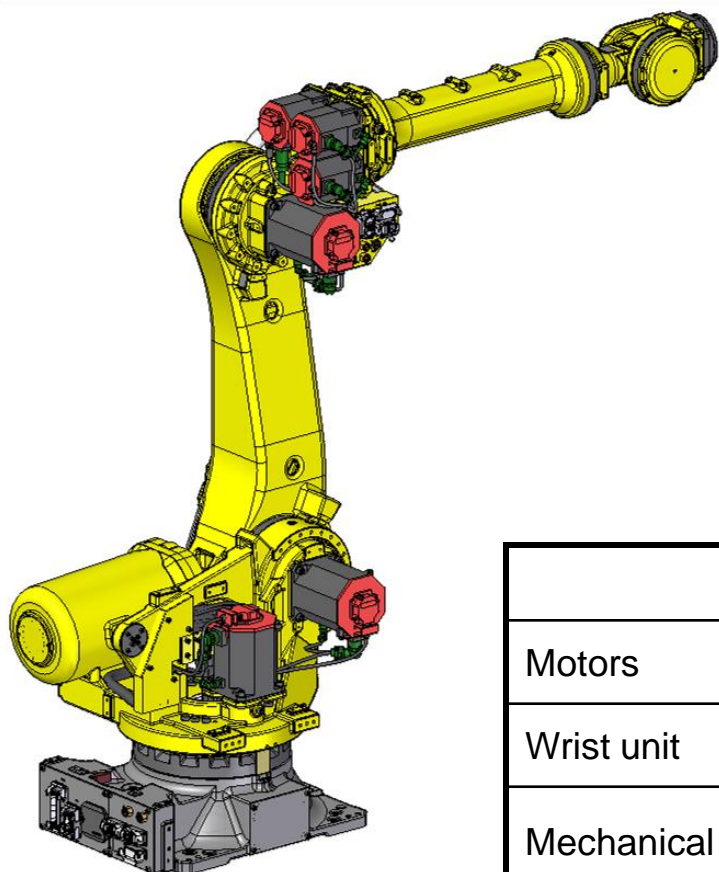
	Robot + Servo gun motion (Except pressuring time)	
50mm interval x 10 points Average time	R-2000 <i>i</i> B/210F with R-30 <i>i</i> B (Actual)	R-2000 <i>i</i> C/210F with R-30 <i>i</i> B (Actual)
X (Back & Forth) direction	0.485 [sec]	0.402 [sec] ▲17%
Y (Side to side) direction	0.493 [sec]	0.412 [sec] ▲16%
Z (Up & Down) direction	0.495 [sec]	0.417 [sec] ▲16%



## • Reducing cycle time depending on wrist load



# Common units among main models



**Less varieties of spare parts**

## Common units among main models

- Motors
- Wrist unit (including reducers)
- Mechanical inner cable
- Balancer unit

	210F	165F	125L	210R	165R
Motors	Same configuration for 5 models				
Wrist unit	Common for 5 models				
Mechanical inner cable	Common for 3 models			Common for 2 models	
Balancer unit	Common for 3 models			Common for 2 models	

# Modular configuration of mechanical inner cable

Basic cable unit (for driving 6 motors) and other optional one are separated.  
Available to individually replace or install each cable unit.

