
让世界信赖
伯朗特机器人
Let the world trust BORUNTE Robot
BORUNTE 工业机器人保养手册
BORUNTE Robot Maintenance Manual
– www.borunte.com –

Contents

I.Safety 5
1.1 Use Instructions of Robot 5
1.2 Safety Precautions of Adjustment, Operation and Safety Assurance 5
1.3 Safety Countermeasures for Robot Body 5
1.4 Features of Robot Core Parts 6
II. Basic Instructions 7
2.1 Model Specifications 7
2.2 Composition of Mechanical System 7
2.3 Model Parameters 8
2.3.1 Four-axis Robot BRTIRSC0603A (Version 21) 8
2.3.2 Four-axis Robot BRTIRSC0810A (Version 21) 11
2.3.3 Four-axis Robot BRTIRPL1003A (Version 21) 15
2.3.4 Four-axis Robot BRTIRPZ1508A (Version 21) 18
2.3.5 Four-axis Robot BRTIRPZ1825A (Version 21) 22
2.3.6 Six-axis Robot BRTIRUS0401A (Version 21) 27
2.3.7 Six-axis Robot BRTIRUS0805A (Version 21) 31
2.3.8 Six-axis Robot BRTIRUS0707A (Version 21) 35
2.3.9 Six-axis Robot BRTIRUS1510A (Version 21) 40
2.3.10 Six-axis Robot BRTIRUS1820A (Version 21) 46
2.3.11 Six-axis Robot BRTIRUS2110A (Version 21) 52
2.3.12 Six-axis Robot BRTIRUS2030A (Version 21) 58
2.3.13 Six-axis Robot BRTIRUS2550A (Version 21) 62
2.3.14 Six-axis Robot BRTIRUS3030A (Version 11) 68
2.3.15 Six-axis Robot BRTIRUS3511A (Version 21) 74
2.3.16 Six-axis Robot BRTIRUS2520B (Version 21) 81
2.3.17 Six-axis Robot BRTIRWD1506A (Version 21) 85
2.3.18 Six-axis Robot BRTIRWD2206A (Version 21) 90
2.3.19 Six-axis Robot BRTIRSE2013A (Version 21) 95
2.3.20 Six-axis Robot BRTIRSE2013F (Version 21) 99
2.3.21 Six-axis Robot BRTIRUS3050B (Version 10) 103
2.3.22 Four-axis Robot BRTIRPZ2480A (Version 10) 109
2.3.23 Four-axis Robot BRTIRPL1608A (Version 21) 114
2.3.24 Five axis robotBRTIRPL1203A(10 version) 117
2.3.25 Four axis robot BRTIRPL1215A(10 version) 120
2.3.26 Six axis robot BRTIRXZ1515A (20 version) 123
2.3.27 Four axis robot BRTIRPZ2080A(12 version) 127
2.3.28 Four axis robot BRTIRPZ2035A(21version) 131

2.3.29 Four axis robot BRTIRPZ3116B(21 version) 136
2.3.30 Six axis robot BRTIRUS2830B(11 version) 140
2.3.31 Six axis robot BRTIRUS2924B(11 version) 144
2.3.32 Six axis robot BRTIRUS2917B(22 version) 148
2.3.33 Four axis robot BRTIRPZ2465A(10 version) 153
2.3.34 Four axis robot BRTIRPZ1865A(version 10) 157
2.3.35 Palletizing workstation BRTMD193501A(10 version) 161
2.3.36 Palletizing workstation BRTMD195001A(10 version) 165
2.3.37 Palletizing workstation BRTMD163001A(10 version) 169
2.3.38 Six axis robot BRTIRUS3012C(10 version) 173
2.3.39 Cooperative Robot BRTIRXZ1005A (20 version) 177
2.3.40 Six-axis Robot BRTIRUS2650A (Version 10) 181
2.3.41 5KG Collaborative Robot BRTHC100501A(11 version) 189
2.3.42 5KG Collaborative Robot BRTHC100501A(11 version) 192
III. Calibration of Robot Zero Points 195
3.1 Overview of Zero Point Calibration 195
3.2 Zero Point Calibration Method 195
IV. Inspection and Maintenance 196
4.1 Preventive Maintenance 196
4.1.1 Daily Inspection 196
4.1.2 Quarterly Inspection 196
4.2 Inspection of Main Bolts 197
4.3 Inspection of Lubricating Oil 198
4.4 Installation & Maintenance Precautions of Harmonic Reducer 198
4.7 Surface Rust Prevention of RV Reducer 201
V. Replacement of Lubricating Grease 202
5.1 Steps of Replacing Lubricating Grease of RV Reducer 202
5.2 Steps of Replacing Lubricating Oil of Wrist Components 202
VI. Common Problems and Troubleshooting 203
6.1 Necessary Tools 204
6.2 Common Problems and Troubleshooting 204
6.3 Replacement of Servo Motor Parts 204
VII. Reducer Disassembly Process 205
7.1 Disassembly Diagram of Harmonic Reducer 205
7.1.1 Replacement & Disassembly Diagram of Type 20-100 Harmonic Reducer 205
7.1.2 Replacement & Disassembly Diagram of 17-80 Harmonic Reducer with Belt206
7.1.3 Replacement & Disassembly Diagram of Type 14-50 Hollow Harmonic Reducer 207
7.1.4 Replacement & Disassembly Diagram of 14-50 Harmonic Reducer with Belt208
7.1.5 Replacement & Disassembly Diagram of Type 14-50 Thin Harmonic Reducer208
7.2 Disassembly Diagram of RV Reducer 208

7.2.1 Replacement & Disassembly Diagram of 40E Series RV 208
7.2.3 Replacement & Disassembly Diagram 2 of 320E Series RV 211
7.2.4 Replacement & Disassembly Diagram of 320C Series RV 212
7.2.5 Replacement & Disassembly Diagram of 200C Series RV 213
7.2.6 Replacement & Disassembly of 500N Series RV 214
7.2.7 Replacement & Disassembly of 125N Series RV 215
7.2.8 Replacement & Disassembly of 27C Series RV 216
7.2.9 Replacement & Disassembly of Thin Harmonic Reducer with Belt 218
7.3 Disassembly Diagram of Planetary Reducer 219
7.4 Disassembly Diagram of Some Models 220
7.4.1 Four-axis Robot BRTIRPL1003A (Version 10) 220
7.4.2 Six-axis Robot BRTIRUS0401A (Version 11) 222
7.4.3 Six-axis Robot BRTIRUS0805A (Version 11) 224
7.4.4 Six-axis Robot BRTIRUS2110A (Version 11) 230
7.4.6 Four-axis Robot BRTIRPZ2480A (Version 10) 245
Appendix 1 Screw Tightening Torque Table 251

I.Safety

1.1 Use Instructions of Robot

Before installing, running, maintaining or inspecting the robot, please read through this manual and other accompanying documents in order to ensure correct use. Please get familiar with equipment knowledge, safety information and all precautions before use.

1.2 Safety Precautions of Adjustment, Operation and Safety Assurance

①Operators must wear work clothes, helmets, and safety shoes.

②Ensure that no operator is within the action range of robot before power-on.

③Ensure that power supply is cut off before entering the dynamic range of robot.

④In some cases, inspection, maintenance, etc. must be performed under power-on status. Two operators should be assigned for such operations. One operator should be ready for pressing the emergency stop button, and the other should stay alert and perform quick operation within the action range of robot. Besides, the evacuation path should be confirmed before operation.

⑤The load on wrist and mechanical arm must be within the allowed handling weight. Otherwise, abnormal actions or mechanical parts can be damaged before the design life.

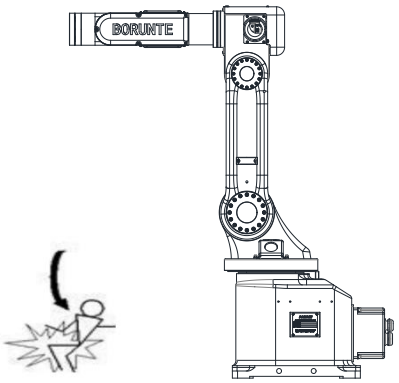
⑥Please read "Safety Precautions" chapter in Operation & Maintenance Manual of Robot thoroughly.

⑦It is forbidden to dismantle or handle the parts which are not introduced in the Manual.

1.3 Safety Countermeasures for Robot Body

①Avoid unnecessary protruding or sharp parts while designing the robot, use the materials which apply to the operating environment, and choose the fault prevention and safety structure that can minimize damages or faults. Besides, the robot should be fitted with emergency stop function and the interlock function to prevent robot hazards when the surrounding equipment has a failure, in order to ensure safe operation.

②If dismantling the motor without fixing the mechanical arm firstly, the mechanical arm may fall down, or move to the front or back. After zero plug is inserted, use a wood block or crane to fix the mechanical arm to prevent falling, then take down the motor (zero plug and stop block are used for aligning the original position, instead of fixing the mechanical arm). Besides, do not take down the motor while mechanical arm is being supported by hands.



③While installing the attached devices at the end and mechanical arm, please use the bolts in strict accordance with the dimensions and quantity of the Manual, fasten the bolts with a torque wrench according to the specified torque.

Do not use the rusted or polluted bolts.

④While designing and manufacturing the end executor, the load at robot wrist should be controlled within the design value.

⑤A safety and fault prevention structure should be used for separating the operator from robot, and the grasped objects should not be released nor fly out even if the supply of power or compressed air is cut off. The edge or protruding parts should be smoothed to prevent damaging the operators or objects.

1.4 Features of Robot Core Parts

The main core parts on industrial robot include: Servo motor, harmonic drive, RV reducer and planetary reducer

1.4.1 Main Features of Servo Motor

1. Accuracy: Realized closed-loop control of position, speed and torque; overcome the out-of-step problem of stepping motor;
2. Revolving speed: Good high-speed performance. The rated revolving speed can reach 1,500~3,000 turns in general;
3. Adaptation: Strong resistance to overload, able to bear the load that is triple of rated torque, applies to the scenarios which have transient load fluctuation and fast startup;
4. Stable: Stable running at low speed, applies to scenarios which require high-speed response;
5. Timeliness: Dynamic response to motor acceleration/deceleration is short and within dozens of ms in general;
6. Comfort: Heating and noise are lowered obviously.

1.4.2 Main Features of Harmonic Drive

1. High transmission speed ratio; the transmission speed ratio of single-stage harmonic gear is ranged 70~320.
2. High bearing capacity, strong rigidity.
3. High transmission accuracy; the transmission error is just around 1/4 that of common cylindrical gear. No-backlash engagement, small idle stroke of transmission, applies to reverse rotation.
4. High transmission efficiency, stable running. (Up to 69% ~ 96%).
5. Simple structure, less parts, easy installation.
6. Small size, light weight.
7. Support transmission and movement towards confined space.

1.4.3 Main Features of RV Reducer

1. Compact mechanical structure, small size, high efficiency;
2. Good heat exchange performance, fast cooling;
3. Easy installation, good flexibility, excellent performance, easy maintenance and inspection;
4. High transmission ratio, high torque, good resistance to overload;
5. Stable running, small noise, durable;
6. Strong applicability, high safety and reliability.

1.4.4 Main Features of Planetary Reducer

1. Stable running, small noise;
2. High rigidity, high resistance to overload, long service life;
3. High transmission accuracy, within 1 arcminute for single stage;
4. High transmission efficiency, (97%-98% for single stage);
5. Simple structure, less parts, easy installation;
6. Small size, light weight.

1.4.5 Motion Control System

The robot motion controller and operating system, which is Borunte control system, enjoys complete functions and simple operation; standard RS-485 communication interfaces, USB sockets and relevant software, supports extension of eight axles and offline teaching.

II. Basic Instructions

2.1 Model Specifications

Model specifications of the Company's robots:

B R T I R □□ □□ □ □ A

A — Version No.
□ □ — Robot load
□ □ — Robot activity radius
□ □ — Model series: For example, US means universal robot, SC means horizontal robot, SE means spraying robot, PZ means stacking robot, WD means welding robot, PLC means parallel robot.
I — Industrial robot
R — Company name code
B R T — Company name code

2.2 Composition of Mechanical System

(1) The four-axis robot mechanical system refers to the composition of four-axis mechanical body. The mechanical body consists of the body of axis 1, 2, 3 and 4. The four joints are driven by 4 motors to realize different motions. Fig. 2.1 shows the constituent parts of four-axis robot and regulations of all joints.

(2) The six-axis robot mechanical system refers to the composition of six-axis mechanical body. The mechanical body consists of J0 base, body of Axis 2, connecting rod of Axis 2 and 3, body of Axis 3 and 4, connecting barrel of Axis 4 and 5, body of axis 5, and body of Axis 6. The six joints are driven by six motors to realize different motions. Fig. 2.2 shows the constituent parts of six-axis robot and regulations of all joints.

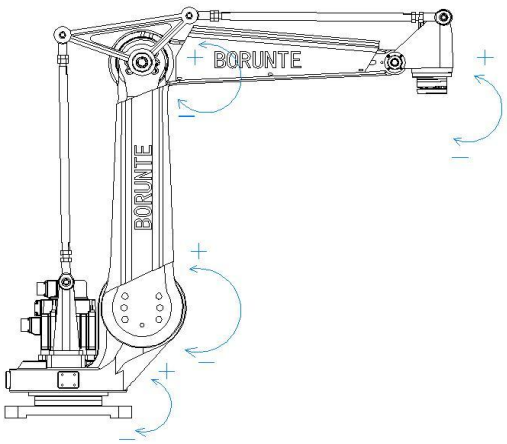


Fig. 2-1 Constitutional Diagram of Robot Mechanical System (Four-axis)

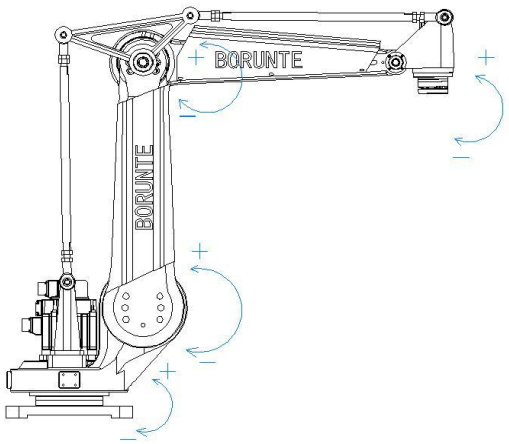


Fig. 2-2 Constitutional Diagram of Robot Mechanical System (Six-axis)

2.3 Model Parameters

2.3.1 Four-axis Robot BRTIRSC0603A (Version 21)

2.3.1.1 Introduction to BRTIRSC0603A Robot

2.3.1.1.1 Picture of BRTIRSC0603A Robot



2.3.1.1.2 Introduction to BRTIRSC0603A Robot

BRTIRSC0603A is a four-axis robot that is developed for monotonous, frequent and long-term operation. It has 600mm arm span and the max. load capacity up to 3kg. Based on flexibility with multiple degrees of freedom, it mainly applies to the fields such as printing, packaging, metal processing, light textile, household and electronic equipment.

The protection grade reaches IP40.

High accuracy: Repeated positioning accuracy is ±0.02mm.

2.3.1.1.3 Application Scenarios of BRTIRSC0603A

(1) sorting (2) transporting, etc.

2.3.1.2 Performance Parameter Table of Robot

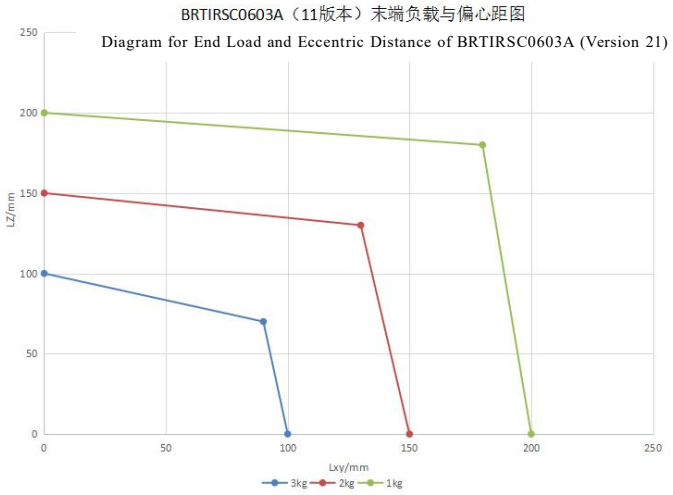
Performance Parameter Table of BRTIRSC0603A

Model	BRTIRSC0603A			
Number of axes	Axis 4			
Payload	3kg			
Repeated positioning accuracy	±0.02mm			
IP code	IP40			
Max. radius of arm span	600mm			
Body weight	Approx. 28kg			
Max. speed	J1	480°/s	J2	576°/s
	J3	900mm/s	J4	696°/s
	J5	/	J6	/
Motion range	J1	±128°	J2	±145°
	J3	150mm	J4	±360°
Max. driving torque	J4	15N*m		
Max. rotational inertia	J4	0.262kg*m²		
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)		Air source pressure	0.5~0.7MPa
			Power	220V±10% 50/60Hz
Core Parts	Name	Operating system	Brand	BORUNTE
		Casting main body		BORUNTE
		Servo motor		BORUNTE
		Reducer		BORUNTE
		Electrical components		BORUNTE
RV grease amount	NO			
Wearing parts	J3 timing belt	MBT233090302 Timing Belt 3M-09 belt width -80 teeth (high strength)		
	J4 timing belt	MBT233090303 Timing Belt 3M-09 belt width - 167 teeth (high strength)		
Attached documents	USB			

2.3.1.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRSC0603A

XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end

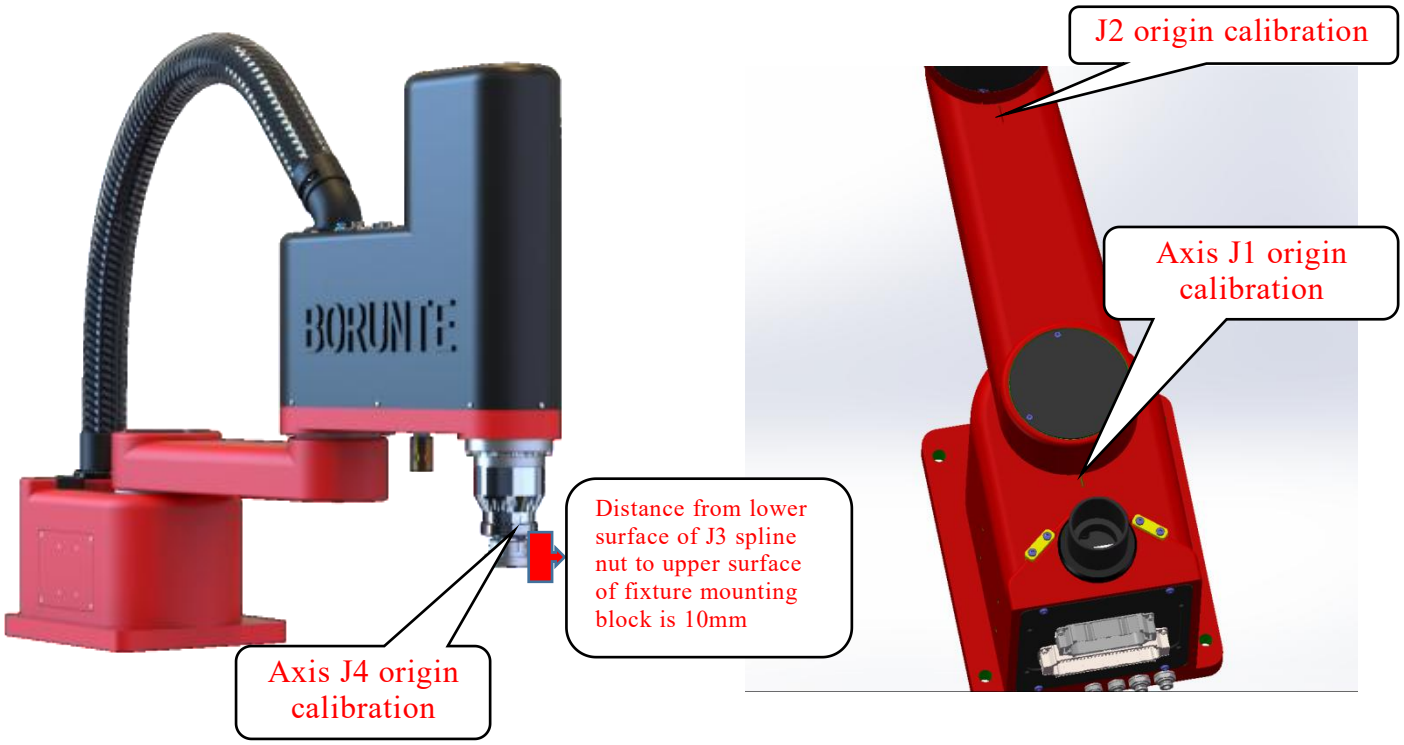


Note: BRTIRSC0603A is designed with the rated load capacity up to 3kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.1 Diagram for Eccentric Load and Distance of BRTIRSC0603A

2.3.1.4 Origin Calibration/Oil Injection Hole Position of Robot



No oil injection required

Fig. 2.3.2 Diagram for Origin Calibration of BRTIRSC0603A

2.3.1.5 Diagram of Robot Handling and Hoisting

No hoisting required

2.3.2 Four-axis Robot BRTIRSC0810A (Version 21)

2.3.2.1 Introduction to BRTIRSC0810A Robot

2.3.2.1.1 Picture of BRTIRSC0810A Robot



2.3.2.1.2 Introduction to BRTIRSC0810A Robot

BRTIRSC0810A is a four-axis robot that is developed for monotonous, frequent and long-term operation. It has 800mm arm span and the max. load capacity up to 10kg. Based on flexibility with multiple degrees of freedom, it mainly applies to the fields such as printing, packaging, metal processing, light textile, household and electronic equipment.

High accuracy: Repeated positioning accuracy is ±0.03mm.

2.3.2.1.3 Application Scenarios of BRTIRSC0810A

(1) sorting (2) transporting, etc.