**No need of spare  
entire cable assembly**

Basic cable unit



Optional cable unit

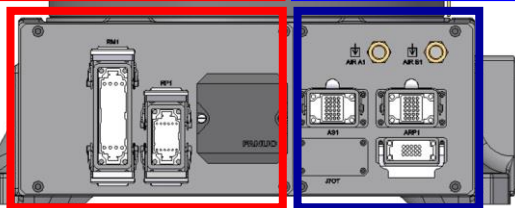


Entire cable assembly



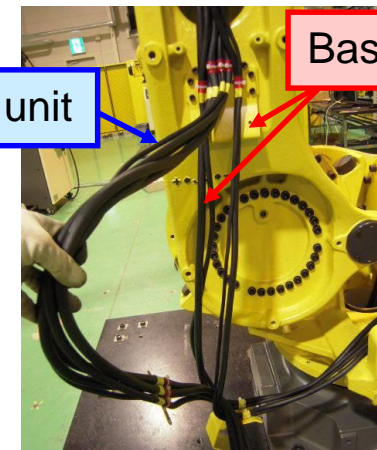
Basic cable unit

Optional cable unit



J1 connector plate

Optional cable unit



Basic cable unit

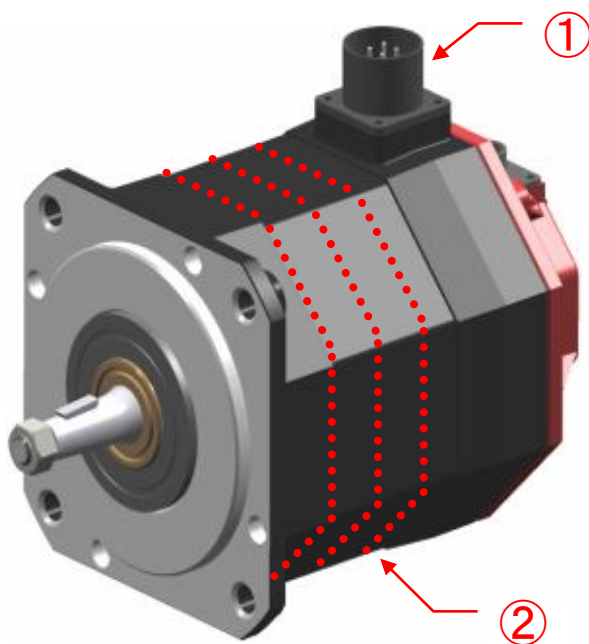
Side of J2 arm

# New motor

- Easy maintenance
- High reliability

\*1 Quick-release connector

\*2 Enhanced waterproof by improved seals

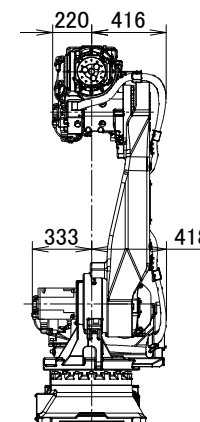
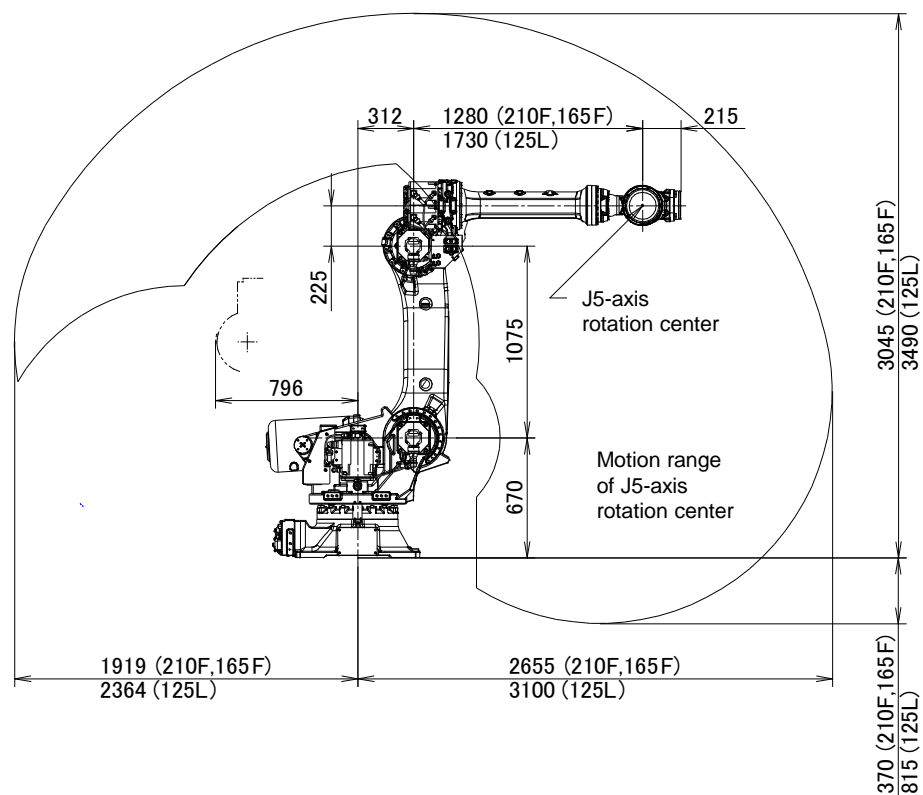
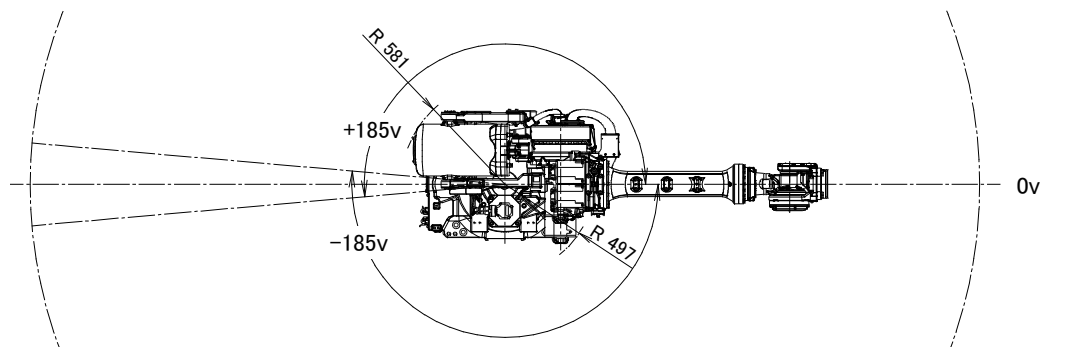


Motor configuration

Axis	R-2000 <i>i</i> B	R-2000 <i>i</i> C
J1	<b>αiSR30/3000</b> A06B-0041-B605#S042	<b>αiSR22/4000</b> A06B-2048-B605#0042
J2	<b>αiSR30/3000</b> A06B-0041-B605#S042	<b>αiSR30/3000</b> <b>A06B-2041-B605#0042</b>
J3	<b>αiSR30/3000</b> A06B-0041-B605#S042	<b>αiSR30/3000</b> <b>A06B-2041-B605#0042</b>
J4	<b>αiS12/4000</b> A06B-0238-B605#S000	<b>αiSR10/4000</b> A06B-2047-B605
J5	<b>αiS12/4000</b> A06B-0238-B605#S000	<b>αiSR10/4000</b> A06B-2047-B605
J6	<b>αiS12/4000</b> A06B-0238-B605#S000	<b>αiSR10/4000</b> A06B-2047-B605
Pulsecoder	<b>αiAR128</b> A860-2010-T341	<b>αiAR128</b> <b>A860-2060-T321</b>