2.3.2.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRSC0810A

Model	BRTIRSC0810A					
Number of axes	Axis 4					
Payload	10kg					
Repeated positioning accuracy	±0.05mm					
Max. radius of arm span	800mm					
Body weight	Approx. 73kg					
Max. speed	J1	300°/s		J2	473.5°/s	
	J3	1134mm/s		J4	1875°/s	
Motion range	J1	±130°		J2	±140°	
	J3	180mm		J4	±360°	
Max. driving torque	J3	16.256N*m		J4	1.016N*m	
Max. rotational inertia	J3	0.0286kg*m²		J4	0.0001kg*m²	
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	220V±10%	50/60Hz
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	700ML	J2	400ML	J3	/
Wearing parts	Timing Belt	Tooth form 5M, 108 teeth, 9mm wide				
	Timing Belt	Tooth form 5M, 148 teeth, 9mm wide				
	Timing Belt	Tooth form 5M, 104 teeth, 15mm wide				
Attached documents	USB					

2.3.2.3 Diagram of Robot Load Capacity

NO

2.3.2.4 Origin Calibration/Oil Injection Hole Position of Robot

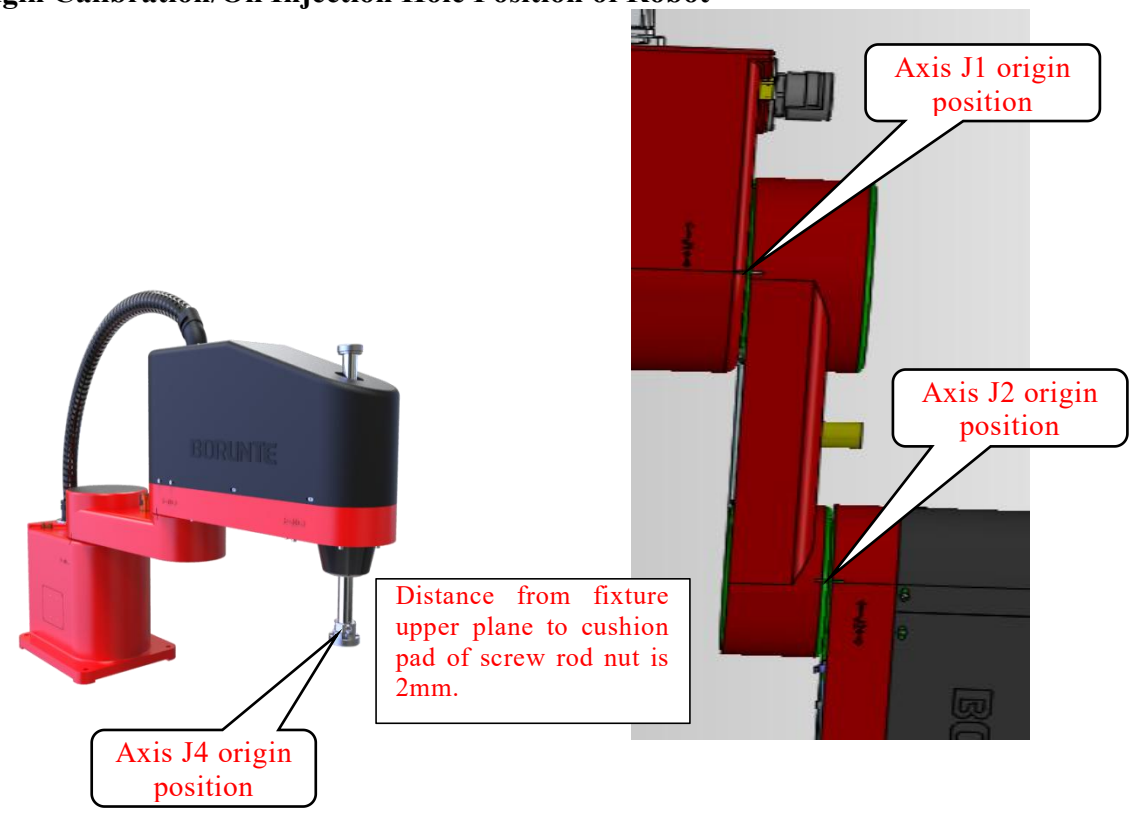


Fig. 2.3.3 Diagram for Original Position Calibration and Oil Injection/discharge Hole Position of BRTIRSC0810A

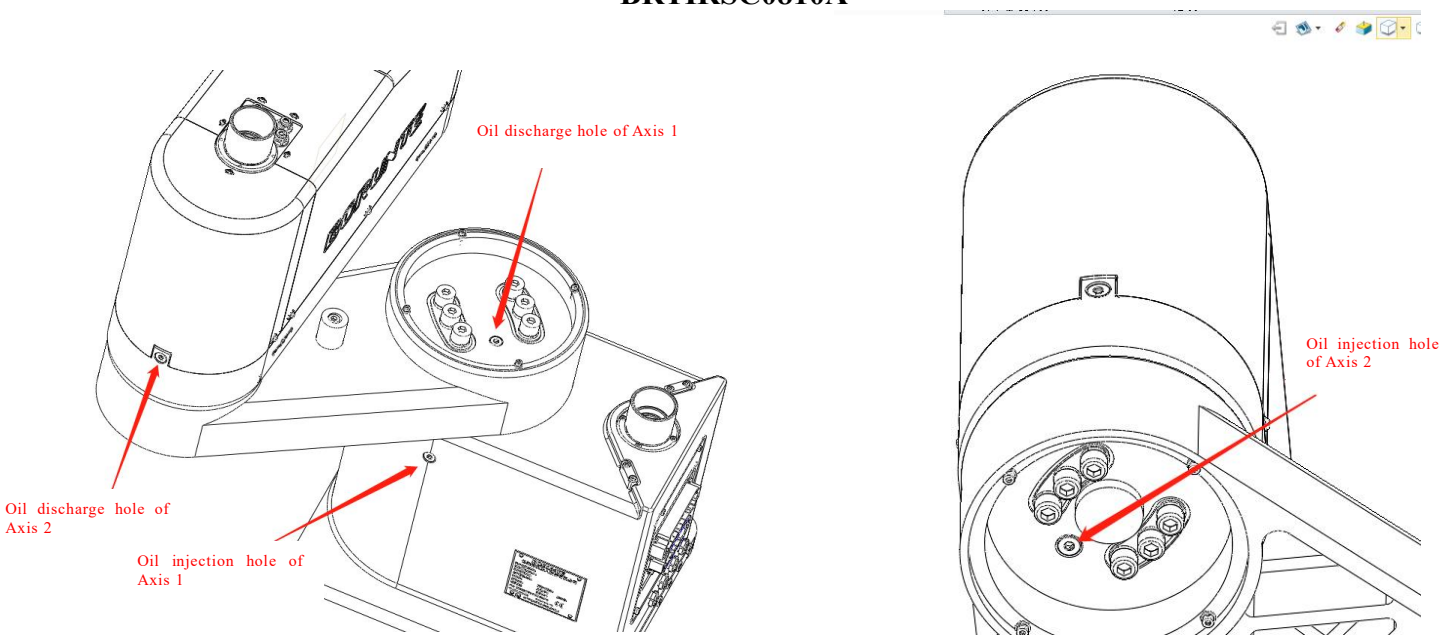


Fig. 2.3.4 Diagram for Oil Injection/discharge of BRTIRSC0810A

2.3.2.5 Diagram of Robot Handling and Hoisting

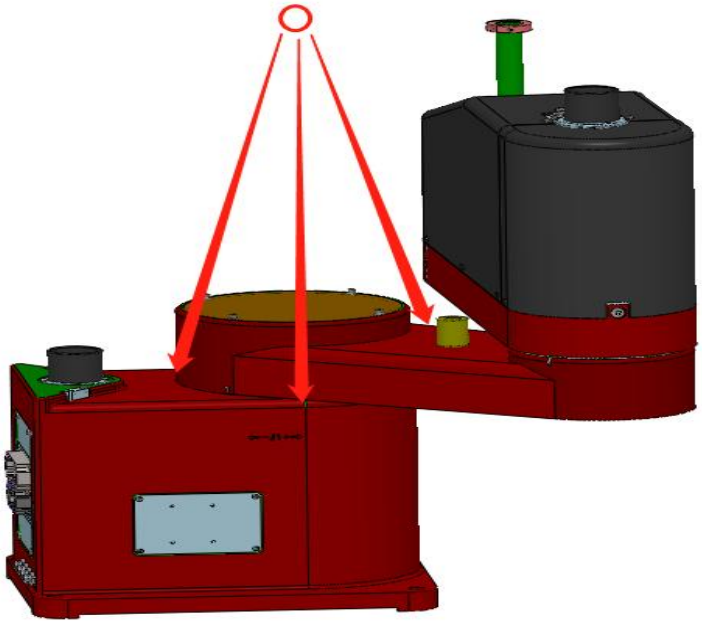


Fig. 2.3.5 Diagram for Handling and Hoisting of BRTIRSC0810A Robot

2.3.3 Four-axis Robot BRTIRPL1003A (Version 21)

2.3.3.1 Introduction to BRTIRPL1003A Robot

2.3.3.1.1 Picture of BRTIRPL1003A Robot



2.3.3.1.2 Introduction to BRTIRPL1003A Robot

BRTIRPL1003A is the first four-axis robot that is developed for the application scenarios, such as assembly and sorting of lightweight, small and scattered objects. It can be mounted with visual system, has 1,000mm arm span and the max. load capacity up to 3kg.

High accuracy: Repeated positioning accuracy is ±0.1mm.

2.3.3.1.3 Application Scenarios of BRTIRPL1003A

(1) sorting (2) transporting, etc.

2.3.3.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRPL1003A

Model	BRTIRPL1003A				
Number of axes	Axis 4				
Payload	3kg				
Repeated positioning accuracy of position	±0.1mm				
Repeated positioning accuracy of angle	±0.5°				
Max. radius of arm span	1000mm				
Body weight	Approx. 104kg				
Max. speed	J1	609°/s		J2	609°/s
	J3	609°/s		J4	2814°/s
Motion range	J1	-46.7°/+86.6°		J2	-46.7°/+86.6°
	J3	-46.7°/+86.6°		J4	±360°
Max. driving torque	J4	\			
Max. rotational inertia	J4	\			
Installation environment	Operating temperature: 0°C~40°C Optimal temperature: 15°C~25°C Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa
				Power	220V±10% 50/60Hz
Core Parts	Name	Operating system	Brand	BORUNTE	
		Casting main body		BORUNTE	
		Servo motor		BORUNTE	
		Reducer		BORUNTE	
		Electrical components		BORUNTE	
RV grease amount	NO				
Wearing parts	NO				
Attached documents	USB				

2.3.3.3 Diagram of Robot Load Capacity

NO

2.3.3.4 Origin Calibration/Oil Injection Hole Position of Robot

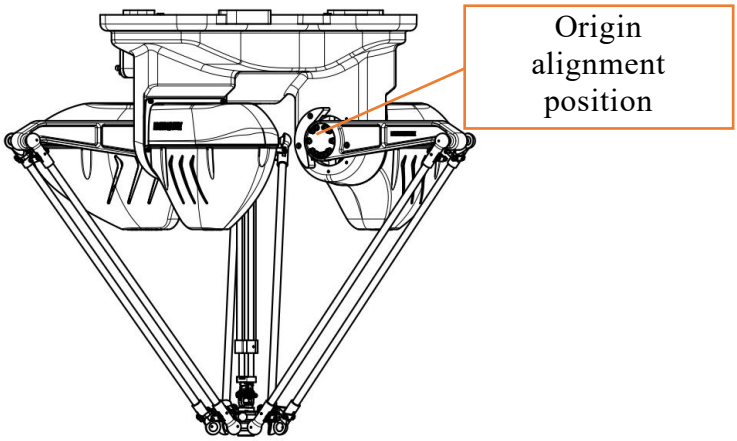


Fig. 2.3.6 Diagram for Origin Calibration of BRTIRPL1003A

2.3.3.5 Diagram of Robot Handling and Hoisting

No hoisting required

2.3.4 Four-axis Robot BRTIRPZ1508A (Version 21)

2.3.4.1 Introduction to BRTIRPZ1508A Robot

2.3.4.1.1 Picture of BRTIRPZ1508A Robot



2.3.4.1.2 Introduction to BRTIRPZ1508A Robot

BRTIRPZ1508A is a four-axis robot developed by Borunte and driven by full servo motor, which features high response speed and high accuracy. Its max. load capacity is 8kg and max. arm span is 1,413mm. With compact structure, it can have large motion range, flexible and accurate running. Application: In industrial production, it can apply to monotonous, frequent, repeated and long-term operation, or dangerous and severe environment as substitution of workers, such as processing of punching machine, pressure casting, heat treatment, coating, plastic product forming, mechanical processing and simple assembly, as well as the handling or processing of hazardous materials in the departments like atomic energy industry, in order to improve and complete the feeding and discharging process.

High accuracy: Repeated positioning accuracy is ±0.05mm.

2.3.4.1.3 Application Scenarios of BRTIRPZ1508A

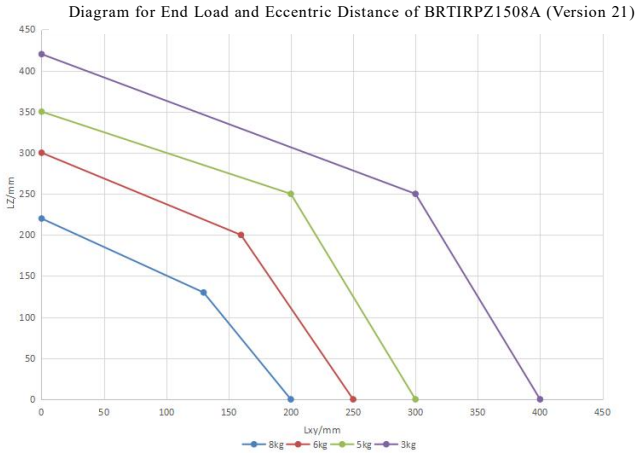
(1) stamping (2) loading and unloading, etc.

2.3.4.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRPZ1508A

Model	BRTIRPZ1508A					
Number of axes	Axis 4					
Payload	8kg					
Repeated positioning accuracy	±0.05mm					
Max. radius of arm span	1413mm					
Body weight	Approx. 150kg					
Max. speed	J1	219.8°/s			J2	222.2°/s
	J3	272.7°/s			J4	412.5°/s
Motion range	J1	±160°			J2	-68°/+23°
	J3	-70°/+65°			J4	±360°
Allowable torque	J4				12N*m	
Allowable inertia moment	J4				0.116kg*m²	
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	220V±10% 50/60Hz
Core Parts	Name	Operating system			Brand	BORUNTE
		Casting main body				BORUNTE
		Servo motor				BORUNTE
		Reducer				BORUNTE
		Electrical components				BORUNTE
RV grease amount	J1	900ML	J2	350ML	J3	200ML
Wearing parts	NO					
Attached documents	USB					

2.3.4.3 Diagram of Robot Load Capacity



Note: BRTIRPZ1508A is designed with the rated load capacity up to 8kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.7 Diagram for Eccentric Load and Distance of BRTIRPZ1508A

2.3.4.4 Origin Calibration/Oil Injection Hole Position of Robot

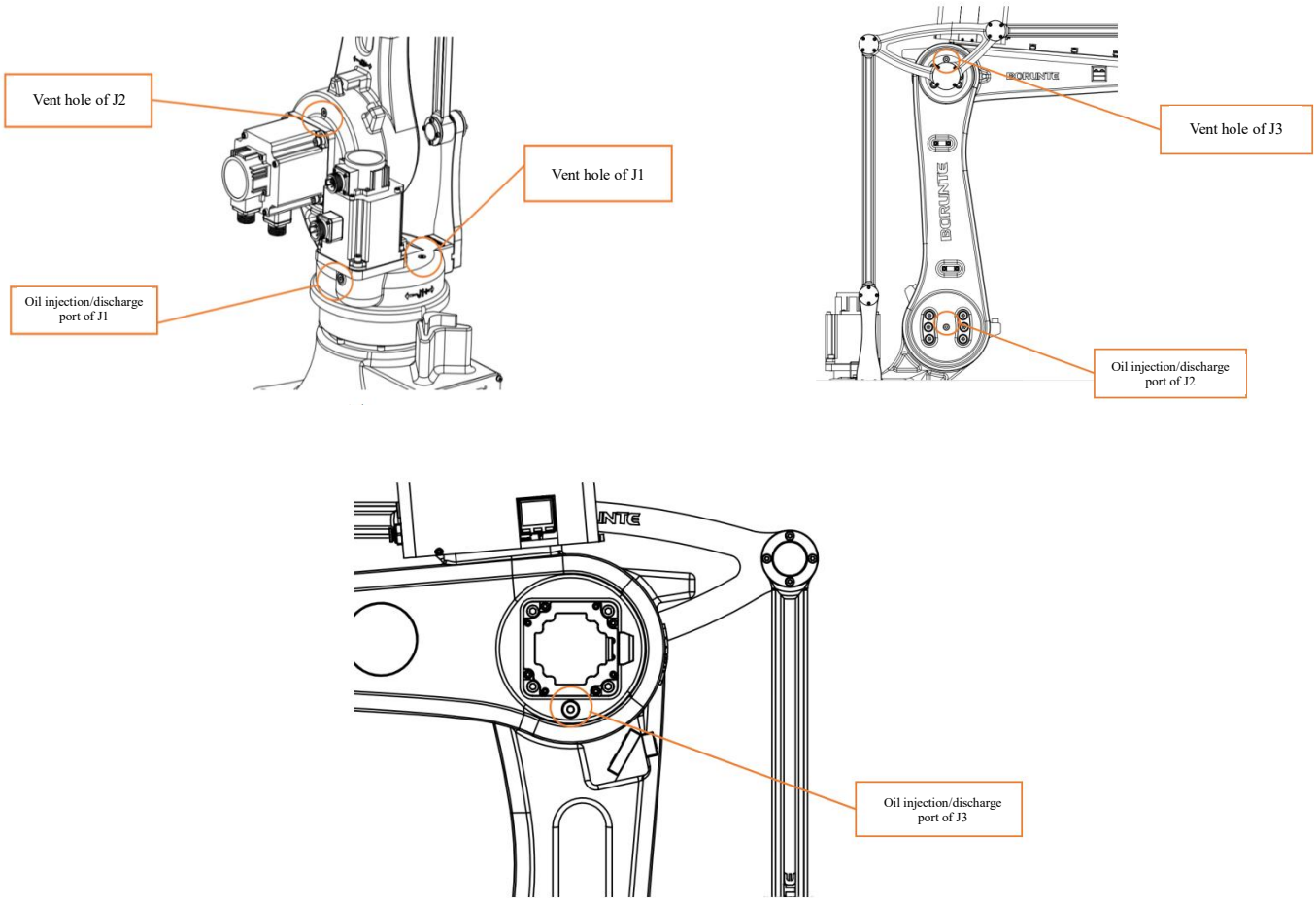


Fig. 2.3.8 Diagram for Oil Injection/discharge of BRTIRPZ1508A

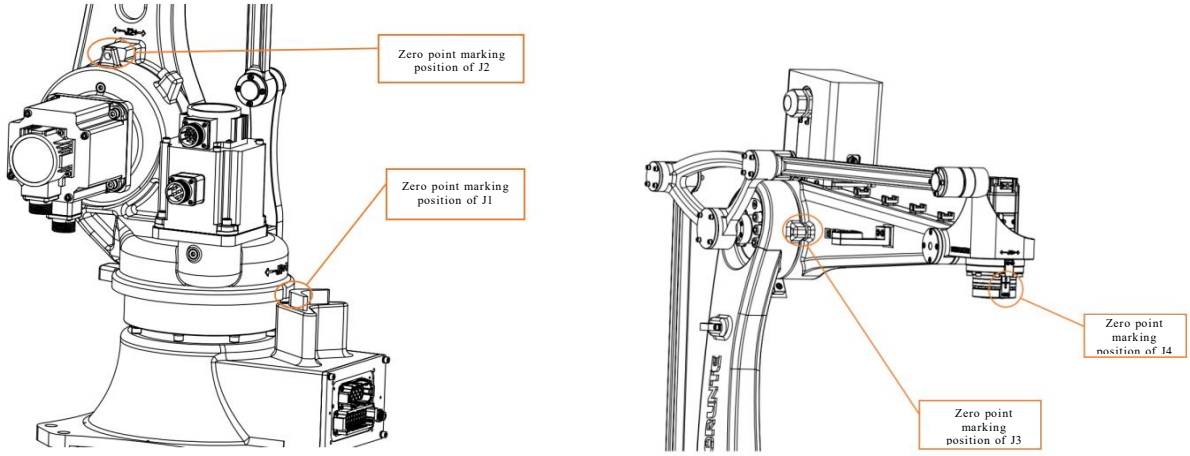


Fig. 2.3.9 Diagram for Origin Calibration of BRTIRPZ1508A

2.3.4.5 Diagram of Robot Handling and Hoisting

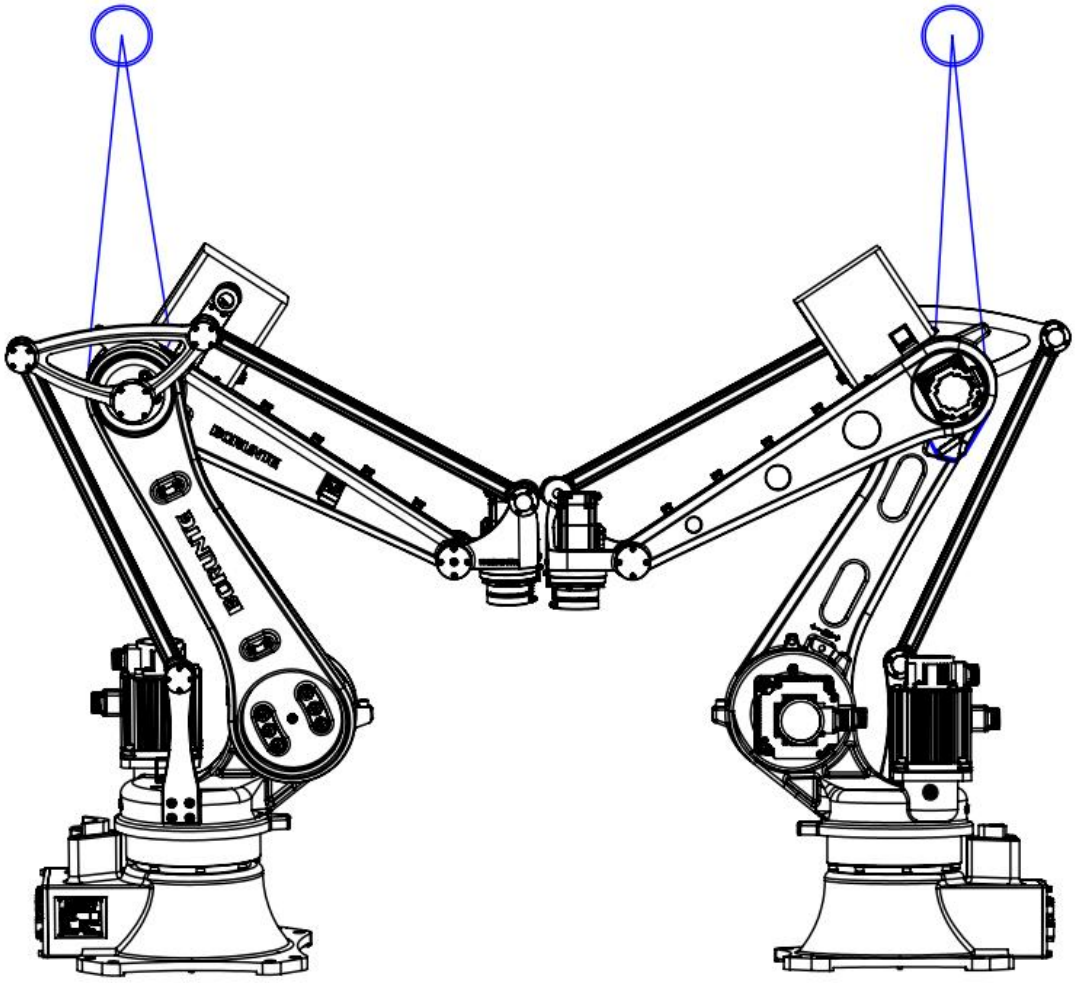


Fig. 2.3.10 Diagram for Handling and Hoisting of BRTIRPZ1508A Robot

2.3.5 Four-axis Robot BRTIRPZ1825A (Version 21)

2.3.5.1 Introduction to BRTIRPZ1825A Robot

2.3.5.1.1 Picture of BRTIRPZ1825A Robot



2.3.5.1.2 Introduction to BRTIRPZ1825A Robot

BRTIRPZ1825A is a four-axis robot that is developed for monotonous, frequent and long-term operation, or operation under hazardous and severe environment. It has 1,800mm arm span and the max. load capacity up to 25kg. With the flexibility of multi-degree of freedom, it applies to the scenarios such as feeding/discharging, handling, unstacking and stacking.

High accuracy: Repeated positioning accuracy is ±0.08mm.

2.3.5.1.3 Application Scenarios of BRTIRPZ1825A

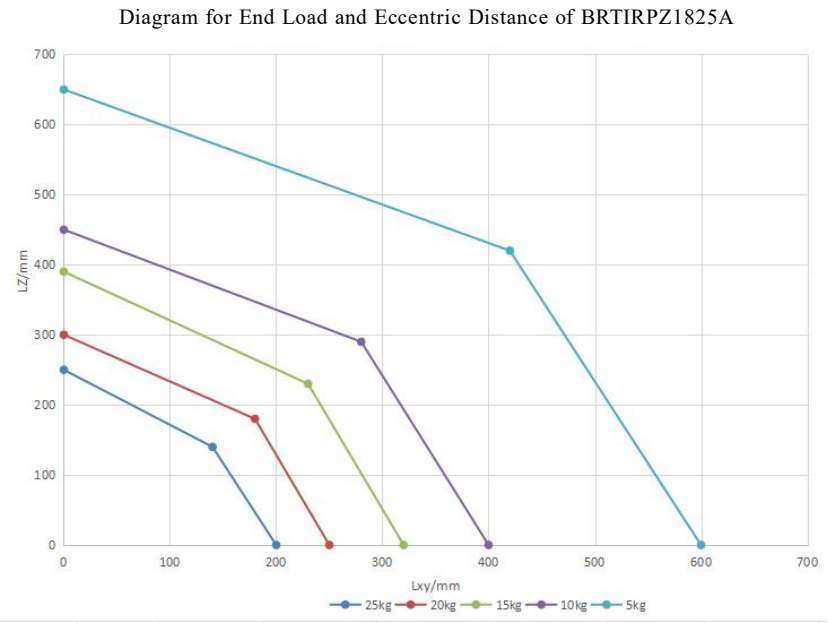
(1) stamping (2) palletizing (3) loading and unloading, etc.

2.3.5.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRPZ1825A

Model	BRTIRPZ1825A					
Number of axes	Axis 4					
Payload	25kg					
Repeated positioning accuracy	±0.08mm					
Max. radius of arm span	1800mm					
Body weight	Approx. 256kg					
Max. speed	J1	175°/s		J2	135°/s	
	J3	123°/s		J4	300°/s	
Motion range	J1	±155°		J2	-78°/+30°	
	J3	-62°/+70°		J4	±360°	
	R34	65°~170°		/	/	
Max. driving torque	J4	62.3N*m				
Max. rotational inertia	J4	0.145kg*m²				
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	220V±10% 50/60Hz	
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body		Brand	BORUNTE	
		Servo motor		Brand	BORUNTE	
		Reducer		Brand	BORUNTE	
		Electrical components		Brand	BORUNTE	
RV grease amount	J1	1700ML	J2	860ML	J3	660ML
	J4	/				
Wearing parts	NO					
Attached documents	USB					

2.3.5.3 Diagram of Robot Load Capacity



Note: BRTIRPZ1825A is designed with the rated load capacity up to 25kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center. Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.11 Diagram for Eccentric Load and Distance of BRTIRPZ1825A

2.3.5.4 Origin Calibration/Oil Injection Hole Position of Robot

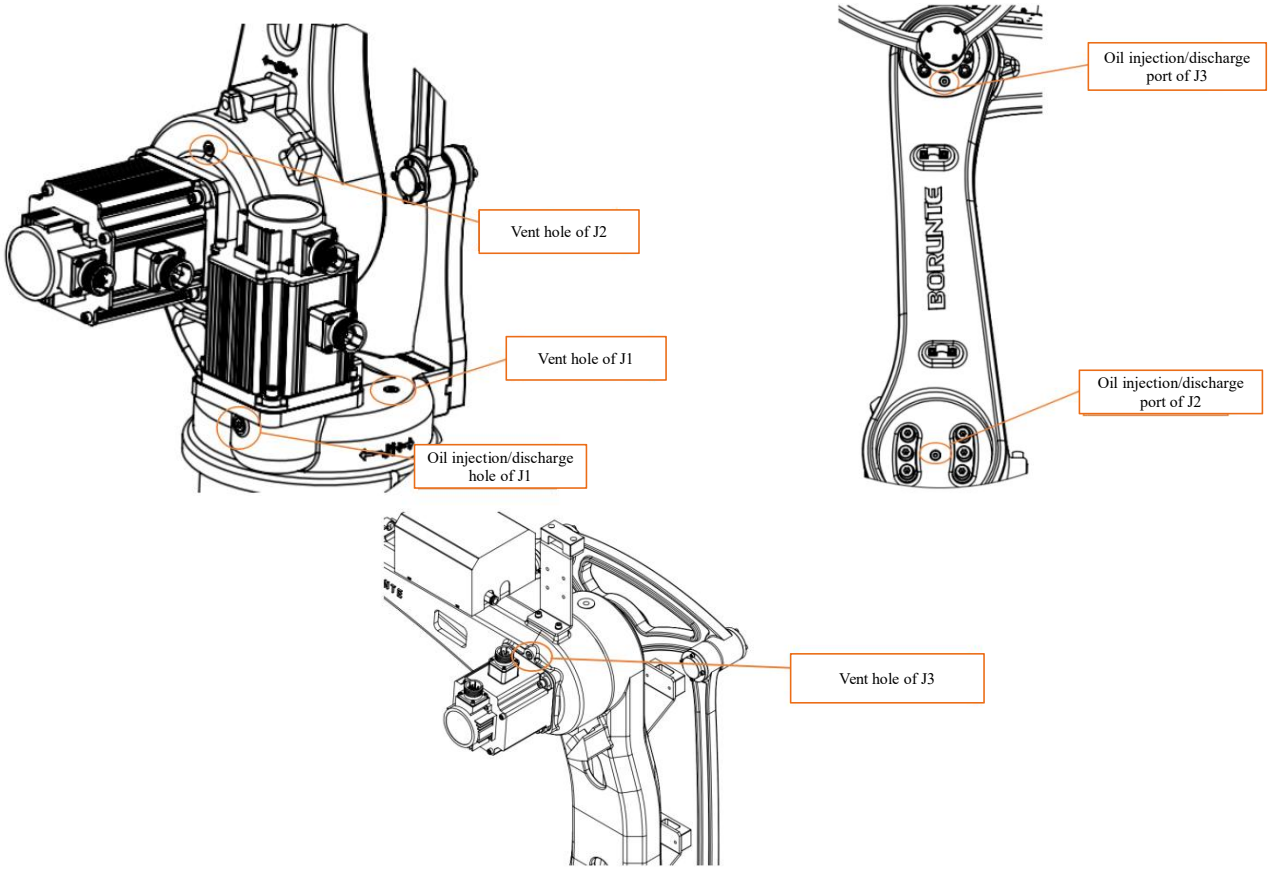


Fig. 2.3.12 Diagram for Oil Injection/discharge Hole of BRTIRPZ1825A

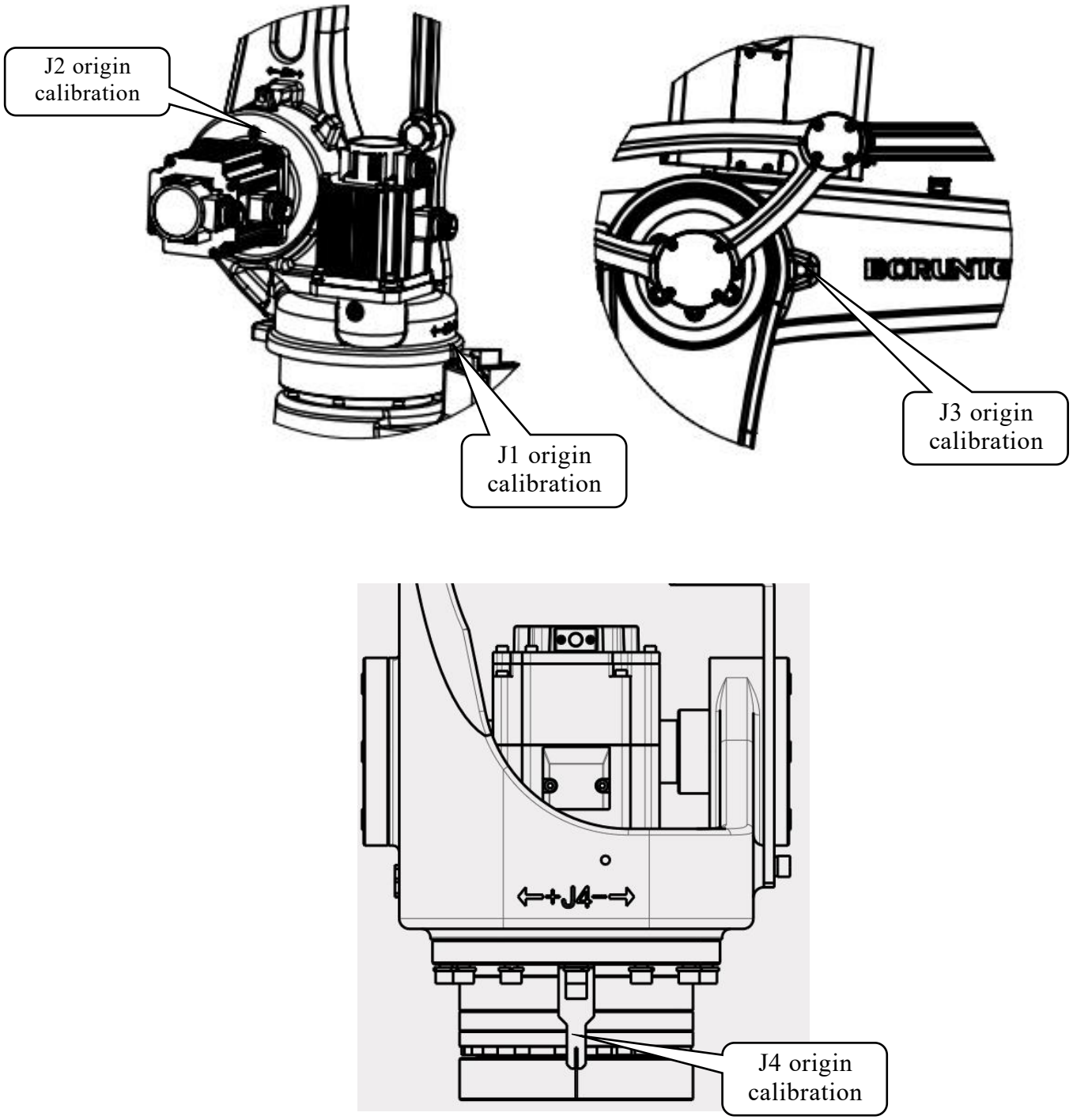


Fig. 2.3.13 Diagram for Origin Calibration of BRTIRPZ1825A

2.3.5.5 Diagram of Robot Handling and Hoisting

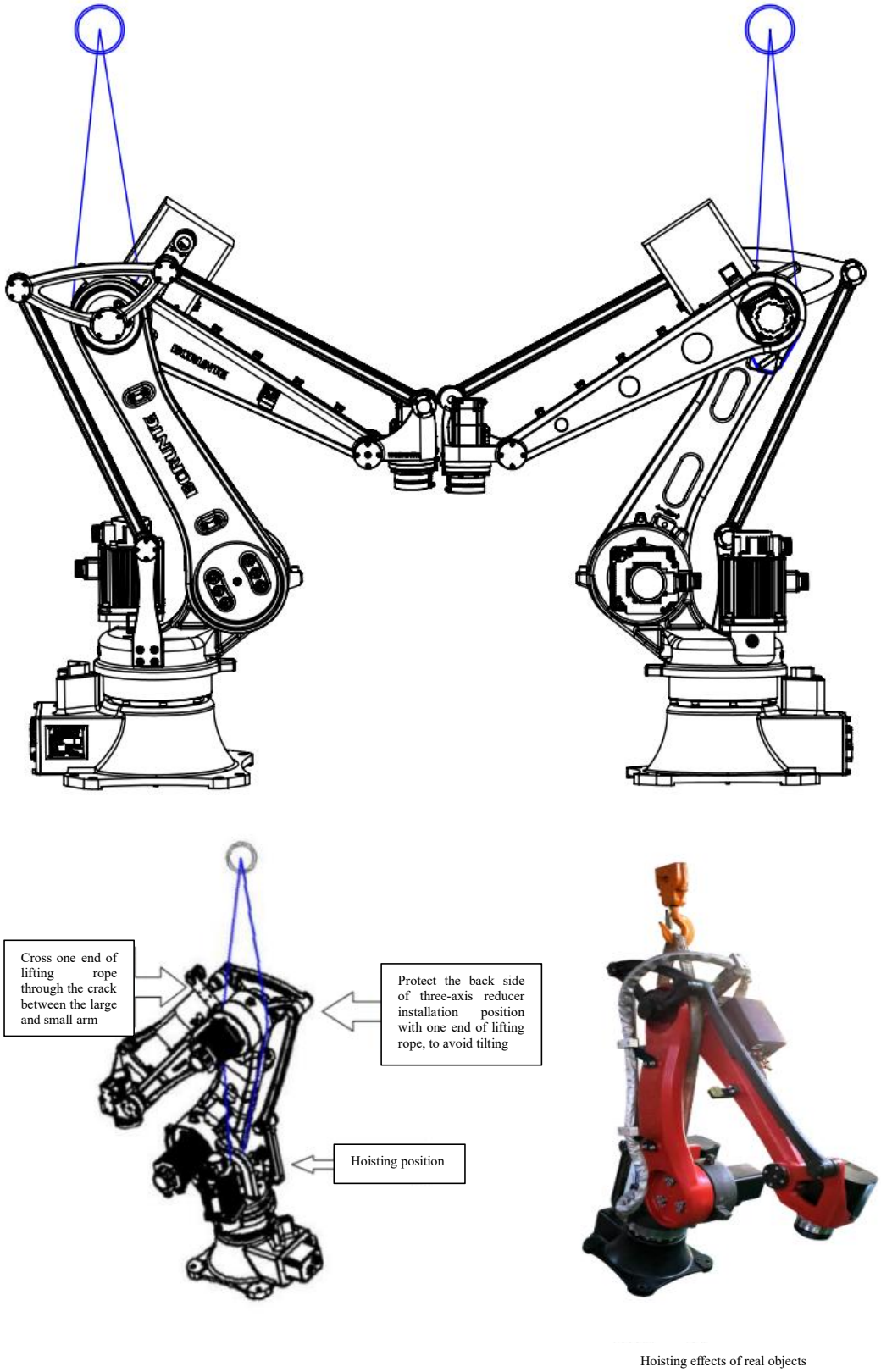


Fig. 2.3.14 Diagram for Handling and Hoisting of BRTIRPZ1825A Robot

2.3.6 Six-axis Robot BRTIRUS0401A (Version 21)

2.3.6.1 Introduction to BRTIRUS0401A Robot

2.3.6.1.1 Picture of BRTIRUS0401A Robot



2.3.6.1.2 Introduction to BRTIRUS0401A Robot

As a six-axis robot that is specially designed for the operation environment of micro-miniature parts, BRTIRUS0401A applies to the operation such as assembly, sorting and detection of small parts. With rated load of 1kg and arm span up to 574mm, it has the highest horizontal running speed and wide option range among the six-axis machines of the same load, and it is characterized by high accuracy, speed and flexibility.

High accuracy: Repeated positioning accuracy is ±0.06mm.

2.3.6.1.3 Application Scenarios of BRTIRUS0401A

(1) transporting (2) loading and unloading, etc.

2.3.6.2 Performance Parameter Table of Robot

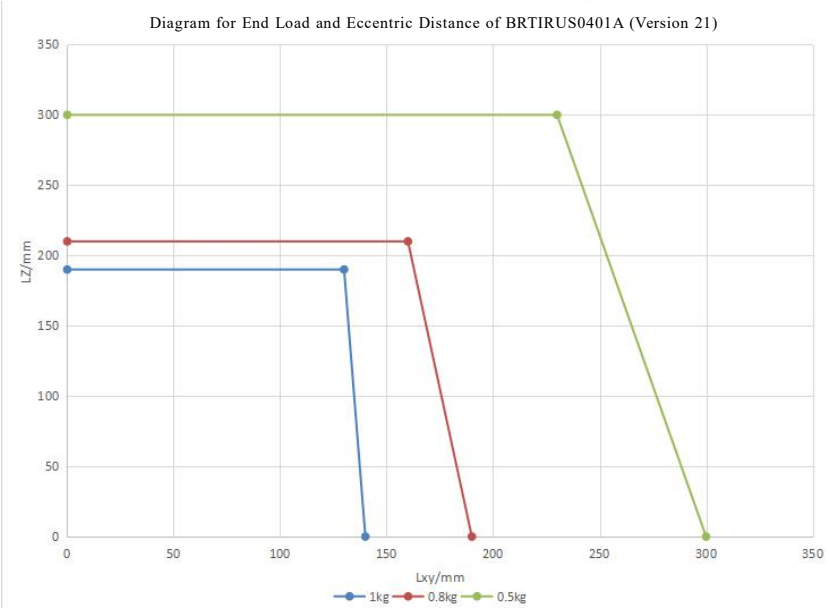
Performance Parameter Table of BRTIRUS0401A

Model	BRTIRUS0401A					
Number of axes	6 axes					
Payload	1kg					
Repeated positioning accuracy	±0.06mm					
Max. radius of arm span	574mm					
Body weight	Approx. 21kg					
Max. speed	J1	324°/s			J2	297°/s
	J3	337°/s			J4	562°/s
	J5	600°/s			J6	600°/s
Motion range	J1	±160°			J2	-120°/+60°
	J3	-60°/+180°			J4	±180°
	J5	±110°			J6	±360°
Allowable torque	J4	1.34N.m	J5	1.91N.m	J6	0.78N.m
Allowable inertia moment	J4	0.0165kg.M²	J5	0.023kg.M²	J6	0.0077kg.M²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	220V±10% 50/60Hz
Core Parts	Name	Operating system			Brand	BORUNTE
		Casting main body			Brand	BORUNTE
		Servo motor			Brand	BORUNTE
		Reducer			Brand	BORUNTE
		Electrical components			Brand	BORUNTE
RV grease amount	NO					
Wearing parts	Timing Belt	Tooth form 3M, 69 teeth, 8mm wide				
	Timing Belt	Tooth form 3M, 140 teeth, 6mm wide				
	Timing Belt	Tooth form 3M, 59 teeth, 6mm wide				
	Timing Belt	Tooth form 3M, 95 teeth, 6mm wide				
Attached documents	USB					

2.3.6.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRUS0401A

XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end



Note: BRTIRUS0401A is designed with the rated load capacity up to 1kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.15 Diagram for Handling and Hoisting of BRTIRUS0401A Robot

2.3.6.4 Origin Calibration/Oil Injection Hole Position of Robot

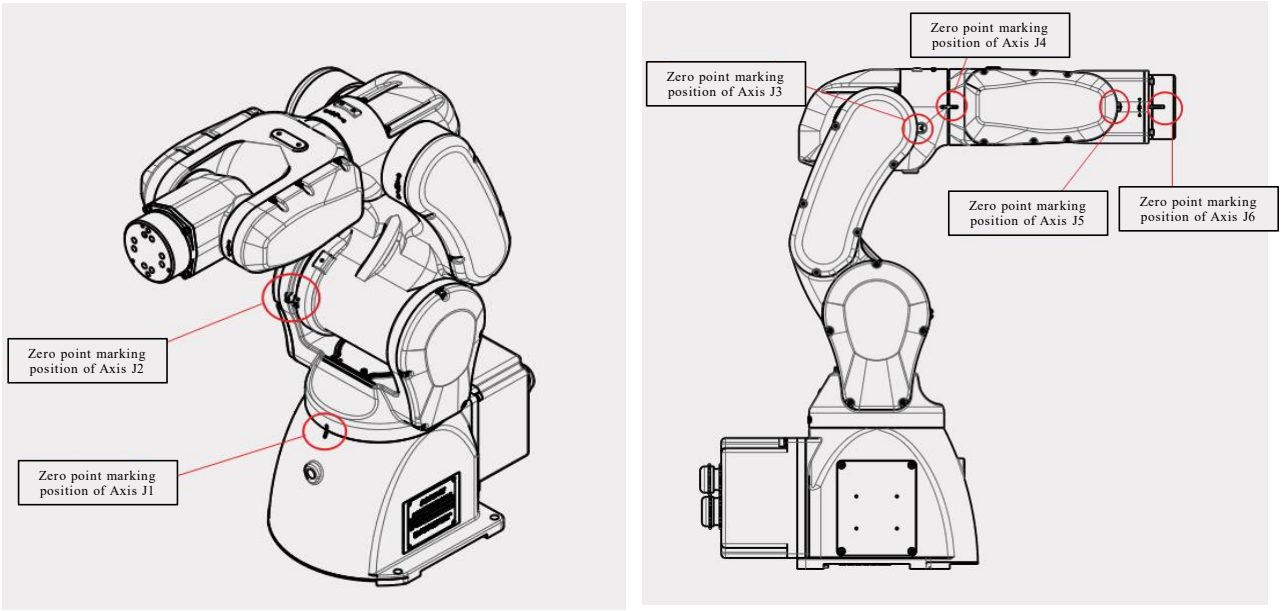


Fig. 2.3.16 Diagram for Origin Calibration of BRTIRUS0401A

2.3.6.5 Diagram of Machine Handling and Hoisting

A crane should be used while handling the robot. Please refer to Fig. 2.3.17 for the handling method. Firstly, set the robot gesture according to the gesture and angle of retracted machine, then cross the hoisting belt through the body of three axles and evade the corrugated pipe. The suggested length of hoisting belt is 1M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

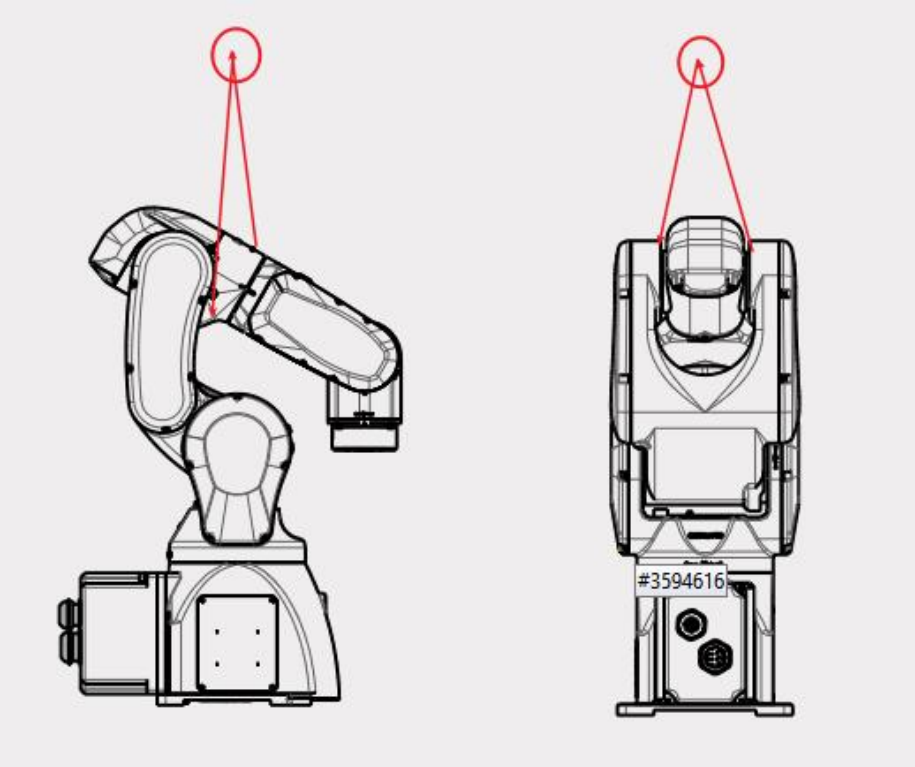


Fig. 2.3.17 Diagram for Handling and Hoisting of BRTIRUS0401A Robot

2.3.7 Six-axis Robot BRTIRUS0805A (Version 21)

2.3.7.1 Introduction to BRTIRUS0805A Robot

2.3.7.1.1 Picture of BRTIRUS0805A Robot



2.3.7.1.2 Introduction to BRTIRUS0805A Robot

BRTIRUS0805A robot is a six-axis robot developed by Borunte. Its entire system enjoys simple operation, compact structure, high positioning accuracy, good dynamic performance. With the load capacity of 5kg, it applies to the fields such as injection molding, piece receiving, stamping, handling, feeding/discharging, and applies to 30T-250T injection molding.