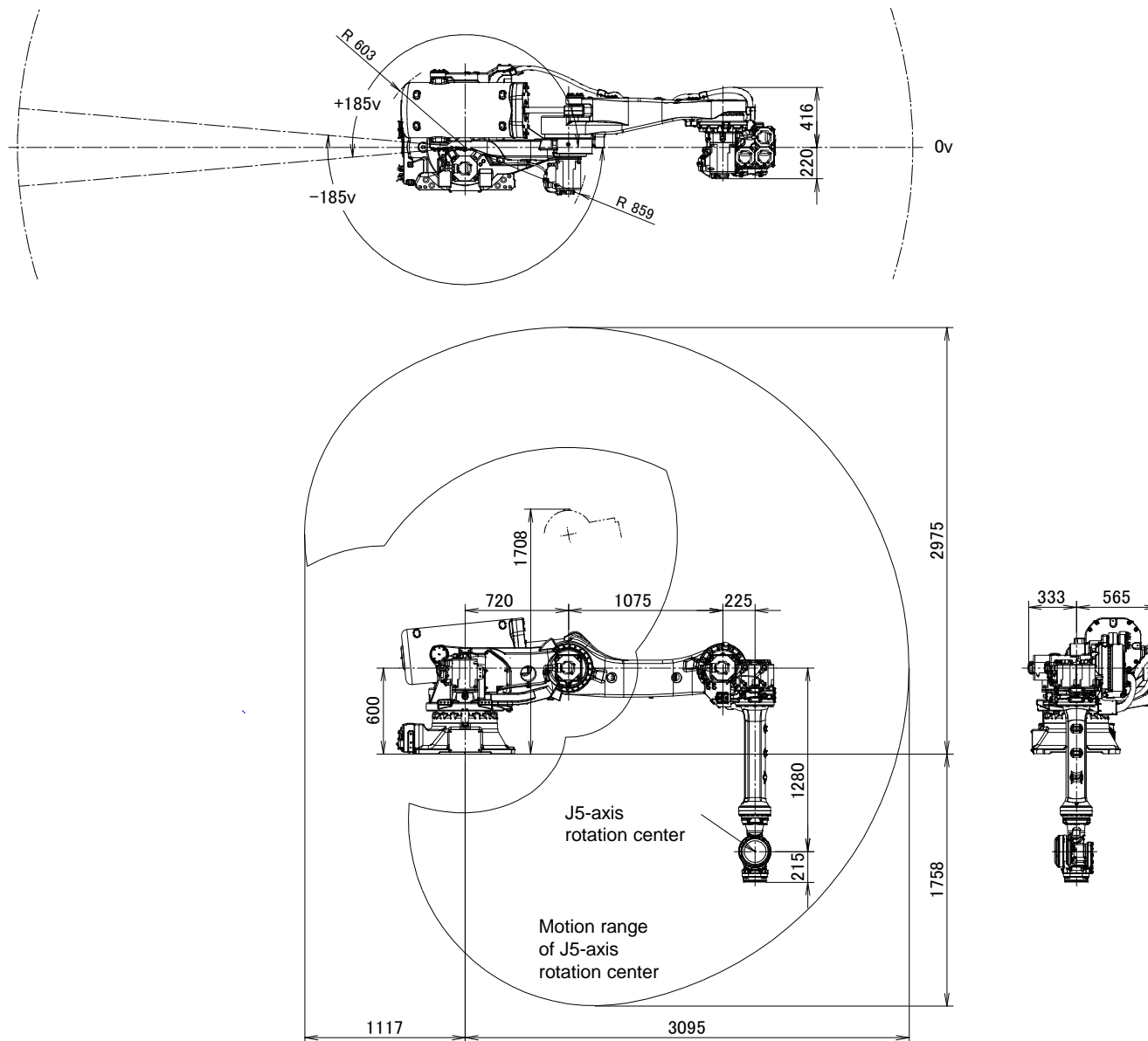
# Outline (Standard)

210F,165F,125L



# Outline (Standard)

210R,165R

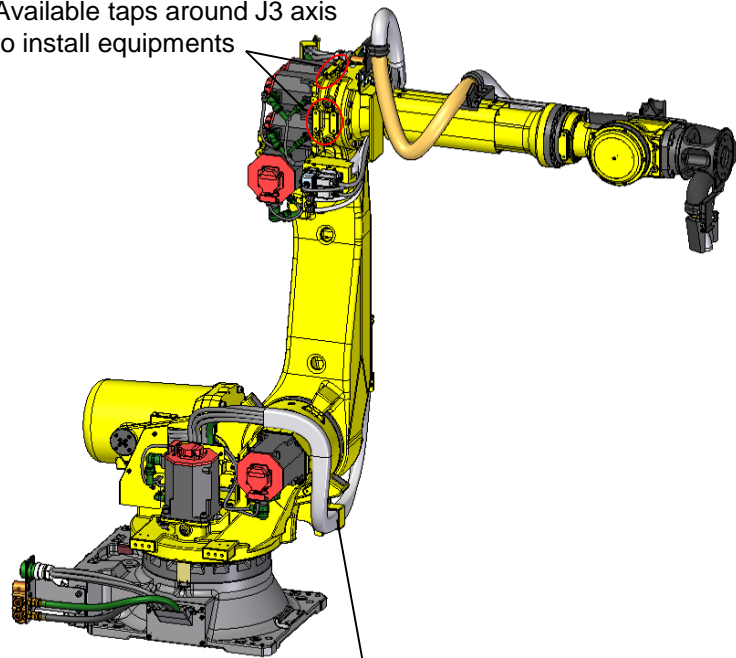




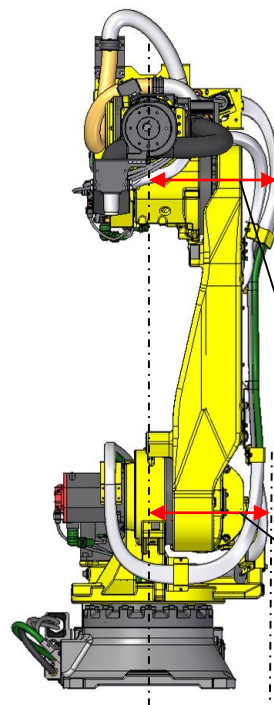
## Solution arm (Option)

- Compact dressout including weld power cables and hoses
- Highly reliable durability of weld cables and hoses
- Unnecessary to check the interference due to optimized cable bundle
- Ease of maintenance realizes shorter downtime to replace the unit

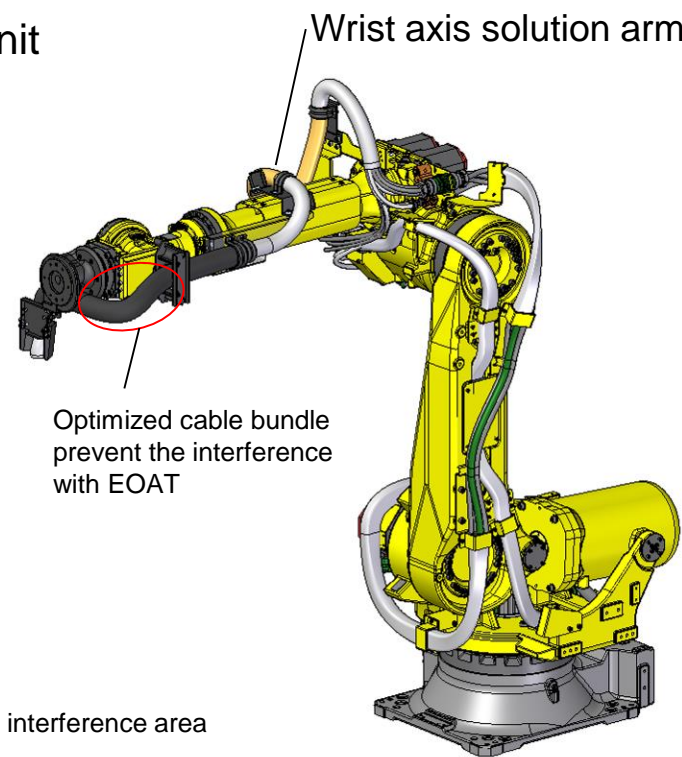
Available taps around J3 axis  
to install equipments