High protection grade: IP54,Dust-proof and water-proof.

High accuracy: Repeated positioning accuracy is ±0.05mm.

2.3.7.1.3 Application Scenarios of BRTIRUS0805A

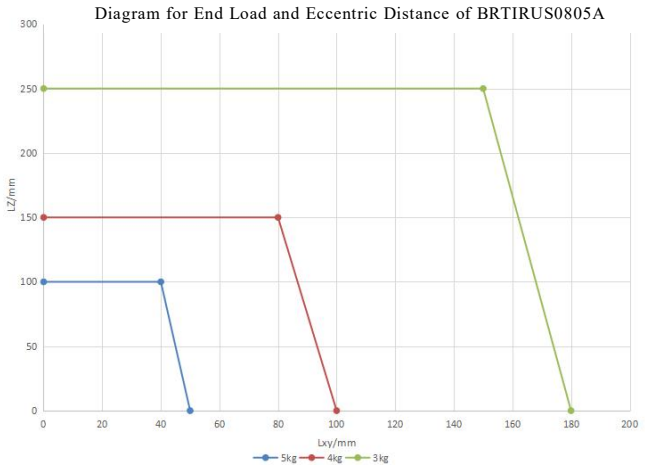
(1) stamping (2) transporting (3) loading and unloading, etc.

2.3.7.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS0805A

Model	BRTIRUS0805A					
Number of axes	Axis 6					
Payload	5kg					
IP grade	IP54,Dust-proof and water-proof					
Repeated positioning accuracy	±0.05mm					
Max. radius of arm span	990mm					
Body weight	Approx. 53kg					
Max. speed	J1	237°/s			J2	267°/s
	J3	370°/s			J4	337°/s
	J5	600°/s			J6	588°/s
Motion range	J1	±170°			J2	-98°/+80°
	J3	-80°/+95°			J4	±180°
	J5	±120°			J6	±360°
Allowable torque	J4	16N*m	J5	16N*m	J6	5.7N*m
Allowable inertia moment	J4	0.17kg*m²	J5	0.17kg*m²	J6	0.048kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	220V±10% 50/60Hz
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	NO					
Wearing parts	J1 timing belt	MBT233090506 timing belt 5M-09 belt width -68 teeth HP				
	J4 timing belt	MBT233080306 timing belt 3M-08 belt width -69 teeth HP				
	J5 timing belt	MBT233090301 timing belt 3M-09 belt width -130 teeth				
Attached documents	USB					

2.3.7.3 Diagram of Robot Load Capacity



Note: BRTIRUS0805A is designed with the rated load capacity up to 5kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.18 Diagram for Load Capacity of BRTIRUS0805A Robot

2.3.7.4 Origin Calibration/Oil Injection Hole Position of Robot

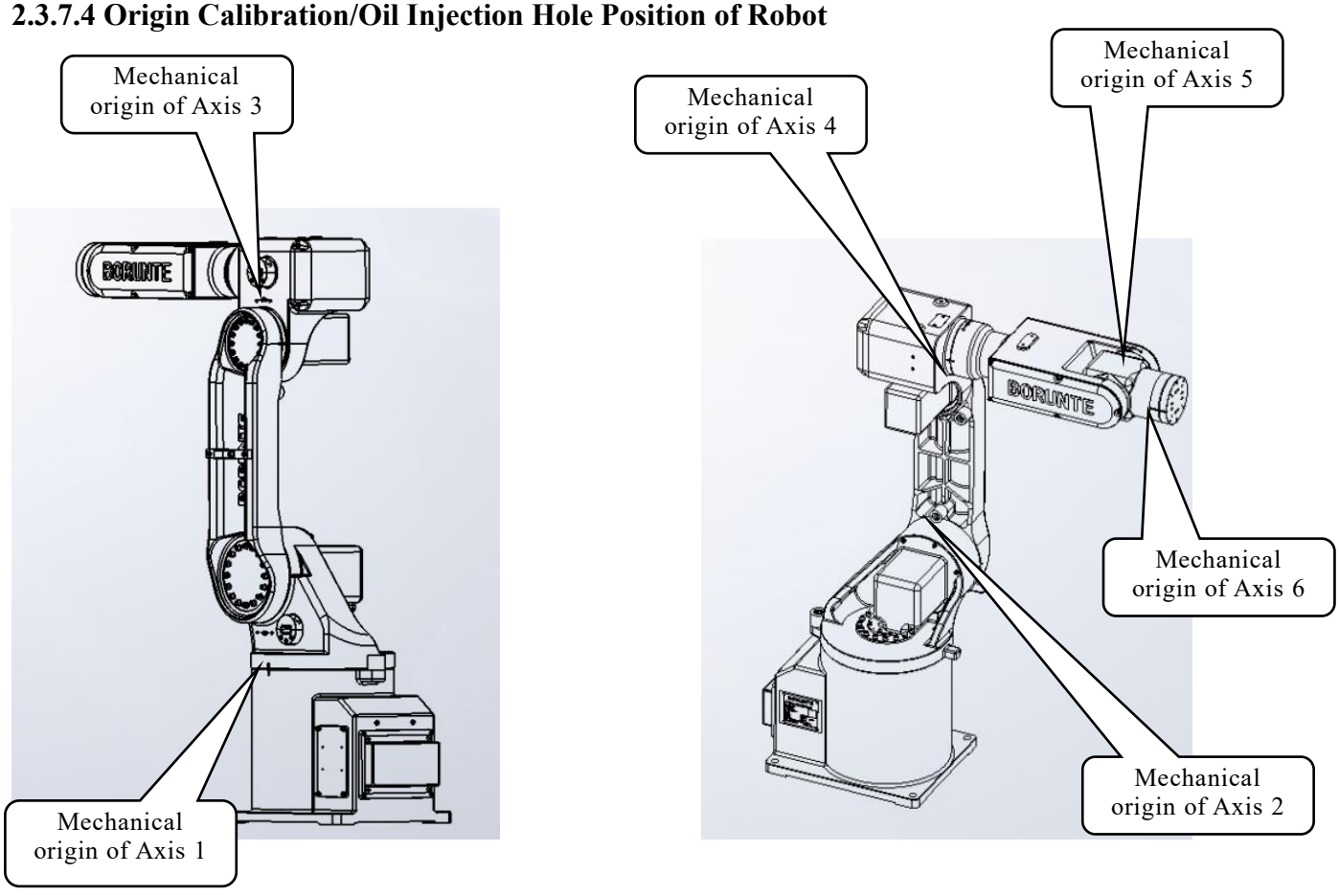


Fig. 2.3.19 Diagram for Origin Calibration of BRTIRUS0805A

2.3.7.5 Diagram of Robot Handling and Hoisting





Hoisting precautions



The hoisting belt should be fastened at the body of Axis 3 during hoisting. Do not fasten the hoisting belt at the body of Axis 5 to avoid damaging the harmonic reducer

The hoisting belt should be wrapped below the 3-axis motor. The force bearing point should not stay on the 3-axis motor



The hoisting belt should not press the wire fixing block



The hoisting belt should not press the anti-collision glue



Fig. 2.3.20 Diagram for Handling and Hoisting of BRTIRUS0805A Robot

2.3.8 Six-axis Robot BRTIRUS0707A (Version 21)

2.3.8.1 Introduction to BRTIRUS0707A Robot

2.3.8.1.1 Picture of BRTIRUS0707A Robot



2.3.8.1.2 Introduction to BRTIRUS0707A Robot

BRTIRUS0707A is a six-axis robot that is developed for monotonous, frequent and long-term operation, or operation under hazardous and severe environment. It has 883mm arm span and the max. load capacity up to 7kg. With the flexibility of multi-degree of freedom, it applies to the scenarios such as grinding, assembly and spraying.

High protection grade: IP65, dustproof and waterproof.

High accuracy: Repeated positioning accuracy is ±0.03mm.

2.3.8.1.3 Application Scenarios of BRTIRUS0707A

(1) assembly (2) spraying (3) loading and unloading, etc.

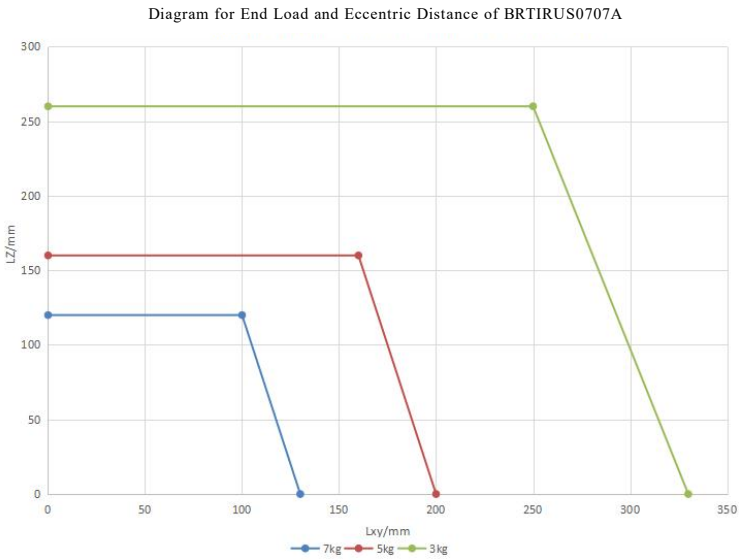
2.3.8.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS0707A

Model	BRTIRUS0707A					
Number of axes	Axis 6					
Payload	7kg					
IP grade	IP65, dustproof and waterproof					
Repeated positioning accuracy	±0.03mm					
Max. radius of arm span	883mm					
Body weight	Approx. 55kg					
Max. speed	J1	220.8°/s			J2	270°/s
	J3	375°/s			J4	308°/s
	J5	300°/s			J6	342°/s
Motion range	J1	±174°			J2	-125°/+85°
	J3	-60°/+165°			J4	±180°
	J5	±120°			J6	±360°
Allowable torque	J4	20.8N.m	J5	33.6N.m	J6	16.83N.m
Allowable inertia moment	J4	0.17kg.M²	J5	0.62kg.M²	J6	0.155kg.M²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	220V±10% 50/60Hz
Core Parts	Name	Operating system			Brand	BORUNTE
		Casting main body			Brand	BORUNTE
		Servo motor			Brand	BORUNTE
		Reducer			Brand	BORUNTE
		Electrical components			Brand	BORUNTE
RV grease amount	J4	50ML				
Wearing parts	J6 timing belt	MBT233060306 timing belt HP-3M-06 belt width-145 teeth belt length 435				
	J5 timing belt	MBT233060307 timing belt HP-3M-06 belt width-100 teeth belt length 300				
	J3 timing belt	MBT233090508 timing belt HP-5M-09 belt width-95 teeth belt length 475				
	J1 timing belt	MBT233090506 timing belt HTD-5M-HP-68 teeth -9mm wide				
Attached documents	USB					

2.3.8.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRUS0707A
XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end



Note: BRTIRUS0707A is designed with the rated load capacity up to 7kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.21 Diagram for Eccentric Load and Distance of BRTIRUS0707A

2.3.8.4 Origin Calibration/Oil Injection Hole Position of Robot

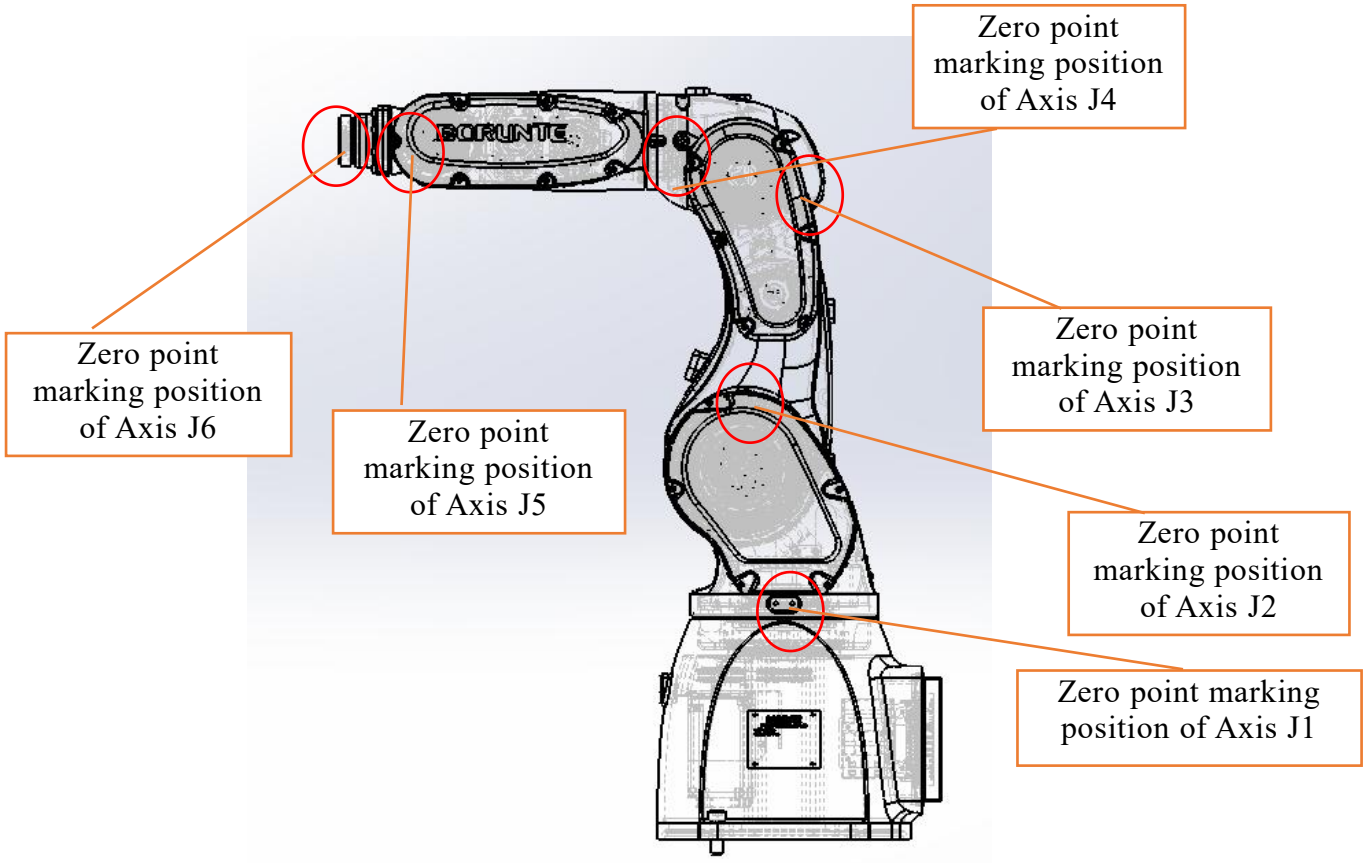


Fig. 2.3.22 Diagram for Origin Calibration of BRTIRUS0707A

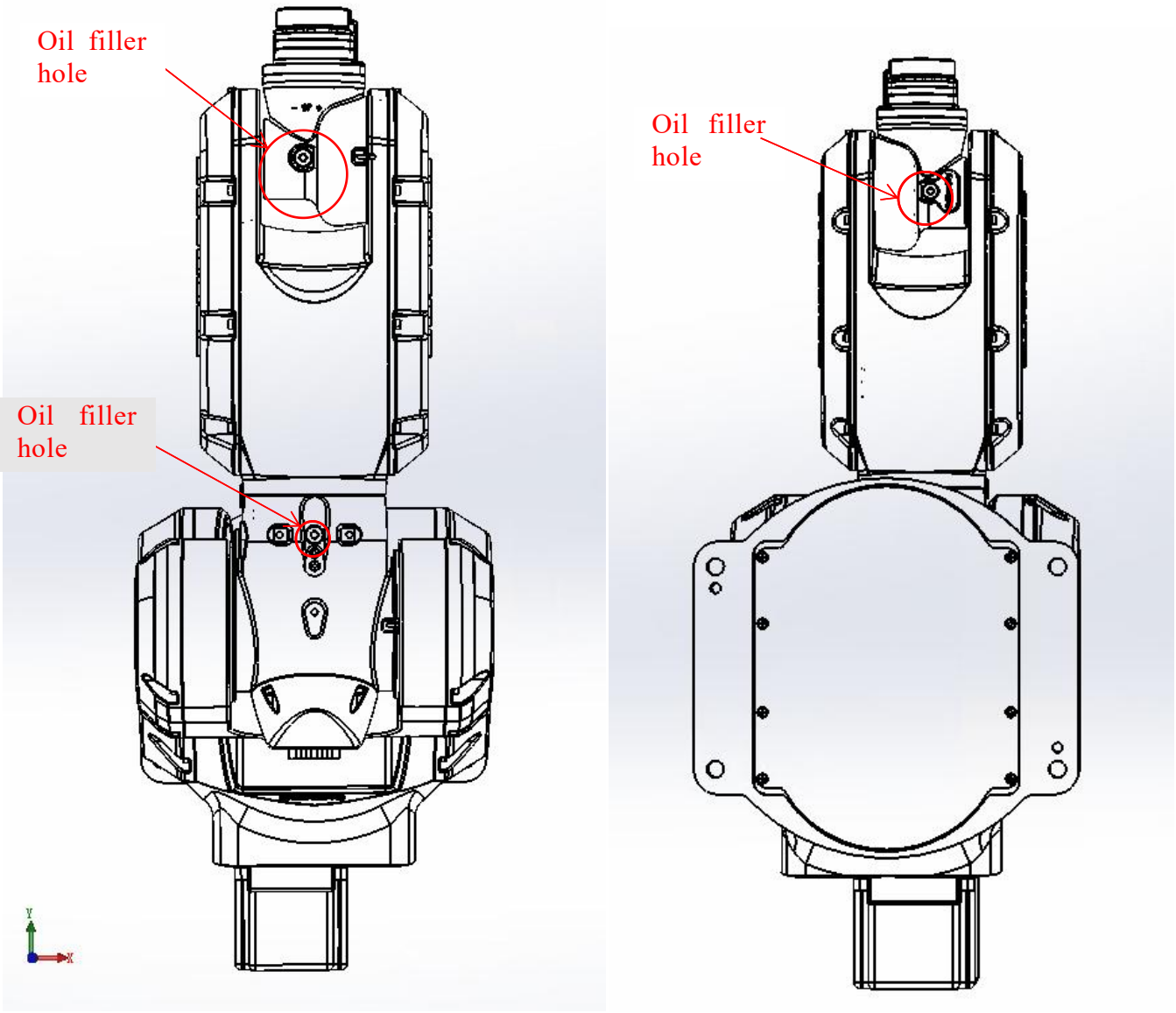


Fig. 2.3.23 Diagram for Oil Injection/discharge of BRTIRUS0707A

2.3.8.5 Diagram of Machine Handling and Hoisting

A crane should be used while handling the robot. Please refer to Fig. 2.3.24 for the handling method. First, set the robot gesture according to the gesture and angle of machine received, then cross the hoisting belt through the body of three axles and keep clear of the corrugated pipe. The suggested length of hoisting belt is 1.8M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.



Fig. 2.3.24 Diagram for Handling and Hoisting of BRTIRUS0707A Robot

2.3.9 Six-axis Robot BRTIRUS1510A (Version 21)

2.3.9.1 Introduction to BRTIRUS1510A Robot

2.3.9.1.1 Picture of BRTIRUS1510A Robot



2.3.9.1.2 Introduction to BRTIRUS1510A Robot

BRTIRUS1510A is a six-axis robot that is developed by Borunte for the complex applications with multiple degrees of freedom. Its max. load can reach 10kg and has 1,587mm arm span. Designed with lightweight arm, compact and concise mechanical structure, the robot can have flexible operation in narrow working space, to meet the requirements of flexible production. With six degrees of freedom, it applies to the scenarios such as feeding/discharging, injection molding, casting, assembly, gluing, grinding and detection. Simple operation - Huacheng control system is adopted. Applicable injection molding machines: 200T-600T.

High protection grade:IP54,Dust-proof and water-proof.

High accuracy: Repeated positioning accuracy is ±0.05mm.

2.3.9.1.3 Application Scenarios of BRTIRUS1510A

(1) welding (2) injection molding (3) stamping (4) loading and unloading, etc.

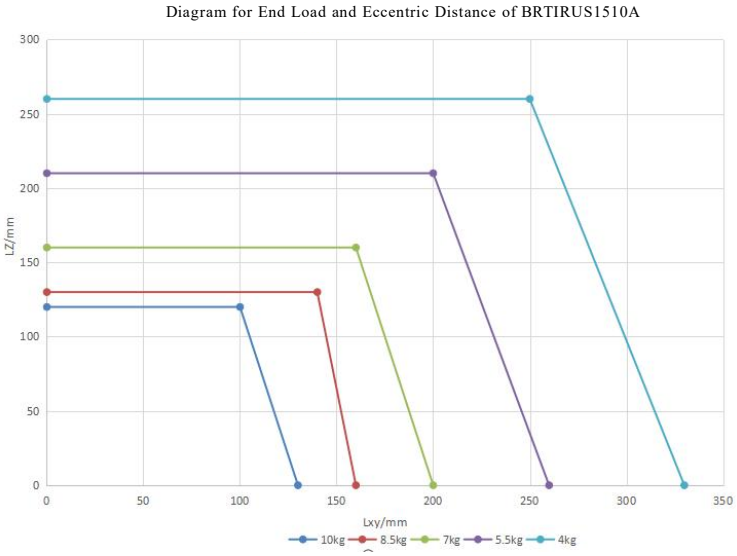
2.3.9.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS1510A

Model	BRTIRUS1510A					
Number of axes	Axis 6					
Payload	10kg					
IP grade	IP54,Dust-proof and water-proof					
Repeated positioning accuracy	±0.05mm					
Max. radius of arm span	1587mm					
Body weight	152kg					
Max. speed	J1	190°/s			J2	173°/s
	J3	223°/s			J4	254°/s
	J5	270°/s			J6	342°/s
Motion range	J1	±165°			J2	-95°/+70°
	J3	-85°/+75°			J4	±180°
	J5	±115°			J6	±360°
Allowable torque	J4	32.8N*m	J5	32.8N*m	J6	17N*m
Allowable inertia moment	J4	0.46kg*m²	J5	0.62kg*m²	J6	0.155kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	220V±10% 50/60Hz
Core Parts	Name	Operating system	Brand		BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	900ML	J2	800ML	J3	400ML
	J4	50ML	J5	/	J6	/
Wearing parts	J4 timing belt	MBT233080303 timing belt 3M-08 belt width -89 teeth				
	J5 timing belt	MBT233080301 timing belt 3M-08 belt width -117 teeth				
Attached documents	USB					

2.3.9.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRUS1510A XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end

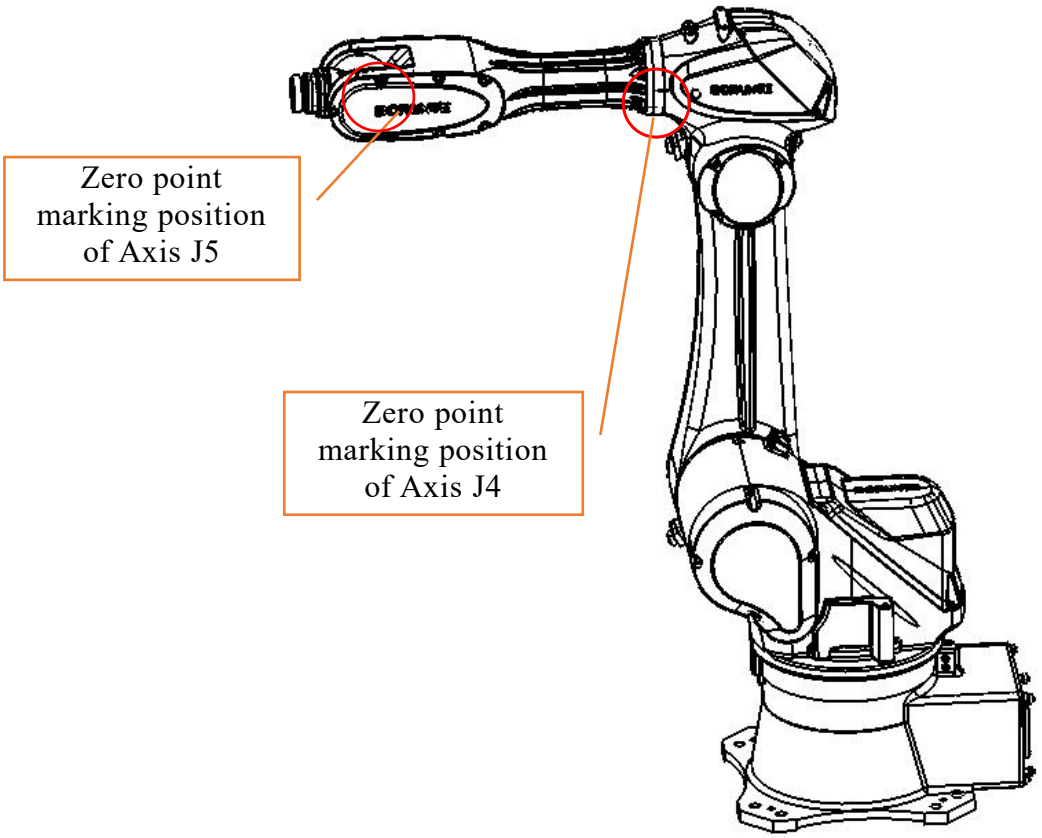


Note: BRTIRUS1510A is designed with the rated load capacity up to 10kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.25 Diagram for Eccentric Load and Distance of BRTIRUS1510A

2.3.9.4 Origin Calibration/Oil Injection Hole Position of Robot



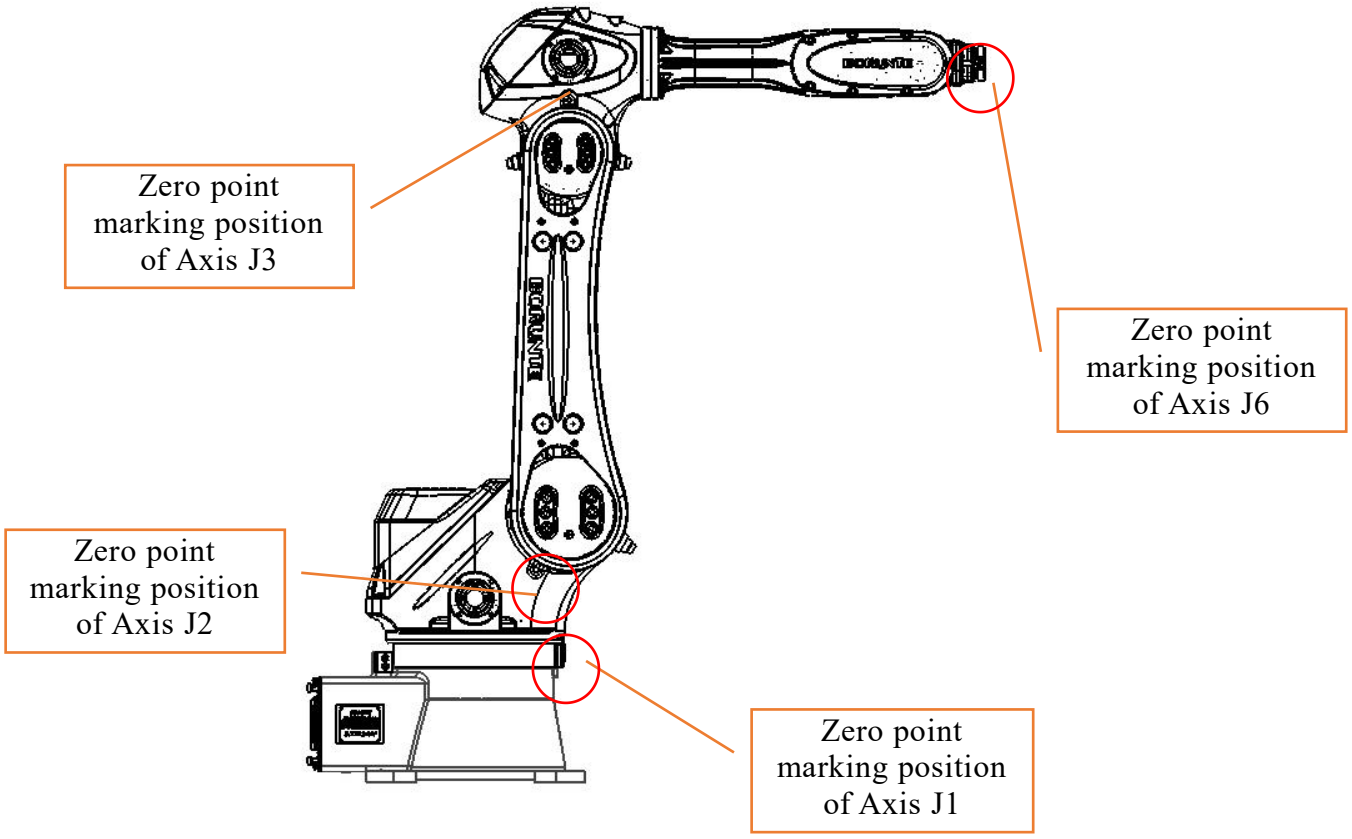


Fig. 2.3.26 Diagram for Origin Calibration of BRTIRUS1510A

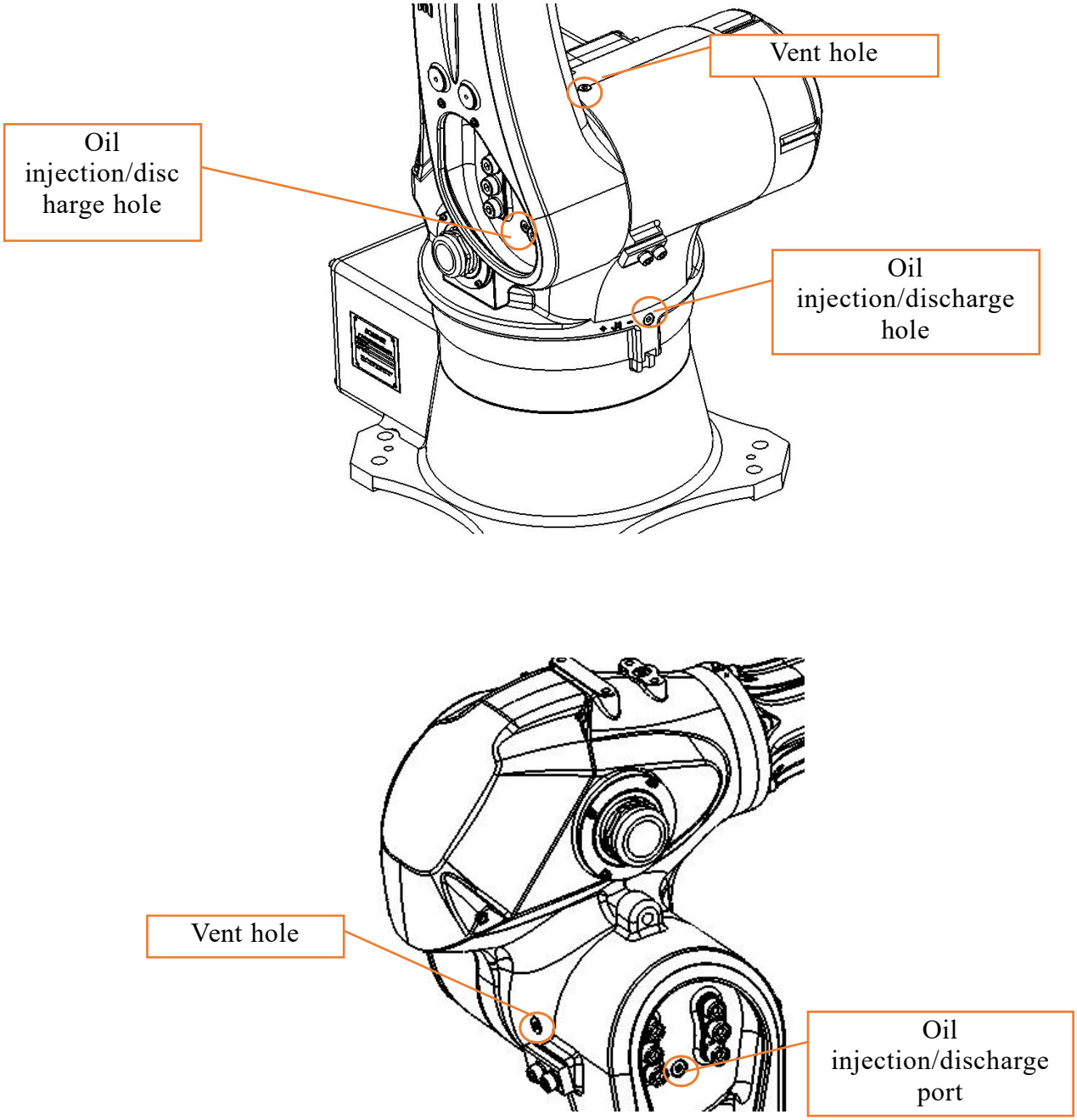


Fig. 2.3.27 Diagram for Oil Injection/discharge of BRTIRUS1510A

2.2.9.5 Diagram of Machine Handling and Hoisting

A crane should be used while handling the robot. Please refer to Fig. 2.3.28 for the handling method. Firstly, set the robot gesture according to the gesture and angle of retracted machine, then cross the hoisting belt through the body of three axles and evade the corrugated pipe. The suggested length of hoisting belt is 1M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

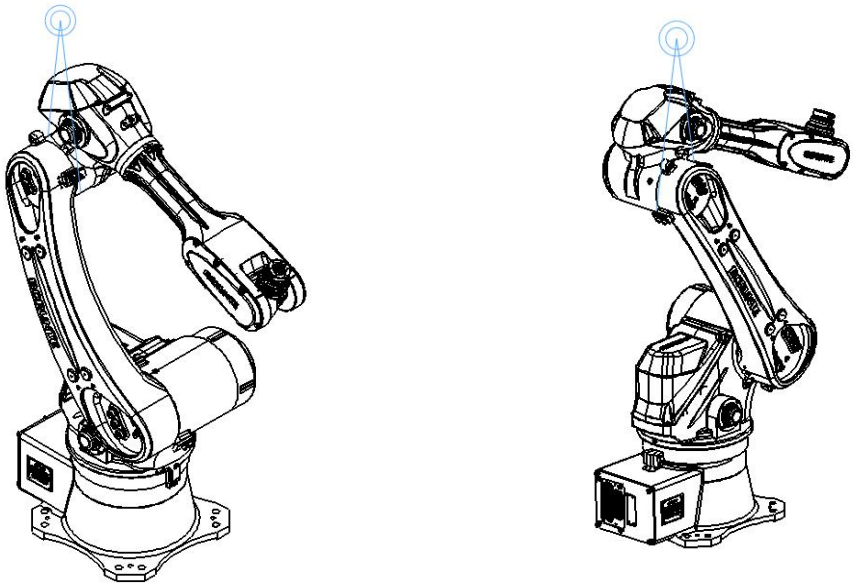


Fig. 2.3.28 Diagram for Handling and Hoisting of BRTIRUS1510A Robot

2.3.10 Six-axis Robot BRTIRUS1820A (Version 21)

2.3.10.1 Introduction to BRTIRUS1820A Robot

2.3.10.1.1 Picture of BRTIRUS1820A Robot



2.3.10.1.2 Introduction to BRTIRUS1820A Robot

BRTIRUS1820A is a six-axis robot that is developed by Borunte for the complex applications with multiple degrees of freedom. Its max. load can reach 20kg and has 1,895mm arm span. Designed with lightweight arm, compact and concise mechanical structure, the robot can have flexible operation in narrow working space, to meet the requirements of flexible production. With six degrees of freedom, it applies to the scenarios such as feeding/discharging, injection molding, casting, assembly, gluing, grinding and detection. Applicable injection molding machines: 500T-1300T.

High protection grade: IP54 for wrist, IP40 for main body.

High accuracy: Repeated positioning accuracy is ±0.05mm.

2.3.10.1.3 Application Scenarios of BRTIRUS1820A

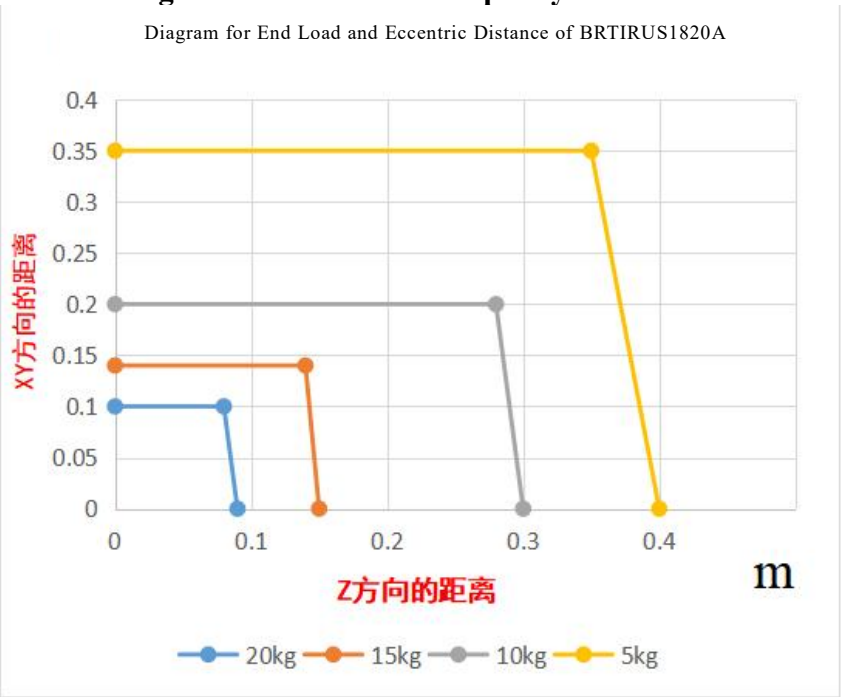
(1) injection molding (2) stamping (3) transporting (4) loading and unloading, etc.

2.3.10.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS1820A

Model	BRTIRUS1820A					
Number of axes	Axis 6					
Payload	20kg					
IP grade	IP54 for wrist, IP40 for main body					
Repeated positioning accuracy	±0.05mm					
Max. radius of arm span	1895mm					
Body weight	Approx. 230kg					
Max. speed	J1	110°/s		J2	146°/s	
	J3	134°/s		J4	273°/s	
	J5	240°/s		J6	375°/s	
Motion range	J1	±155°		J2	-140°/+65°	
	J3	-75°/+110°		J4	±180°	
	J5	±115°		J6	±360°	
Allowable torque	J4	52N.m	J5	56N.m	J6	51.2N.m
Allowable inertia moment	J4	0.664048kg.M²	J5	1.12kg.M²	J6	0.3968kg.M²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	220V±10% 50/60Hz	
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	1400ML	J2	1000ML	J3	800ML
	J4	250ML	J5	/	J6	/
Wearing parts	Timing Belt	MBT233080505 timing belt 5M-8 belt width -85 teeth				
Attached documents	USB					

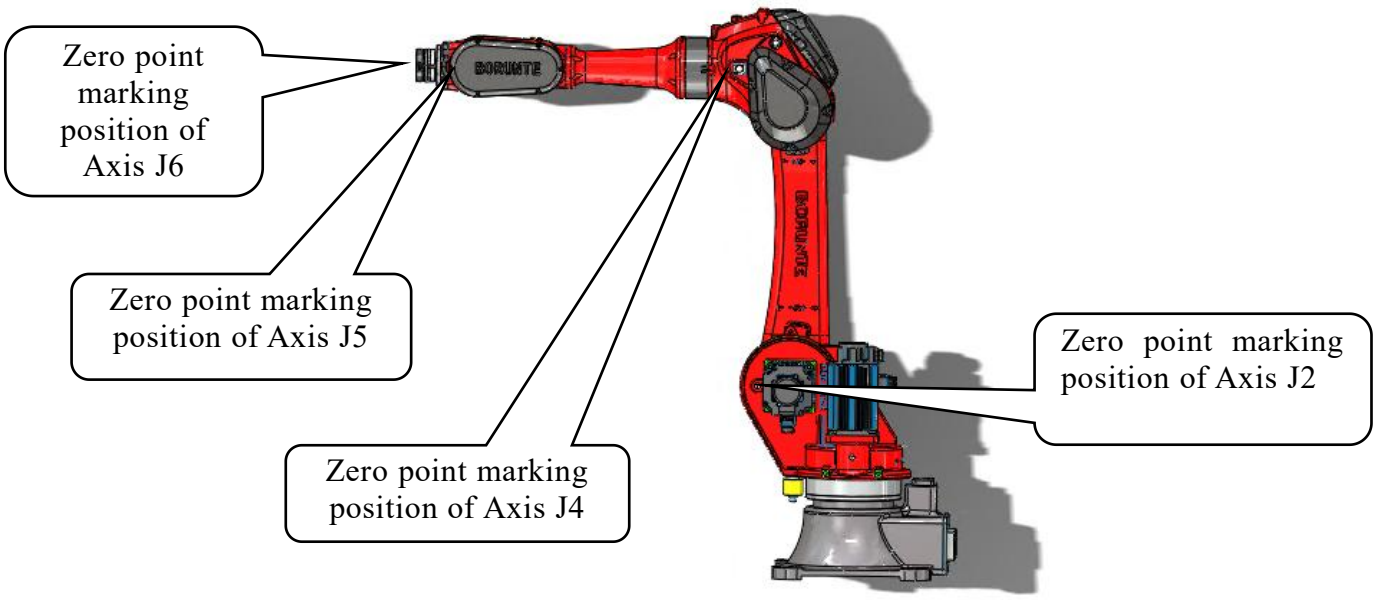
2.3.10.3 Diagram of Robot Load Capacity



Note: BRTIRUS1820A is designed with the rated load capacity up to 20kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.29 Diagram for Handling and Hoisting of BRTIRUS1820A Robot

2.3.10.4 Origin Calibration/Oil Injection Hole Position of Robot



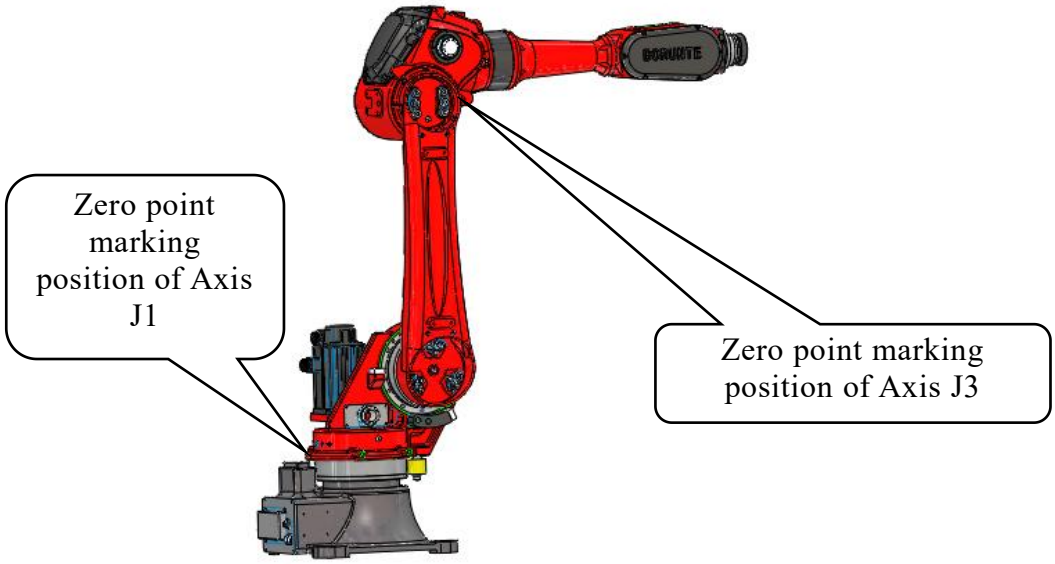


Fig. 2.3.30 Diagram for Origin Calibration of BRTIRUS1820A

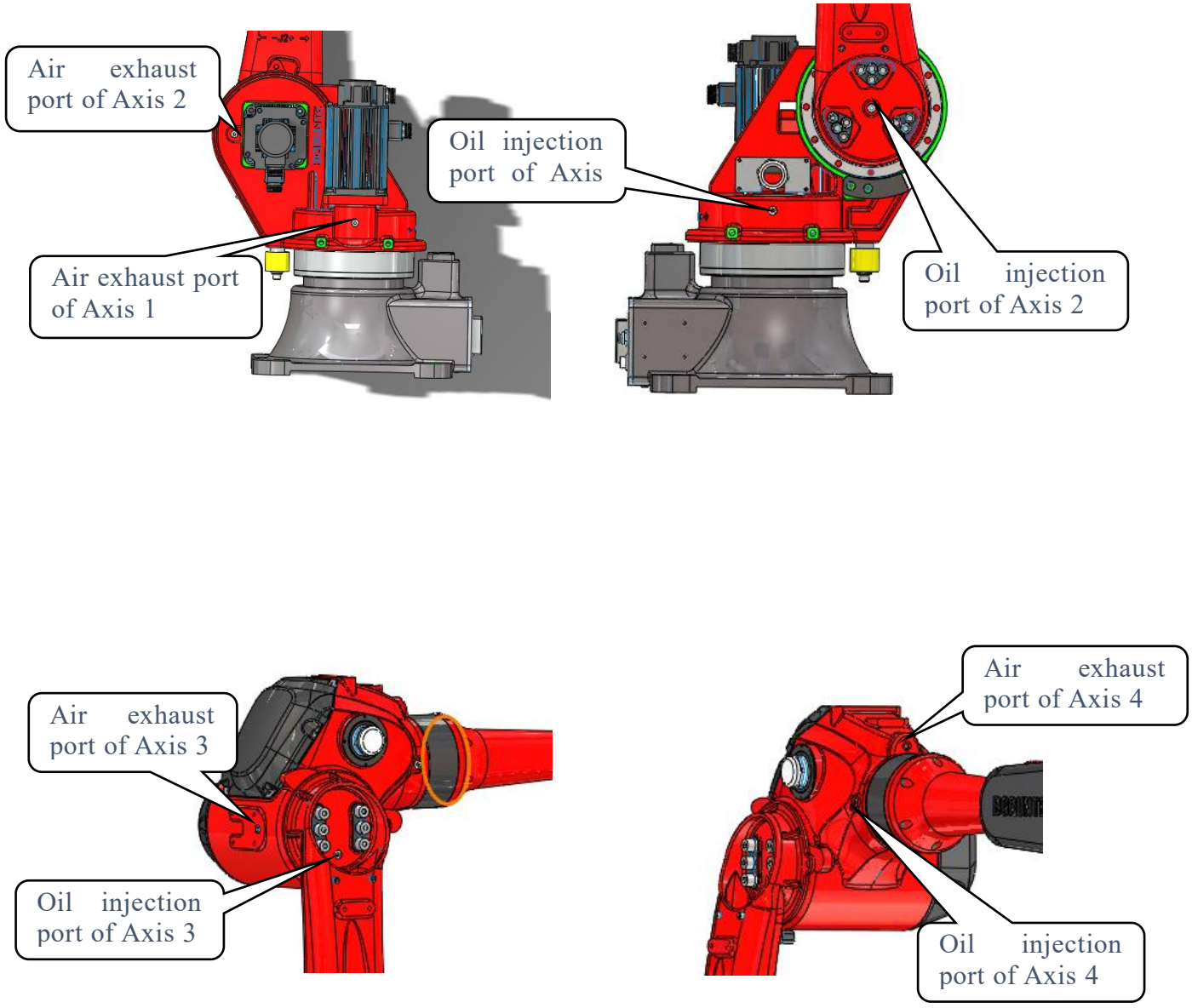


Fig. 2.3.31 Diagram for Oil Injection/discharge of BRTIRUS1820A

2.3.10.5 Diagram of Machine Handling and Hoisting

A crane should be used while handling the robot. Please refer to Fig. 2.3.32 for the handling method. Firstly, set the robot gesture according to the gesture and angle of retracted machine, then cross the hoisting belt through the body of three axles and evade the corrugated pipe. The suggested length of hoisting belt is 1M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