Primary axis solution arm



Minimize the interference area



Optimized cable bundle  
prevent the interference  
with EOAT

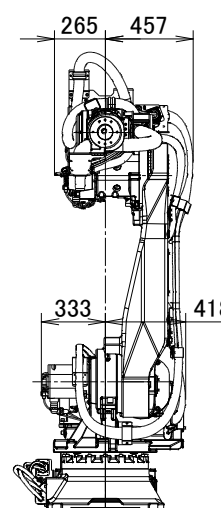
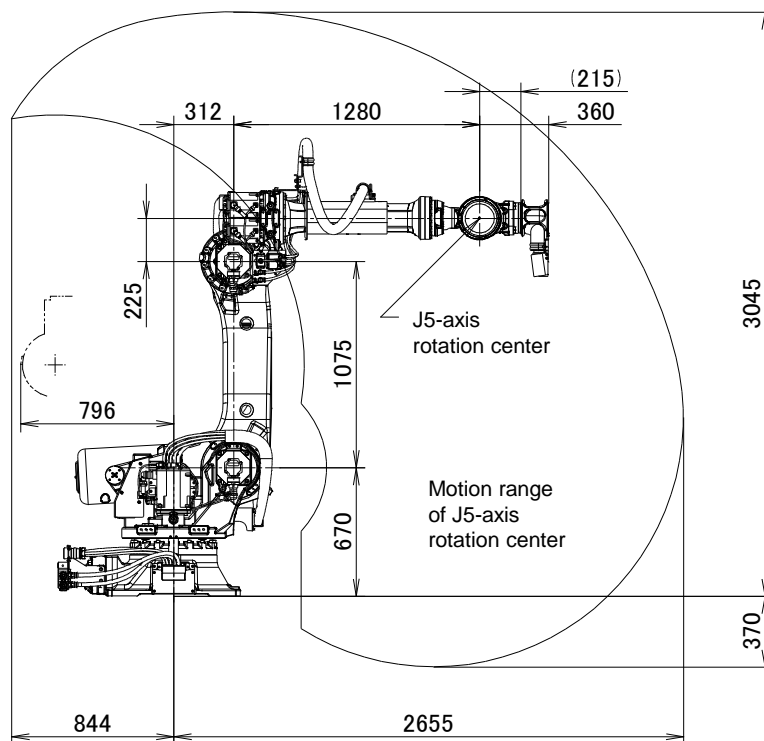
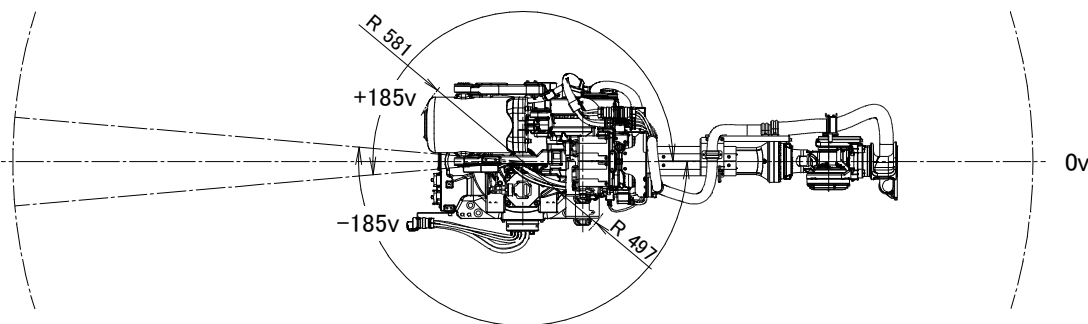
Wrist axis solution arm

### Note

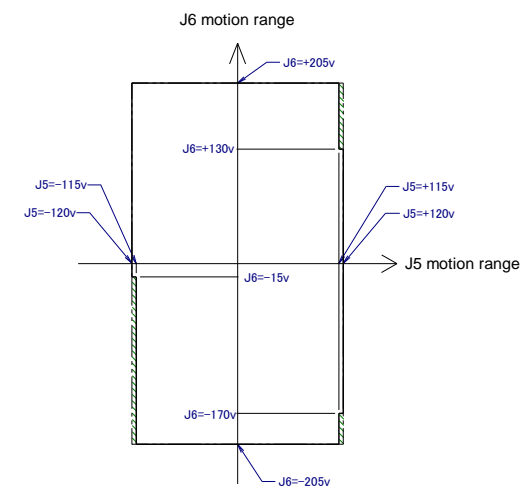
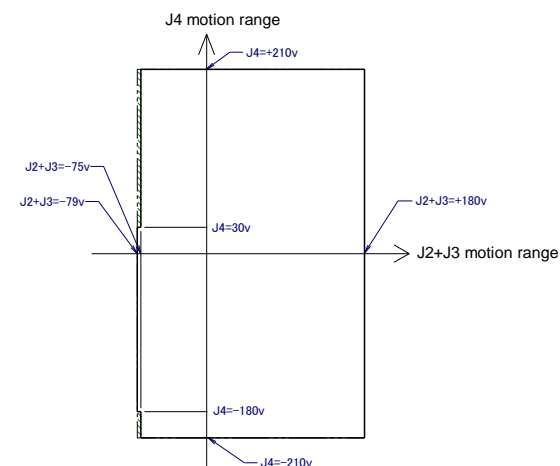
1. In case of primary axis solution arm is ordered, its motion range is changed from the standard one.
2. In case of wrist axis solution arm is ordered, motion range restriction is applied to J4/J5/J6 axis.
3. Wrist axis solution arm is available for standard reach, not for R-2000iC/125L.

# Outline (with solution arm)

210F,165F



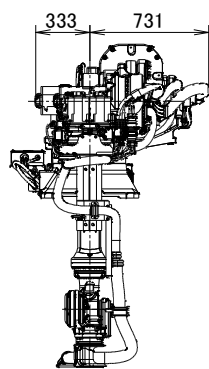
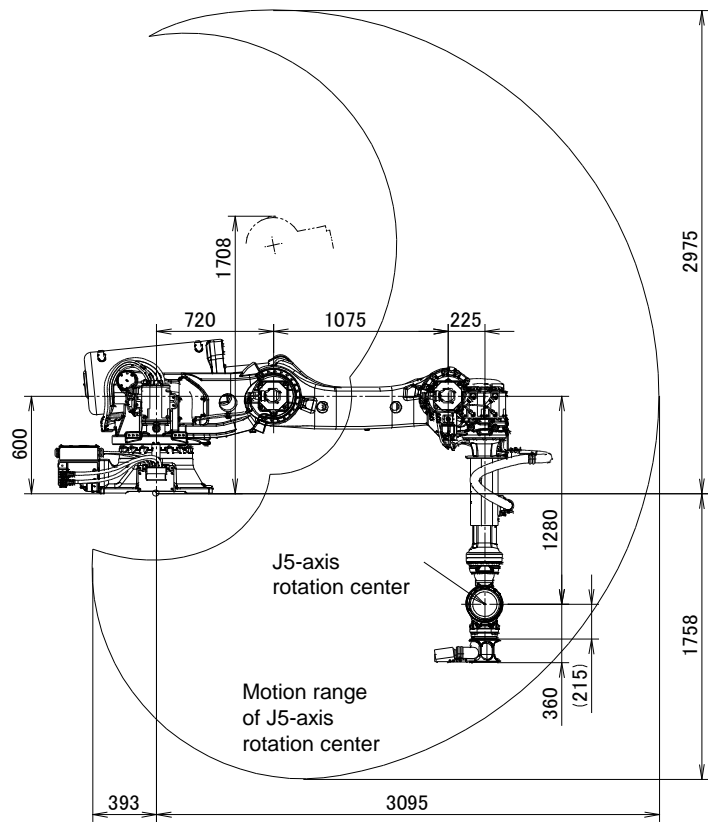
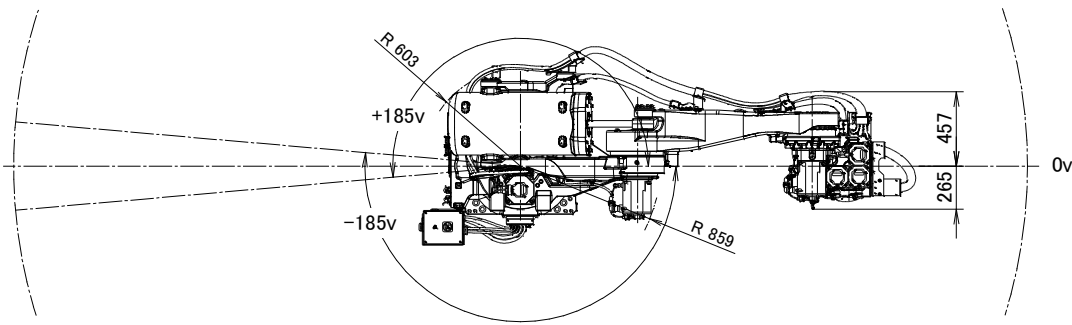
## Restriction to J4/J5/J6 axis (with wrist axis solution arm)



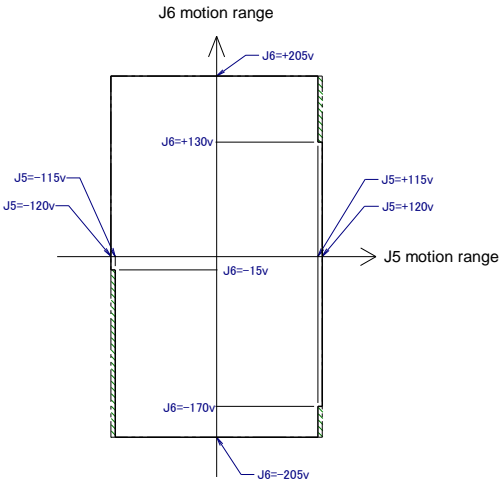
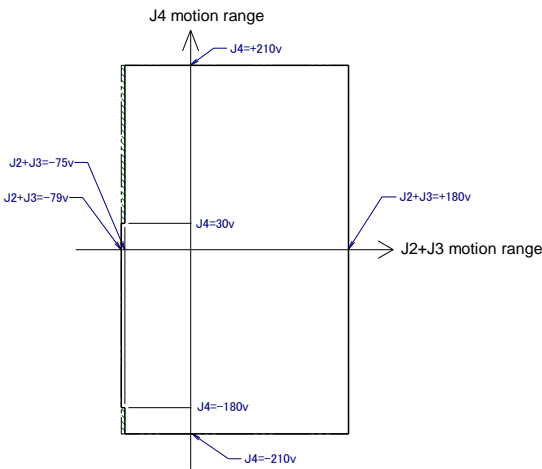