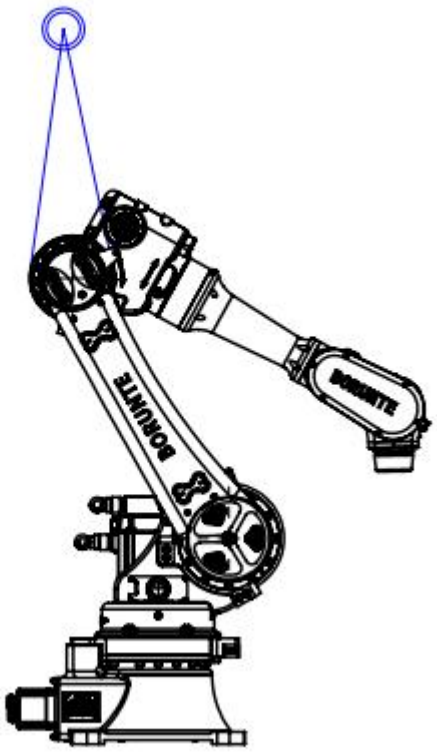


Fig. 2.3.32 Diagram for Handling and Hoisting of BRTIRUS1820A Robot

2.3.11 Six-axis Robot BRTIRUS2110A (Version 21)

2.3.11.1 Introduction to BRTIRUS2110A Robot

2.3.11.1.1 Picture of BRTIRUS2110A Robot



2.3.11.1.2 Introduction to BRTIRUS2110A Robot

BRTIRUS2110A is a six-axis robot that is developed by Borunte for the complex applications with multiple degrees of freedom. It has arm span up to 2,131mm and the max. load can reach 10kg. With the flexibility of multi-degree of freedom, it applies to the scenarios such as welding, feeding/discharging and assembly.

High accuracy: Repeated positioning accuracy is ±0.05mm.

2.3.11.1.3 Application Scenarios of BRTIRUS2110A

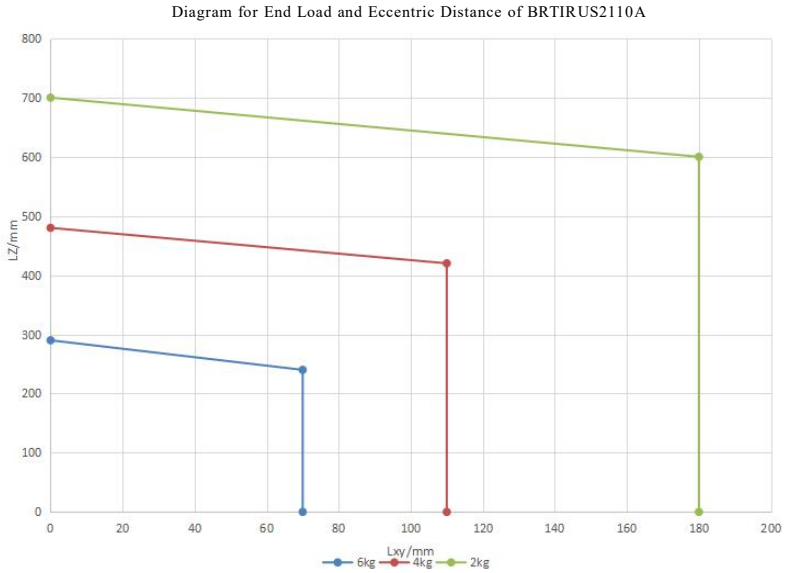
(1) welding (2) injection molding (3) stamping (4) loading and unloading, etc.

2.3.11.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS2110A

Model	**BRTIRUS2110A**					
Number of axes	6 axes					
Payload	10kg					
Repeated positioning accuracy	±0.05mm					
Max. radius of arm span	2131mm					
Body weight	Approx. 230kg					
Max. speed	J1	110°/s			J2	146°/s
	J3	134°/s			J4	273°/s
	J5	300°/s			J6	342°/s
Motion range	J1	±155°			J2	-140° /+65°
	J3	-75°/+110°			J4	±180°
	J5	±115°			J6	±360°
Allowable torque	J4	52N*m	J5	33.6N*m	J6	16.8N*m
Allowable inertia moment	J4	0.664kg*m²	J5	1.12kg*m²	J6	0.155kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	220V±10% 50/60Hz
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	1400ML	J2	1000ML	J3	800ML
	J4	250ML	J5	/	J6	/
Wearing parts	Timing Belt	Tooth form 3M, 100 teeth, 6mm wide, reinforced type				
	Timing Belt	Tooth form 3M, 145 teeth, 6mm wide, reinforced type				
Attached documents	USB					

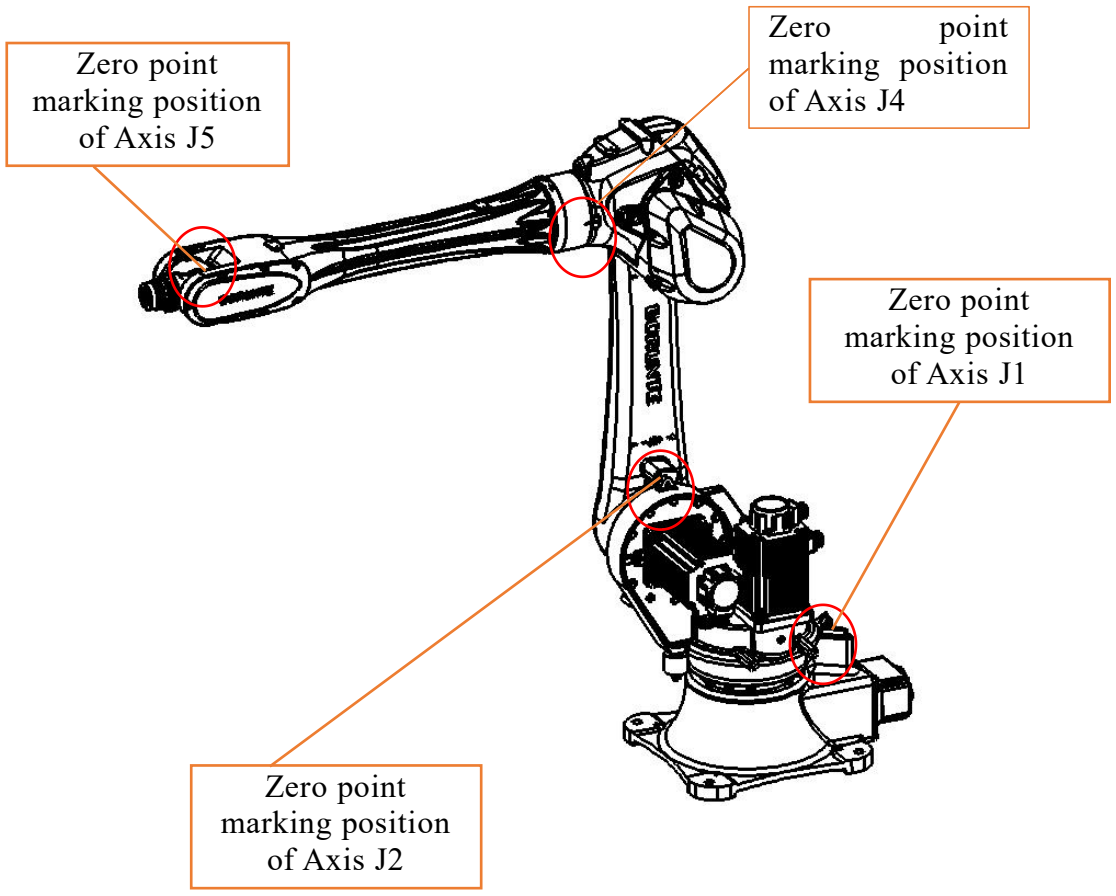
2.3.11.3 Diagram of Robot Load Capacity



Note: BRTIRUS2110A is designed with the rated load capacity up to 10kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

2.3.33 Diagram for Eccentric Load and Distance of BRTIRUS2110A

2.3.11.4 Origin Calibration/Oil Injection Hole Position of Robot



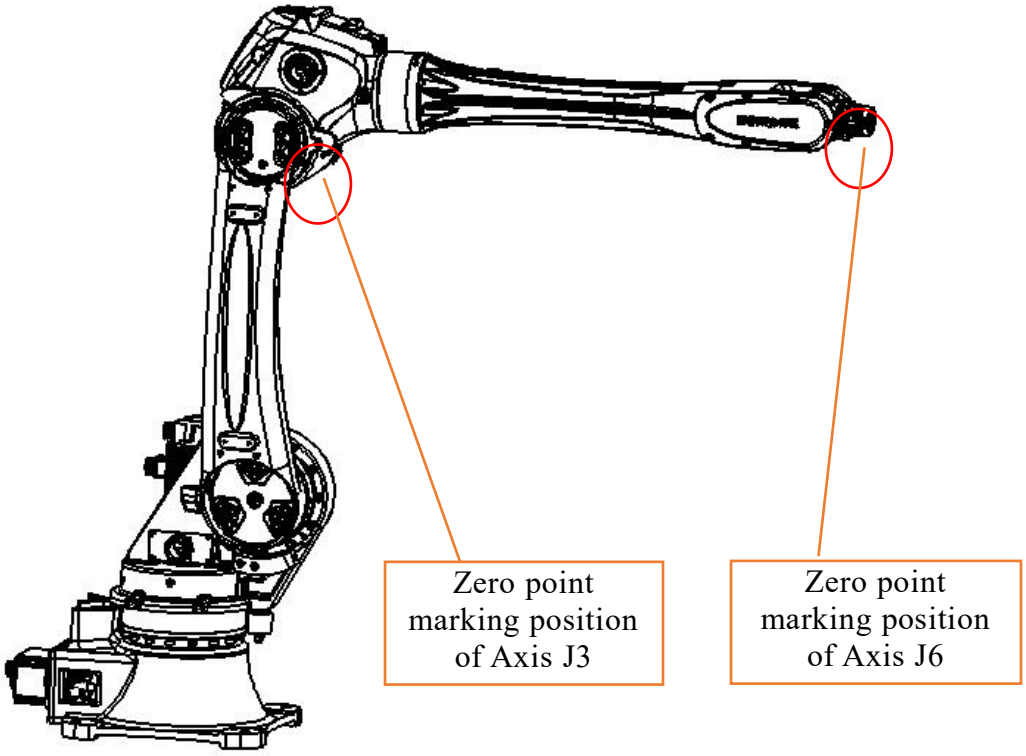


Fig. 2.3.34 Diagram for Origin Calibration of BRTIRUS2110A

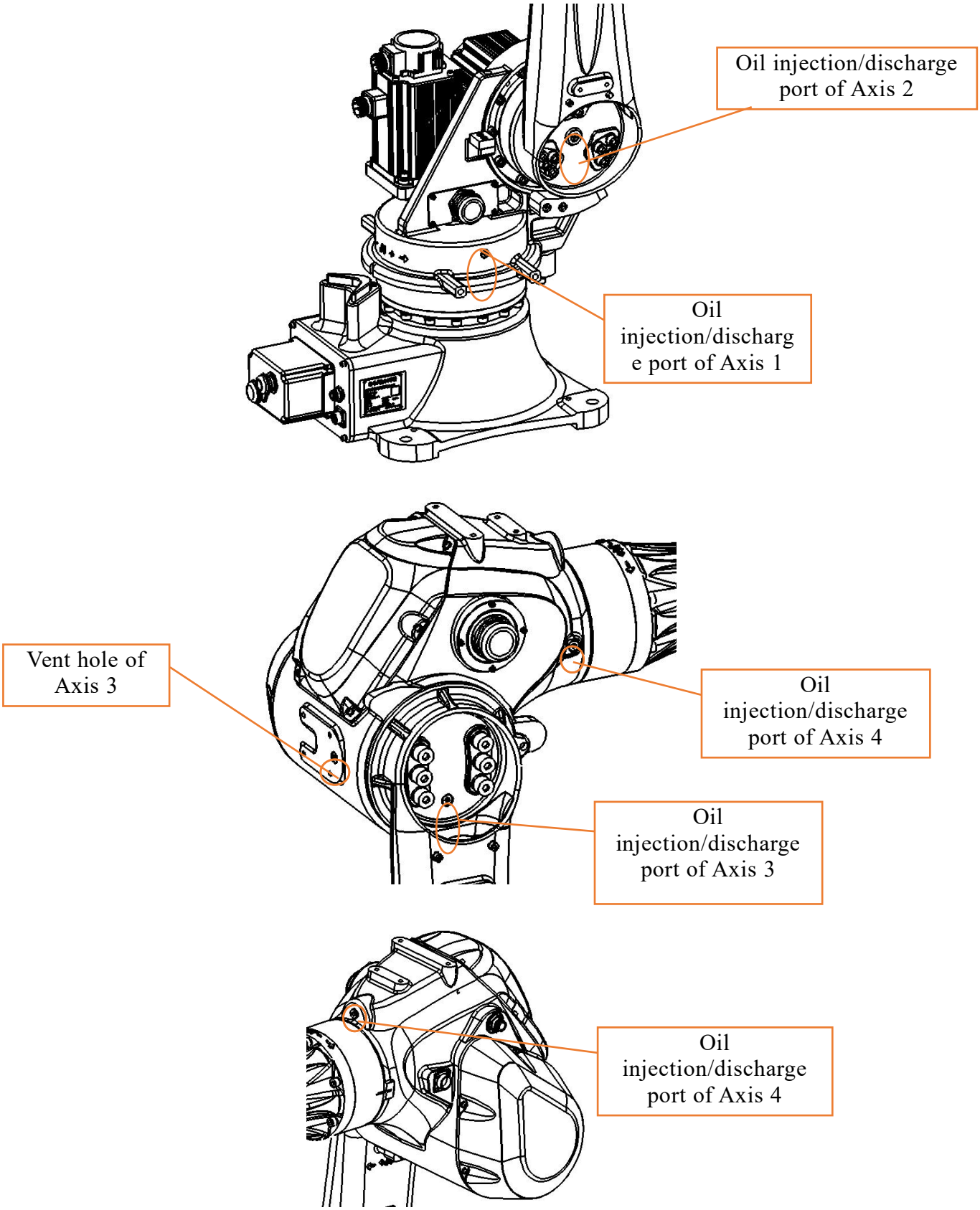


Fig. 2.3.35 Diagram for Oil Injection/discharge of BRTIRUS2110A

2.3.11.5 Diagram of Machine Handling and Hoisting

A crane should be used while handling the robot. Please refer to the figure below for the handling method. Firstly, set the robot gesture according to the gesture and angle of machine received, then cross the hoisting belt through the body of three axles and evade the corrugated pipe. The suggested length of hoisting belt is 2M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

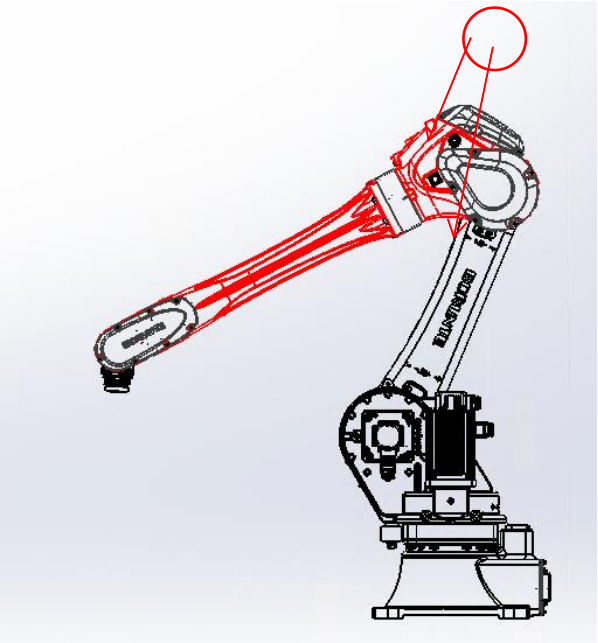


Fig. 2.3.36 Diagram for Handling and Hoisting of RTIRUS2110A Robot

2.3.12 Six-axis Robot BRTIRUS2030A (Version 21)

2.3.12.1 Introduction to BRTIRUS2030A Robot

2.3.12.1.1 Picture of BRTIRUS2030A Robot



2.3.12.1.2 Introduction to BRTIRUS2030A Robot

BRTIRUS2030A is a six-axis robot that is developed by Borunte for the complex applications with multiple degrees of freedom. With the max. load capacity up to 30kg, arm span of 2,068 mm and flexibility of six degrees of freedom, the robot applies to the scenarios such as receiving of plastic parts, feeding/discharging of machine tool, assembly and handling.

High protection grade: IP54 for wrist, IP50 for main body.

High accuracy: Repeated positioning accuracy is ±0.08mm.

2.3.12.1.3 Application Scenarios of BRTIRUS2030A

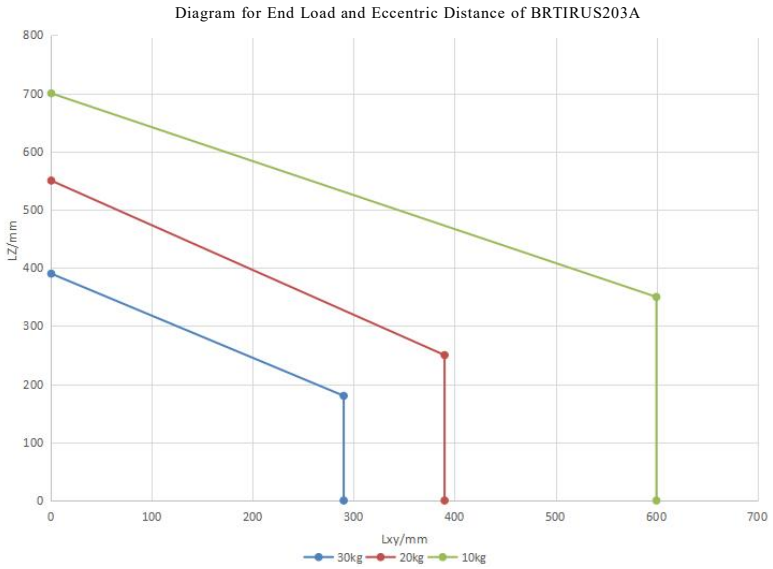
(1) injection molding (2) stamping (3) transporting (4) loading and unloading, etc.