# Outline (with solution arm)

210R,165R

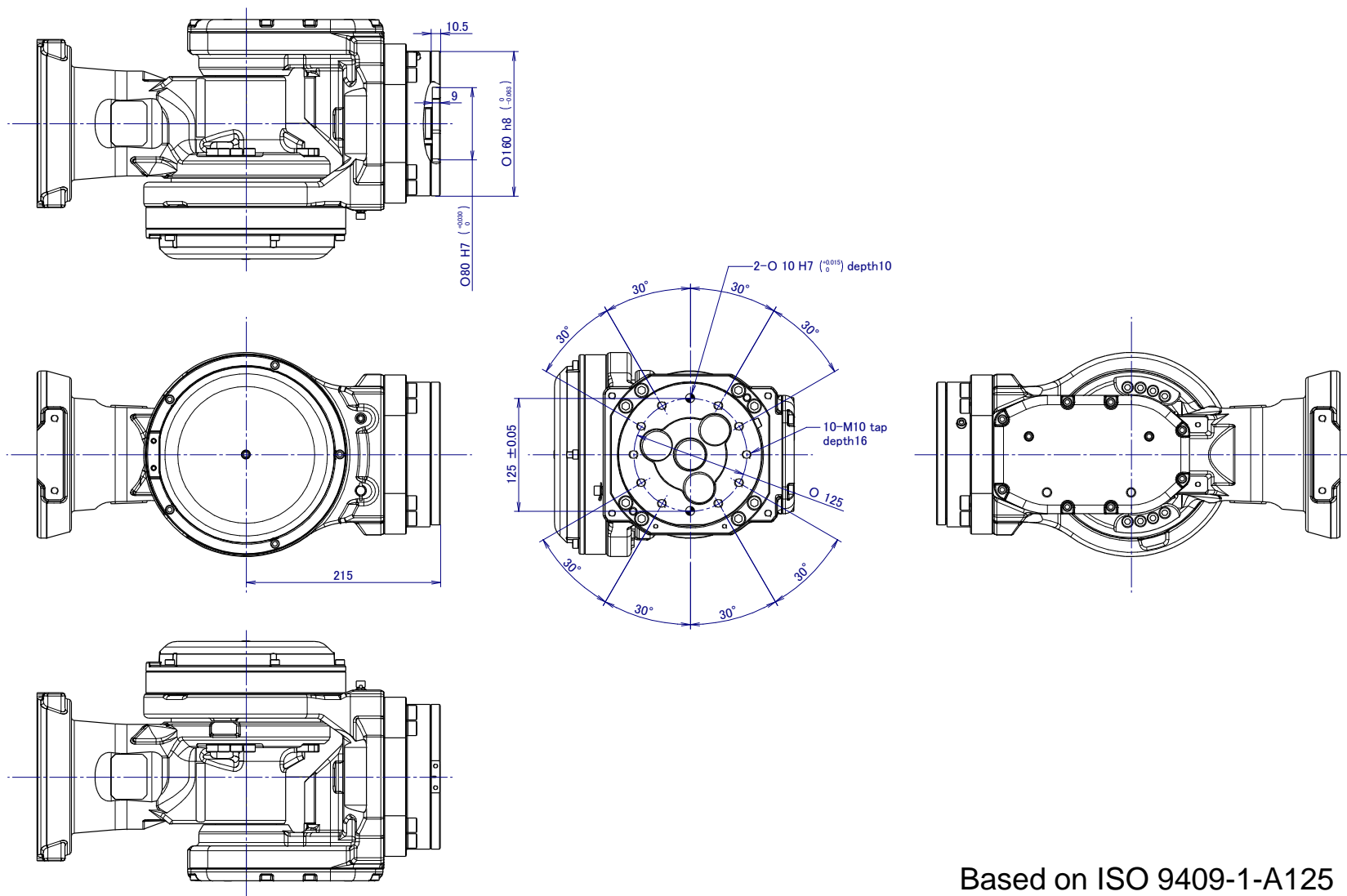


## Restriction to J4/J5/J6 axis (with wrist axis solution arm)



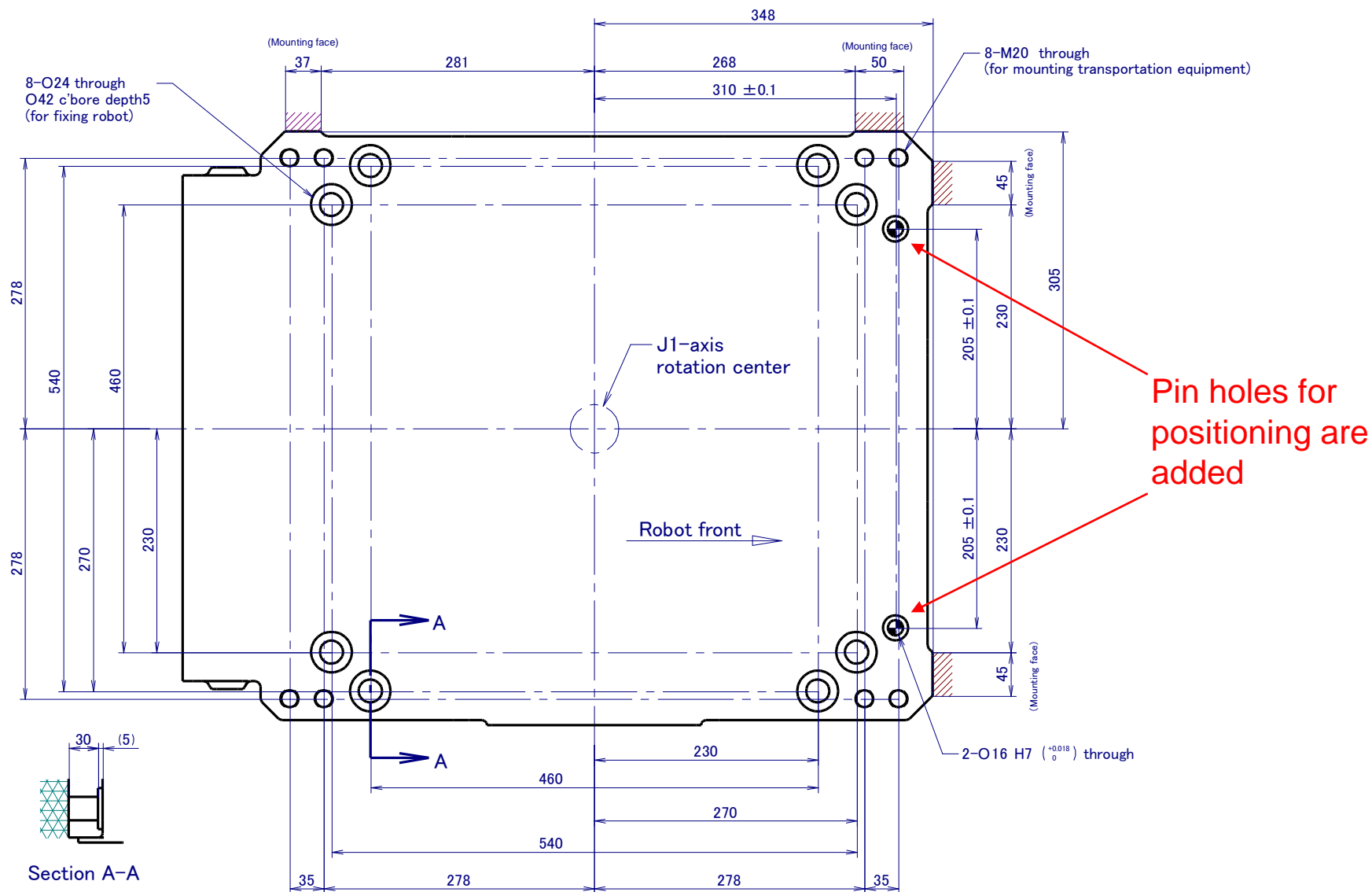
# End effector mounting face

210F,165F,125L  
210R,165R



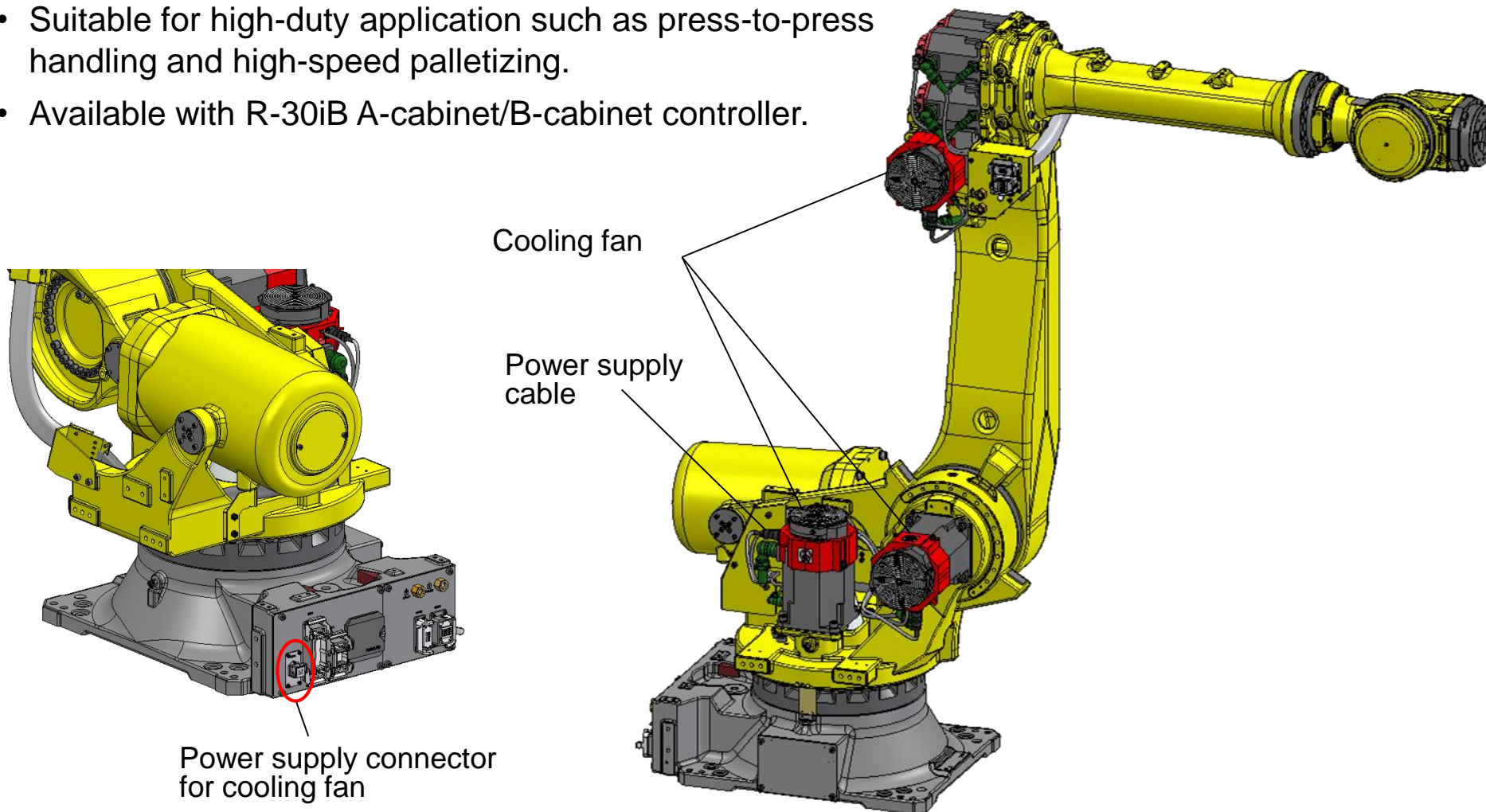
Based on ISO 9409-1-A125

**210F,165F,125L**  
**210R,165R**



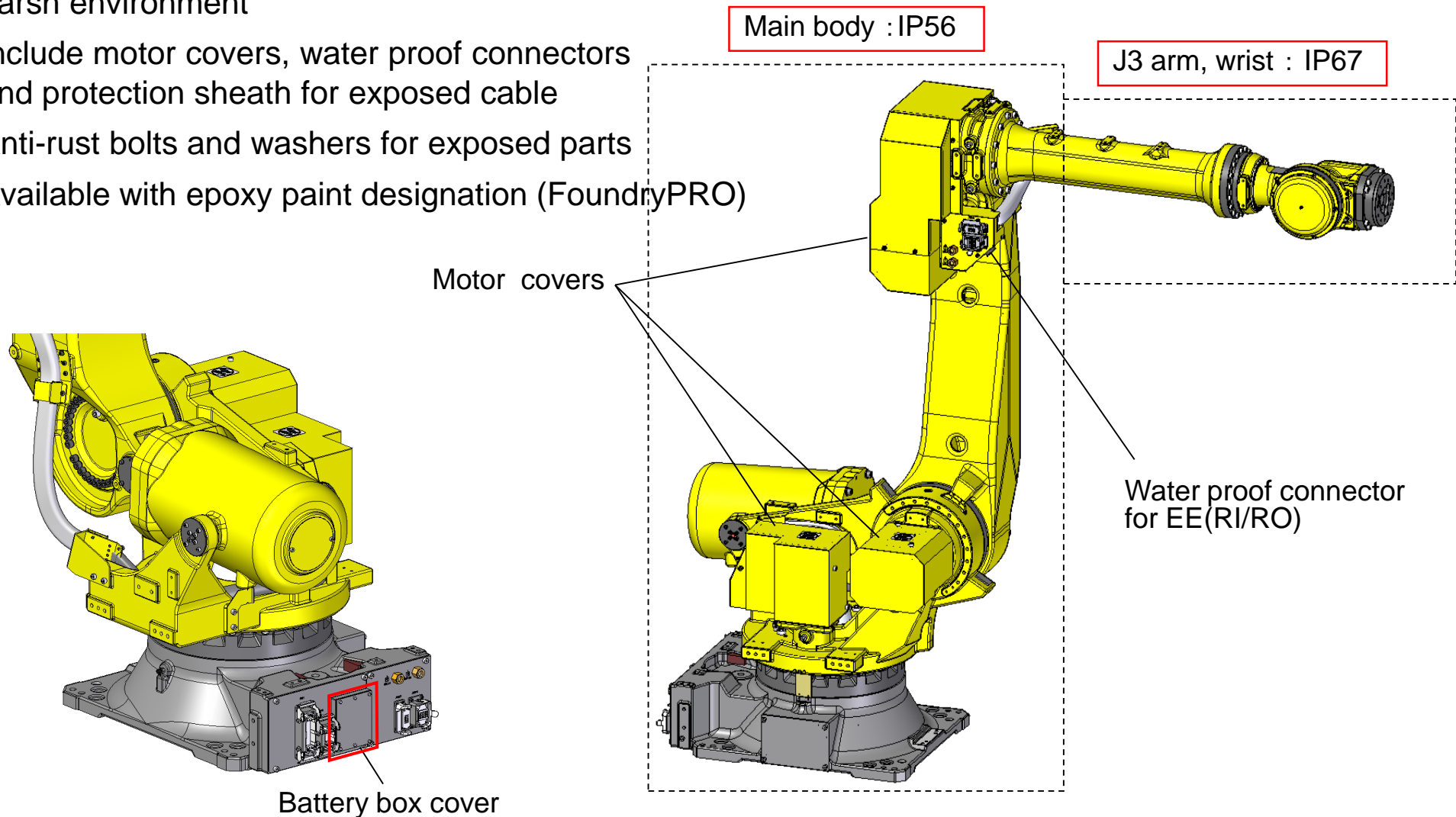