2.3.12.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS2030A

Model	BRTIRUS2030A					
Number of axes	Axis 6					
Payload	30kg					
IP grade	IP54 for wrist, IP50 for main body					
Repeated positioning accuracy	±0.05mm					
Max. radius of arm span	2068mm					
Body weight	Approx. 310kg					
Max. speed	J1	102°/s			J2	103°/s
	J3	123°/s			J4	245°/s
	J5	270°/s			J6	337°/s
Motion range	J1	±150°			J2	-90°/+70°
	J3	-55°/+105°			J4	±180°
	J5	±115°			J6	±360°
Max. driving torque	J4	54.1N*m	J5	67.4N*m	J6	60.7N*m
Max. rotational inertia	J4	1.69kg*m²	J5	1.54kg*m²	J6	1.5kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	220V±10% 50/60Hz
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	2200ML	J2	1100ML	J3	1100ML
	J4	700ML	J5	/	J6	/
Wearing parts	Timing Belt	MBT233090502 timing belt 450-5MHP-9 belt width -89 teeth				
Attached documents	USB					

2.3.12.3 Diagram of Robot Load Capacity



Note: BRTIRUS2030A is designed with the rated load capacity up to 30kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.37 Diagram for Handling and Hoisting of BRTIRUS2030A Robot

2.3.12.4 Origin Calibration/Oil Injection Hole Position of Robot

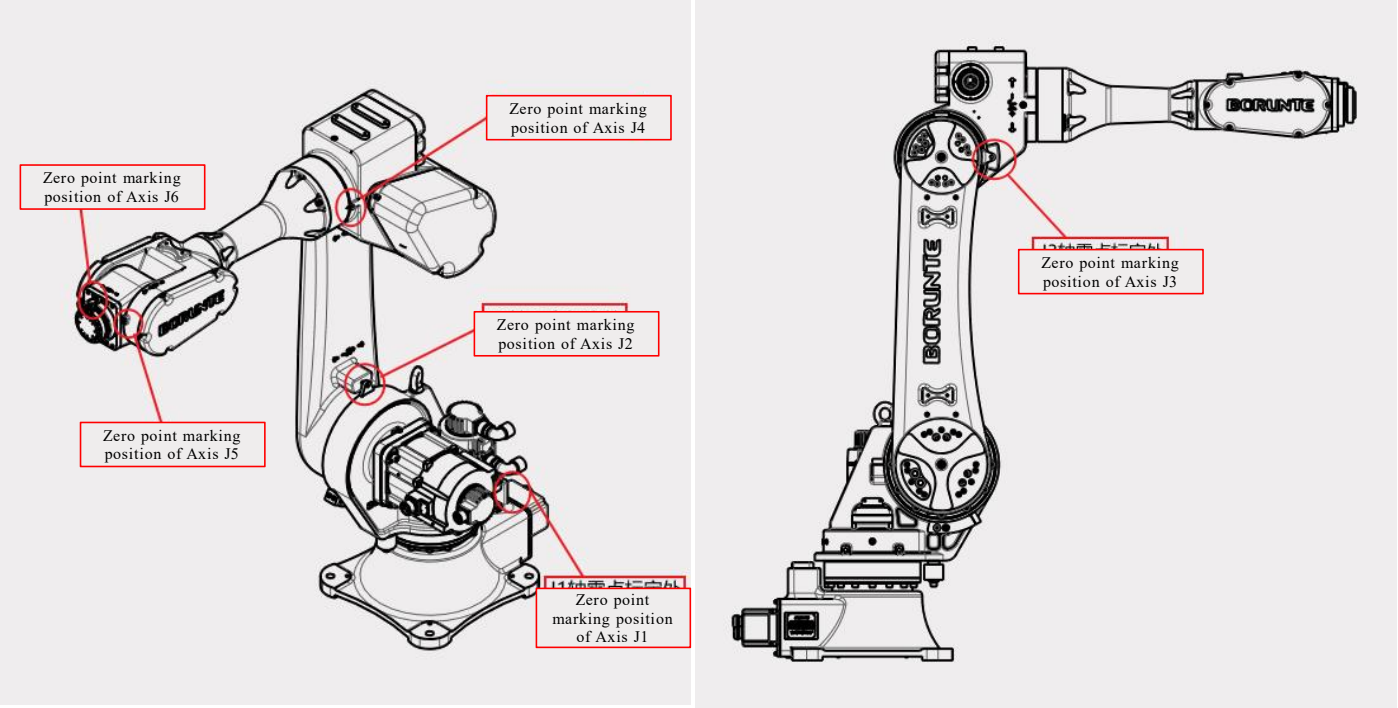


Fig. 2.3.38 Diagram for Origin Calibration of BRTIRUS2030A

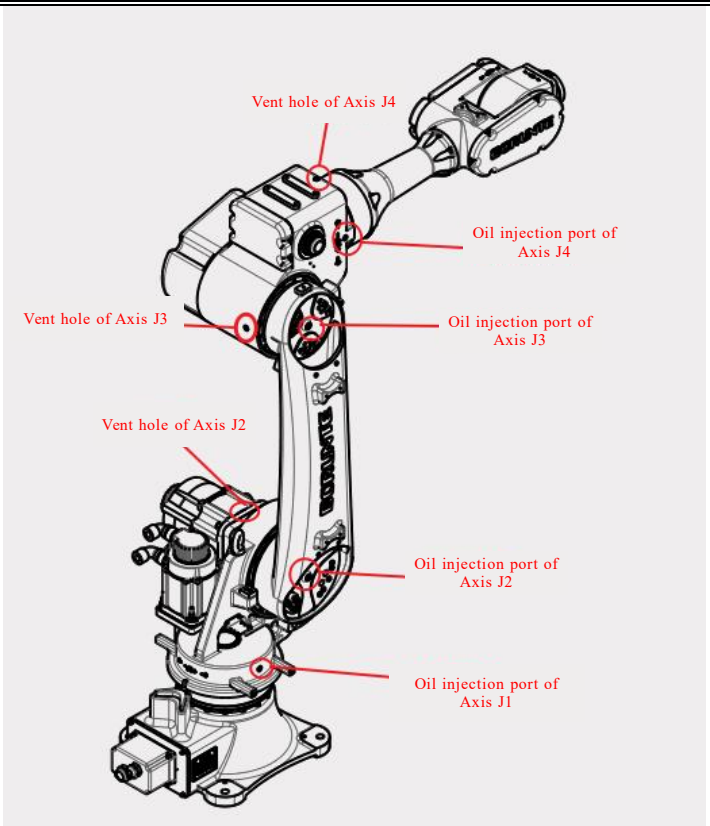


Fig. 2.3.39 Diagram for Oil Injection/discharge of BRTIRUS2030A

2.3.12.5 Diagram of Machine Handling and Hoisting

A crane should be used while handling the robot. Please refer to Fig. 2.3.40 for the handling method. Firstly, set the robot gesture according to the gesture and angle of retracted machine, then cross the hoisting belt through the body of three axles and evade the corrugated pipe. The suggested length of hoisting belt is 1M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

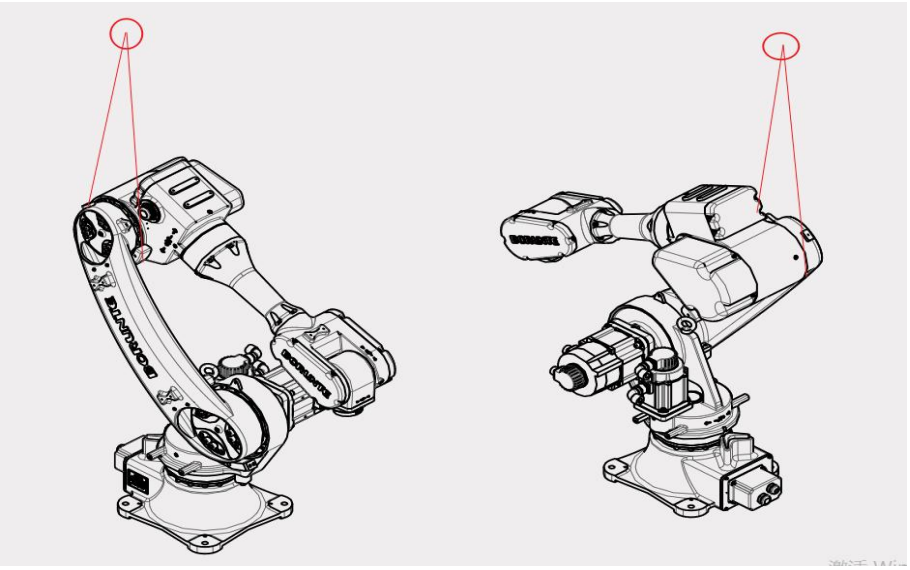


Fig. 2.3.40 Diagram for Handling and Hoisting of BRTIRUS2030A Robot

2.3.13 Six-axis Robot BRTIRUS2550A (Version 21)

2.3.13.1 Introduction to BRTIRUS2550A Robot

2.3.13.1.1 Picture of BRTIRUS2550A Robot



2.3.13.1.2 Introduction to BRTIRUS2550A Six-axis Robot

BRTIRUS2550A is a six-axis robot that is developed by Borunte for the complex applications with multiple degrees of freedom. It has the max. load capacity up to 50kg and ultra-long arm span of 2,563mm. With the flexibility of multi-degree of freedom, it applies to the scenarios such as feeding/discharging, assembly and injection molding.

High accuracy: Repeated positioning accuracy is ±0.1mm.

2.3.13.1.3 Application Scenarios of BRTIRUS2550A

(1) injection molding (2) stamping (3) palletizing (4) loading and unloading, etc.

2.3.13.2 Performance Parameter Table of Robot

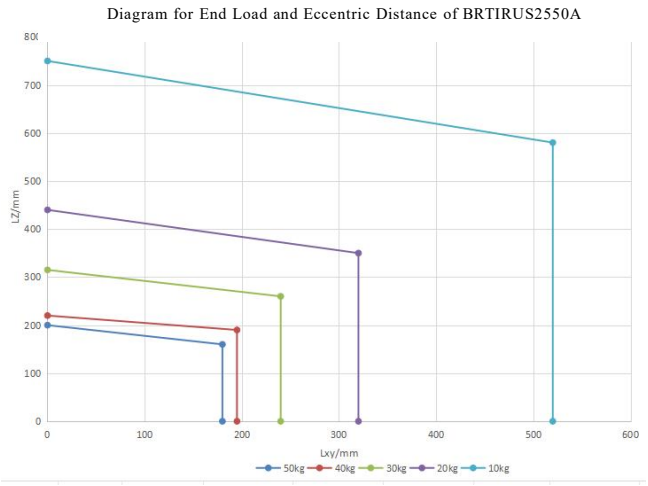
Performance Parameter Table of BRTIRUS2550A

Model	BRTIRUS2550A					
Number of axes	Axis 6					
Payload	50kg					
Repeated positioning accuracy	±0.1mm					
Max. radius of arm span	2563mm					
Body weight	Approx. 725kg					
Max. speed	J1	84°/s			J2	52°/s
	J3	52°/s			J4	245°/s
	J5	223°/s			J6	223°/s
Motion range	J1	±160°			J2	±70°
	J3	-75°/+115°			J4	±180°
	J5	±125°			J6	±360°
Allowable torque	J4	153N*m	J5	153N*m	J6	100N*m
Allowable inertia moment	J4	28kg*m²	J5	28kg*m²	J6	11kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	380V±10% 50/60Hz
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	2000ML	J2	2000ML	J3	700ML
	J4	600ML	J5	200ML	J6	200ML
Wearing parts	J5 timing belt	MBT233150515 Timing Belt 5M-15 wide -130 teeth black HP				
Attached documents	USB					

2.3.13.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRUS2550A

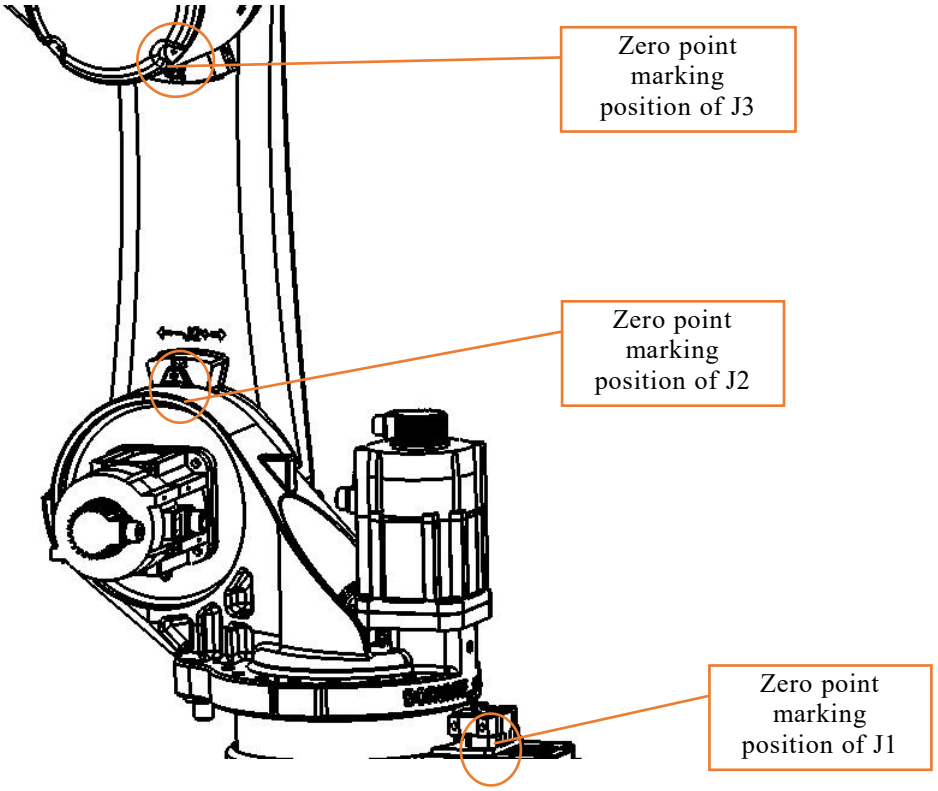
XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end



Note: BRTIRUS2550A is designed with the rated load capacity up to 50kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.41 Diagram for Eccentric Load and Distance of BRTIRUS2550A

2.3.13.4 Diagram of Machine Handling and Hoisting



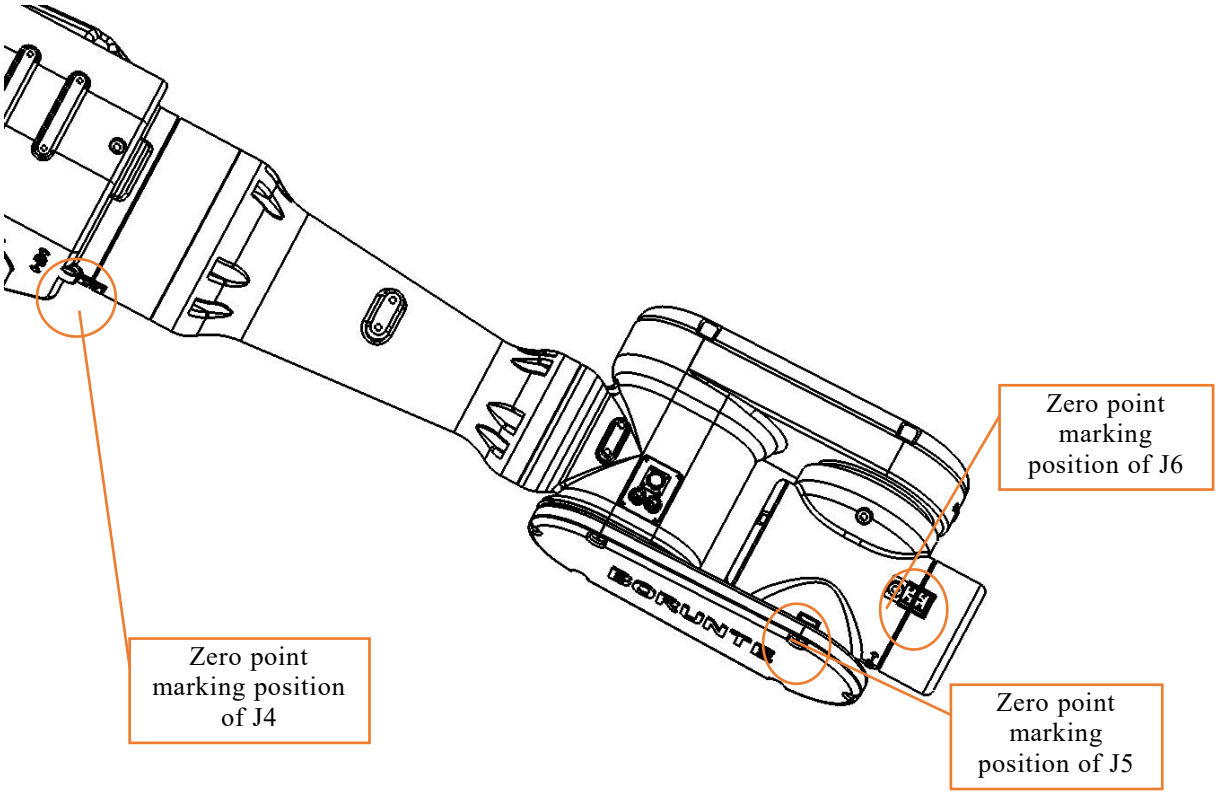
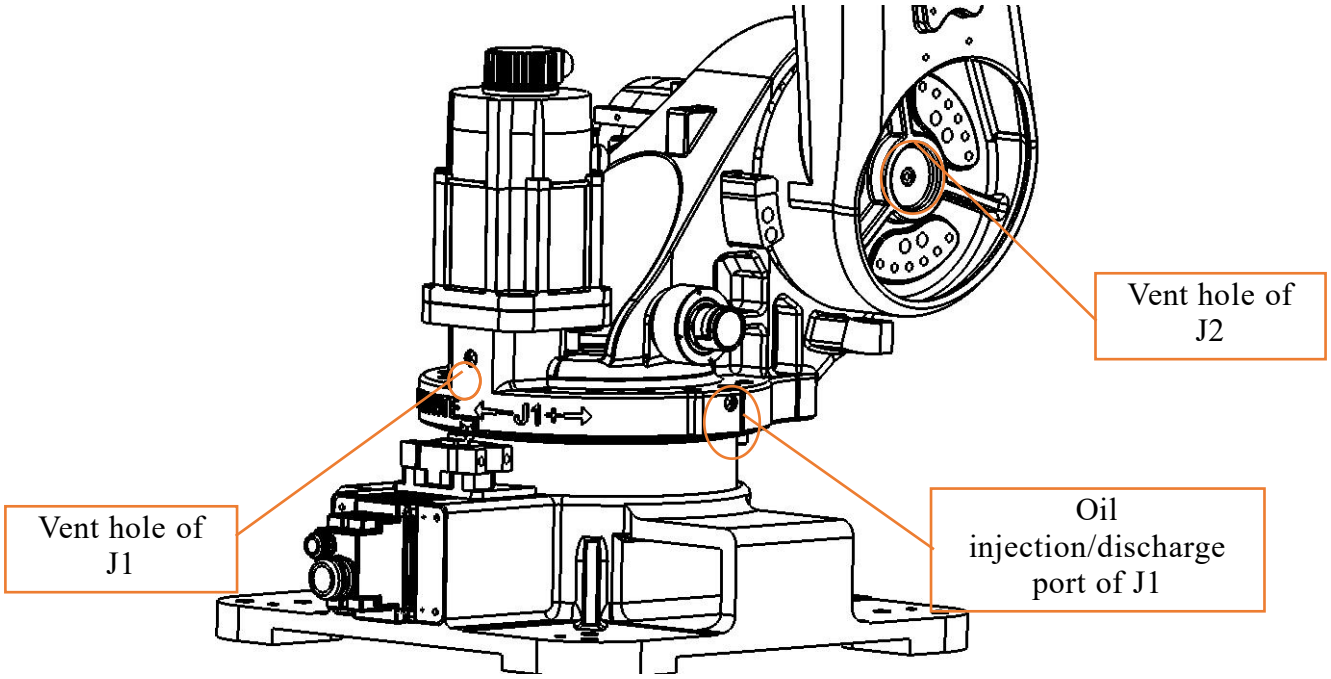


Fig. 2.3.42 Diagram for Origin Calibration of BRTIRUS2550A



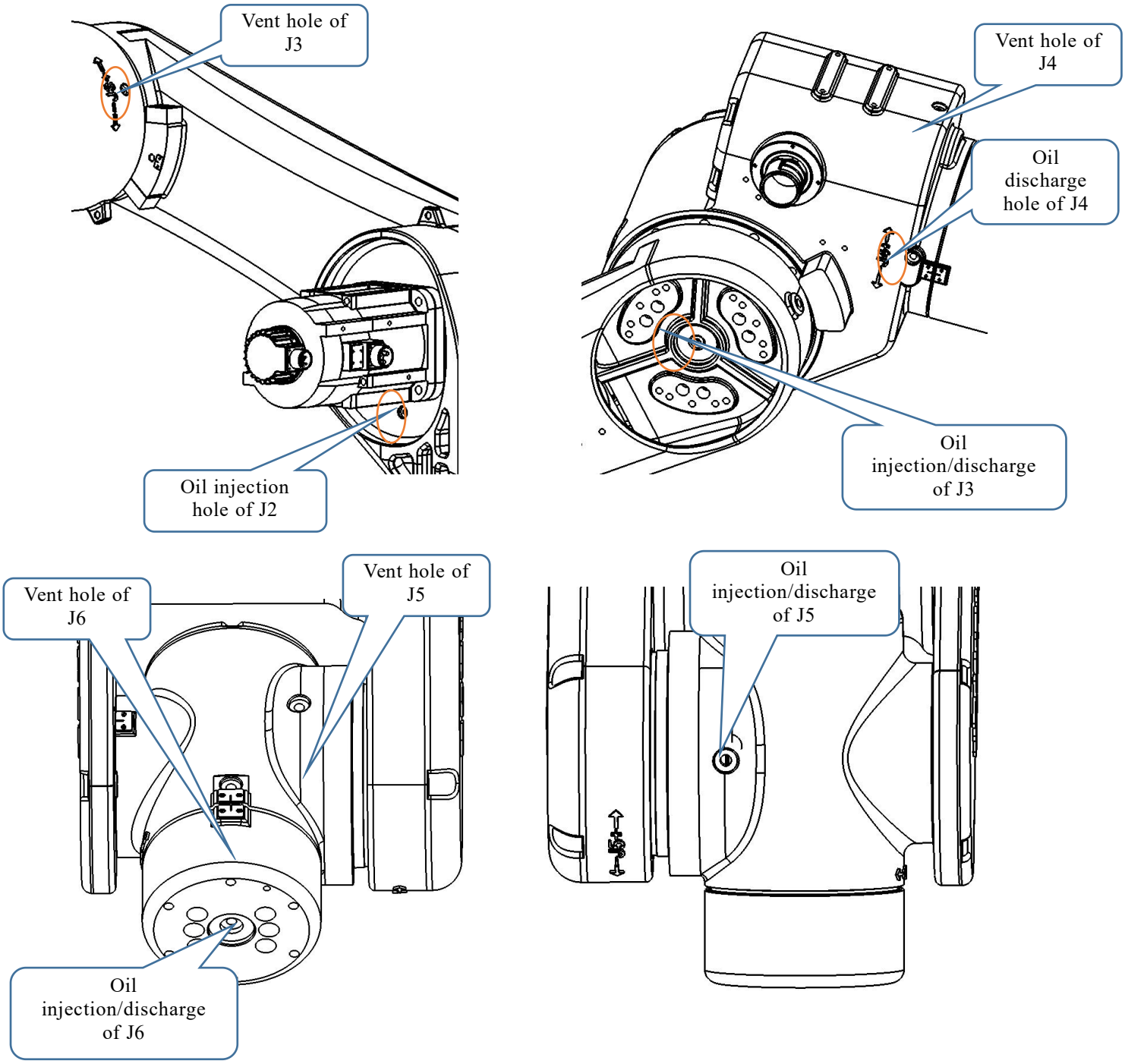


Fig. 2.3.43 Diagram for Oil Injection/discharge of BRTIRUS2550A

2.3.13.5 Diagram of Robot Handling and Hoisting

A crane should be used while handling the robot. Please refer to Fig. 2.3.44 for the handling method. Firstly, set the robot gesture according to the gesture and angle of retracted machine, then cross the hoisting belt through the body of base and evade the corrugated pipe. The suggested length of hoisting belt is 8M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.



Fig. 2.3.44 Diagram for Handling and Hoisting of BRTIRUS2550A Robot

2.3.14 Six-axis Robot BRTIRUS3030A (Version 11)

2.3.14.1 Introduction to BRTIRUS3030A Robot

2.3.14.1.1 Picture of BRTIRUS3030A Robot



2.3.14.1.2 Introduction to BRTIRUS3030A Robot

As a six-axis robot developed by Borunte, BRTIRUS3030A has compact structure and provides high-accuracy reducers at all joints. The high-speed joints can realize flexible operation such as handling, stacking, assembly and injection molding. It can be mounted flexibly.

High accuracy: Repeated positioning accuracy is ±0.06mm.