## Press handling package (option)

- The cooling fans for J1/J2 axis or J1/J2/J3 axis motor improve duty performance.
- Suitable for high-duty application such as press-to-press handling and high-speed palletizing.
- Available with R-30iB A-cabinet/B-cabinet controller.



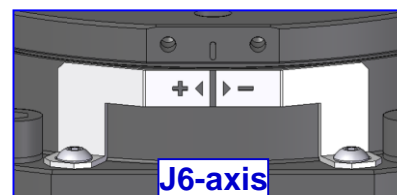
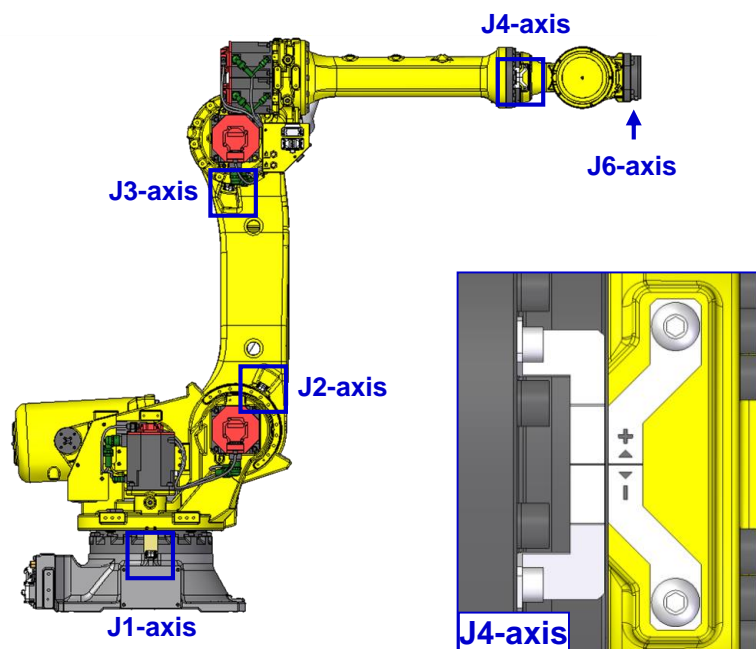
## Severe dust and liquid protection (option)

- Enhanced protective performance against harsh environment
- Include motor covers, water proof connectors and protection sheath for exposed cable
- Anti-rust bolts and washers for exposed parts
- Available with epoxy paint designation (FoundryPRO)

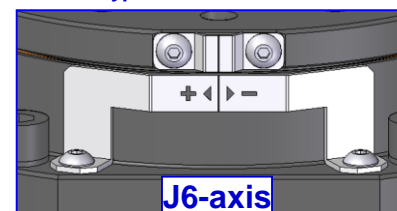


# Zero-positioning plate (option)

- New option for zero degree mark in addition to scribe mark and vernier mark seal
- Stainless plate and bolts for all
- Suitable for harsh environment



Type1:A05B-1333-H063



Type2:A05B-1333-H064