2.3.14.1.3 Application Scenarios of BRTIRUS3030A

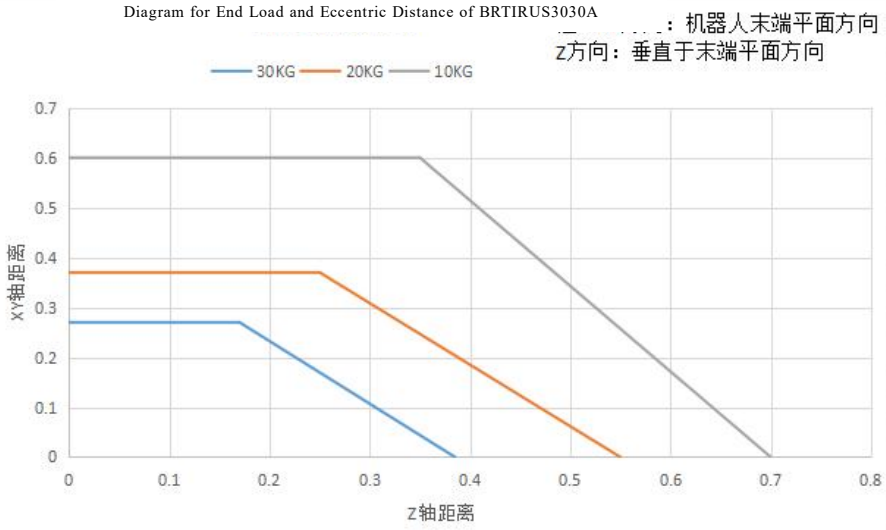
(1) injection molding (2) stamping (3) transporting (4) loading and unloading, etc.

2.3.14.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS3030A

Model	BRTIRUS3030A						
Number of axes	6 axis						
Payload	30kg						
Repeated positioning accuracy	±0.06mm						
Max. radius of arm span	3000mm						
Body weight	469kg						
Max. speed	J1	100° /s		J2	96° /s		
	J3	125° /s		J4	240° /s		
	J5	270° /s		J6	337° /s		
Motion range	J1	± 163°		J2	-90° (-160°) /+68°		
	J3	-73° ~+103°		J4	± 180°		
	J5	± 120°		J6	± 360°		
Max. driving torque	J4	J4	268N*M	J5	96.5N*M	J6	84.7N*M
Max. rotational inertia	J4	J4	12.4KG*M²	J5	1.64KG*M²	J6	1.37KG*M²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa		
				Power	380V±10% 50/60Hz		
Core Parts	Name	Operating system	Brand	BORUNTE			
		Casting main body		BORUNTE			
		Servo motor		BORUNTE			
		Reducer		BORUNTE			
		Electrical components		BORUNTE			
RV grease amount	J1	3520ML	J2	/	J3	/	
	J4	256ML	J5	/	J6	/	
Wearing parts	J5 synchronous belt	MBT233090502 synchronous belt -5M-09 bandwidth -90 teeth					
	Four axis skeleton oil seal	PRG01040028A skeleton oil seal 28-40-6					
	One axis skeleton oil seal	PRG01110085A skeleton oil seal 85-110-10					
Attached documents	USB						

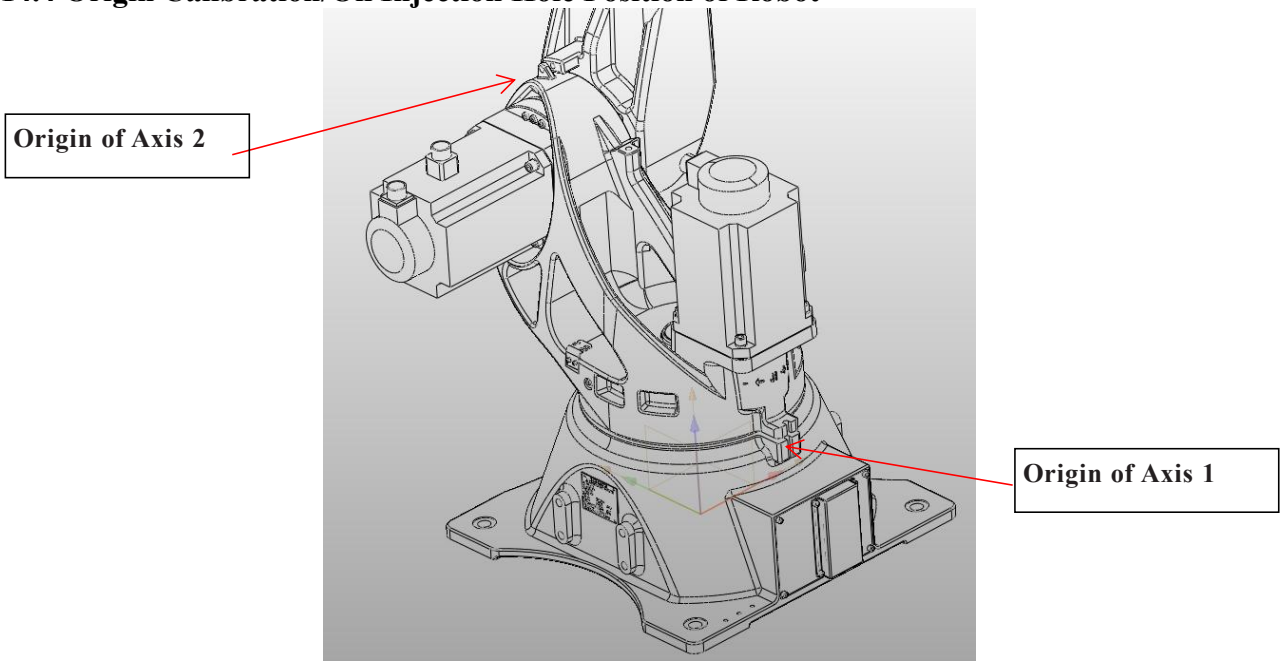
2.3.14.3 Diagram of Robot Load Capacity



Note: BRTIRUS3030A is designed with the rated load capacity up to 30kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.45 Diagram for Eccentric Load and Distance of BRTIRUS3030A

2.3.14.4 Origin Calibration/Oil Injection Hole Position of Robot



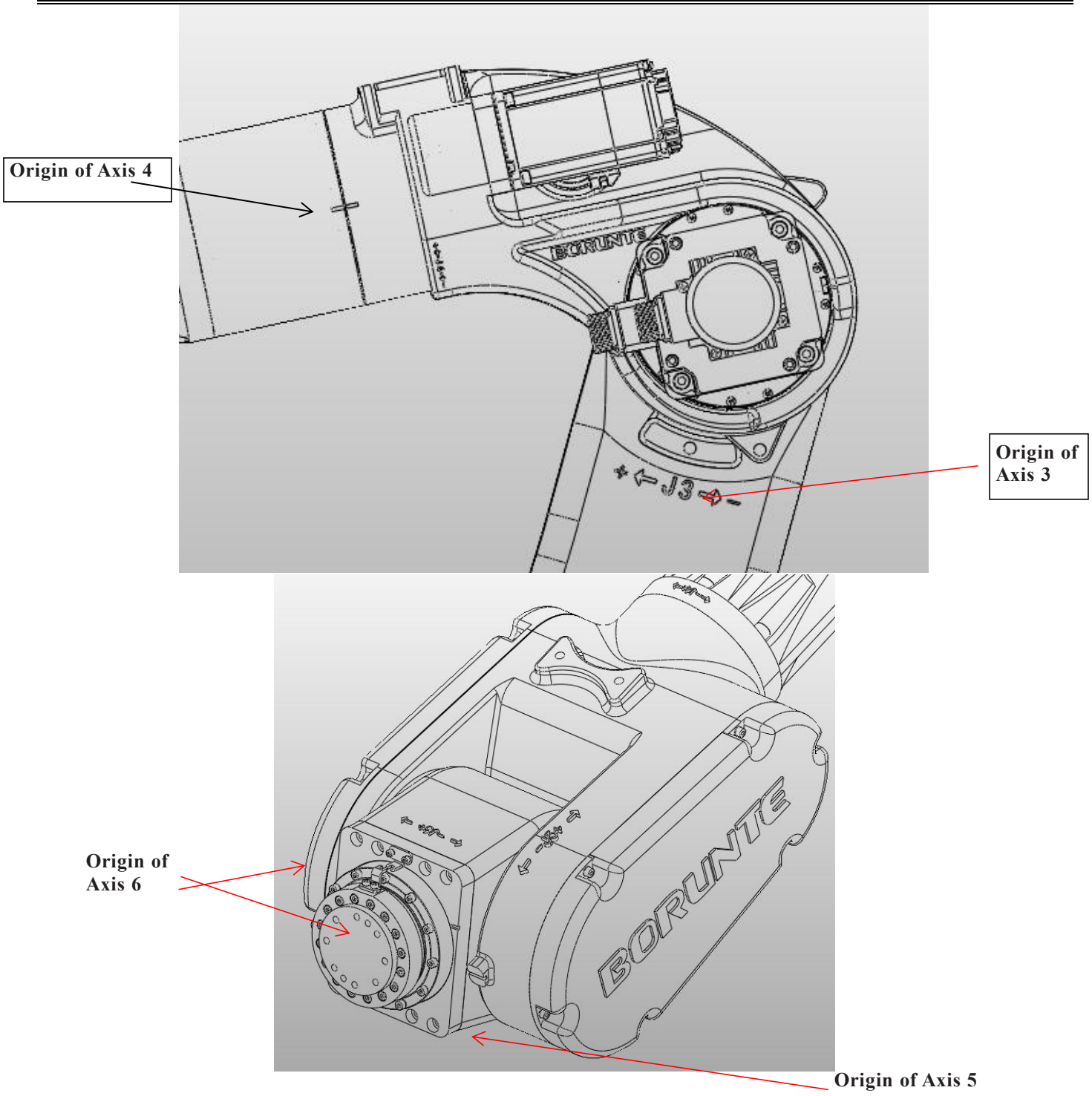
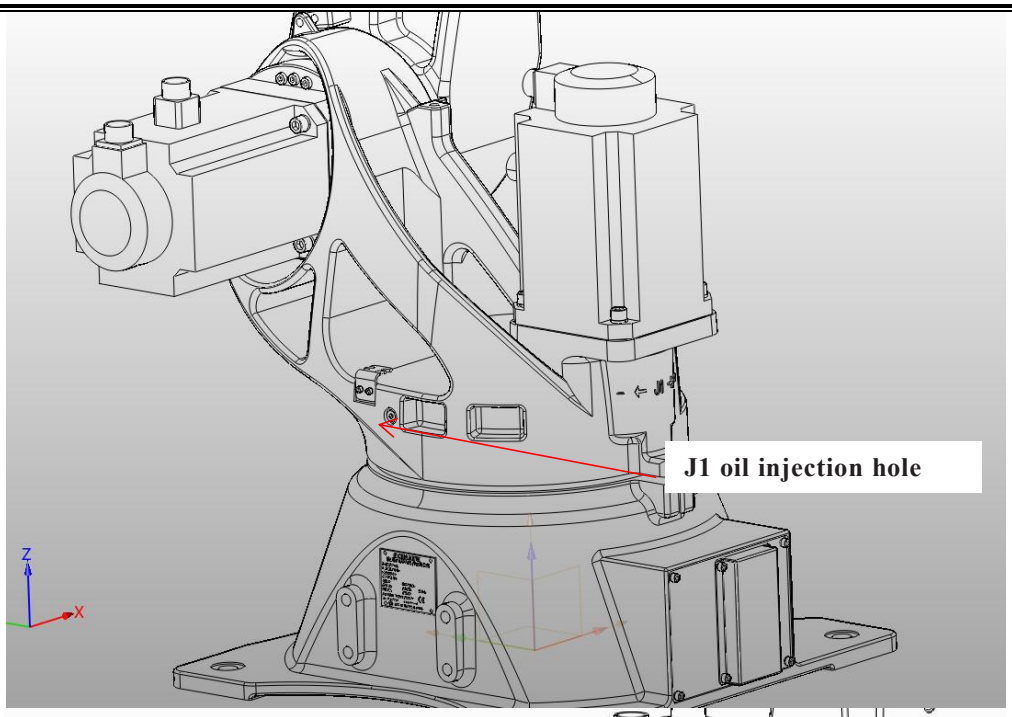
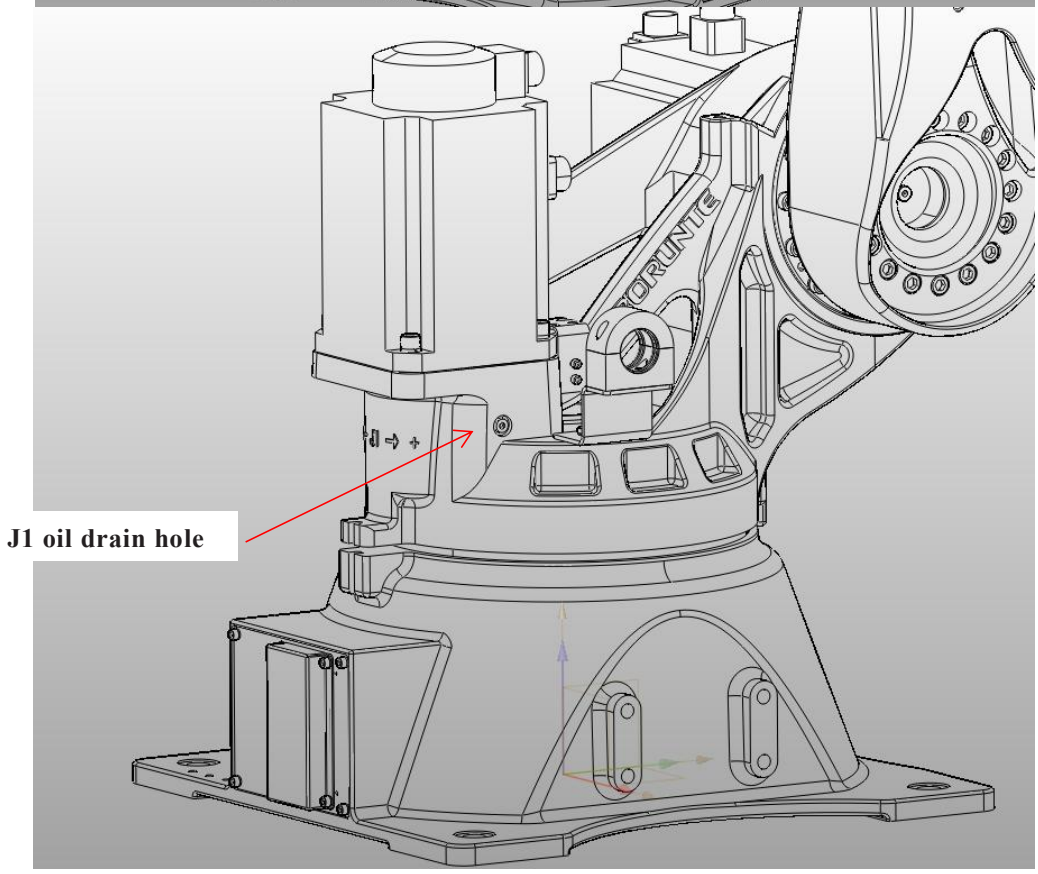


Fig. 2.3.46 Diagram for Origin Calibration of BRTIRUS3030A


J1 oil injection hole
Z
X


J1 oil drain hole

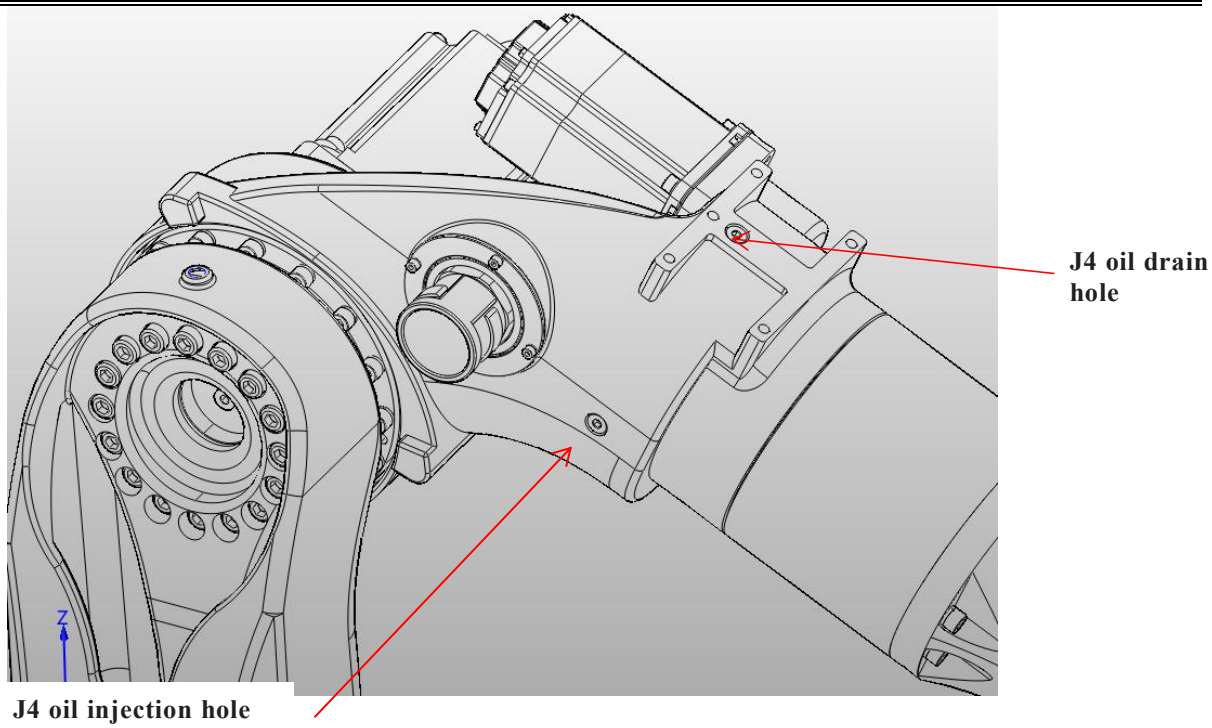


Fig. 2.3.47 Diagram for Oil Injection/discharge Hole of BRTIRUS3030A

2.3.14.5 Diagram of Robot Handling and Hoisting

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.48. First, set the robot posture according to the standard angle of the receiver posture. Then, pass the lifting belt through the lower part of the three - and four axis body and wrap it around once. Pay attention to placing both ends of the lifting belt in front of and behind the body. It is recommended that the length of the lifting belt be 1.5m~1.8m.

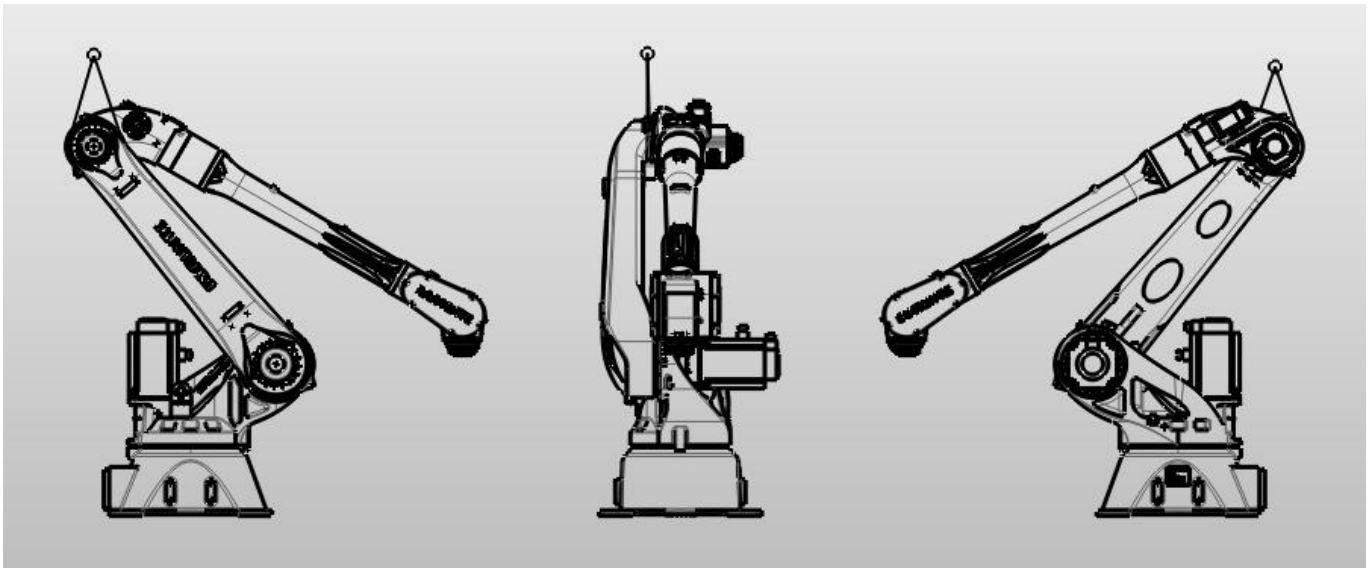


Fig. 2.3.48 Diagram for Handling and Hoisting of BRTIRUS3030A Robot

2.3.15 Six-axis Robot BRTIRUS3511A (Version 21)

2.3.15.1 Introduction to BRTIRUS3511A Robot

2.3.15.1.1 Picture of BRTIRUS3511A Robot



2.3.15.1.2 Introduction to BRTIRUS3511A Robot

BRTIRUS3511A is a six-axis robot that is developed for monotonous, frequent and long-term operation, or operation under hazardous and severe environment. It has 3,503mm arm span and the max. load capacity up to 100kg. With the flexibility of multi-degree of freedom, it applies to the scenarios such as feeding/discharging, handling and stacking.

High accuracy: Repeated positioning accuracy is ±0.2mm.

2.3.15.1.3 Application Scenarios of BRTIRUS3511A

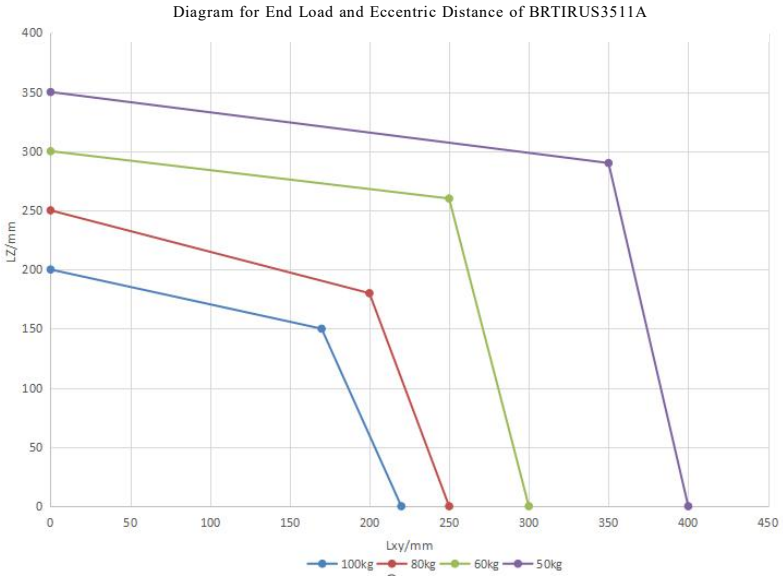
(1) palletizing (2) transporting (3) loading and unloading , etc.

2.3.15.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS3511A

Model	BRTIRUS3511A					
Number of axes	Axis 6					
Payload	100kg					
Repeated positioning accuracy	±0.2mm					
Max. radius of arm span	3503mm					
Body weight	Approx. 1,350kg					
Max. speed	J1	85°/s			J2	70°/s
	J3	70°/s			J4	82°/s
	J5	99°/s			J6	124°/s
Motion range	J1	±160°			J2	-75°/+30°
	J3	-80°/+85°			J4	±180°
	J5	±95°			J6	±360°
Allowable torque	J4	746N*m	J5	746N*m	J6	368N*m
Allowable inertia moment	J4	65kg*m²	J5	65kg*m²	J6	38.6kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	380V±10% 50/60Hz
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	5400ML	J2	1800ML	J3	1800ML
	J4	1500ML	J5	2700ML	J6	1100ML
Wearing parts	NO					
Attached documents	USB					

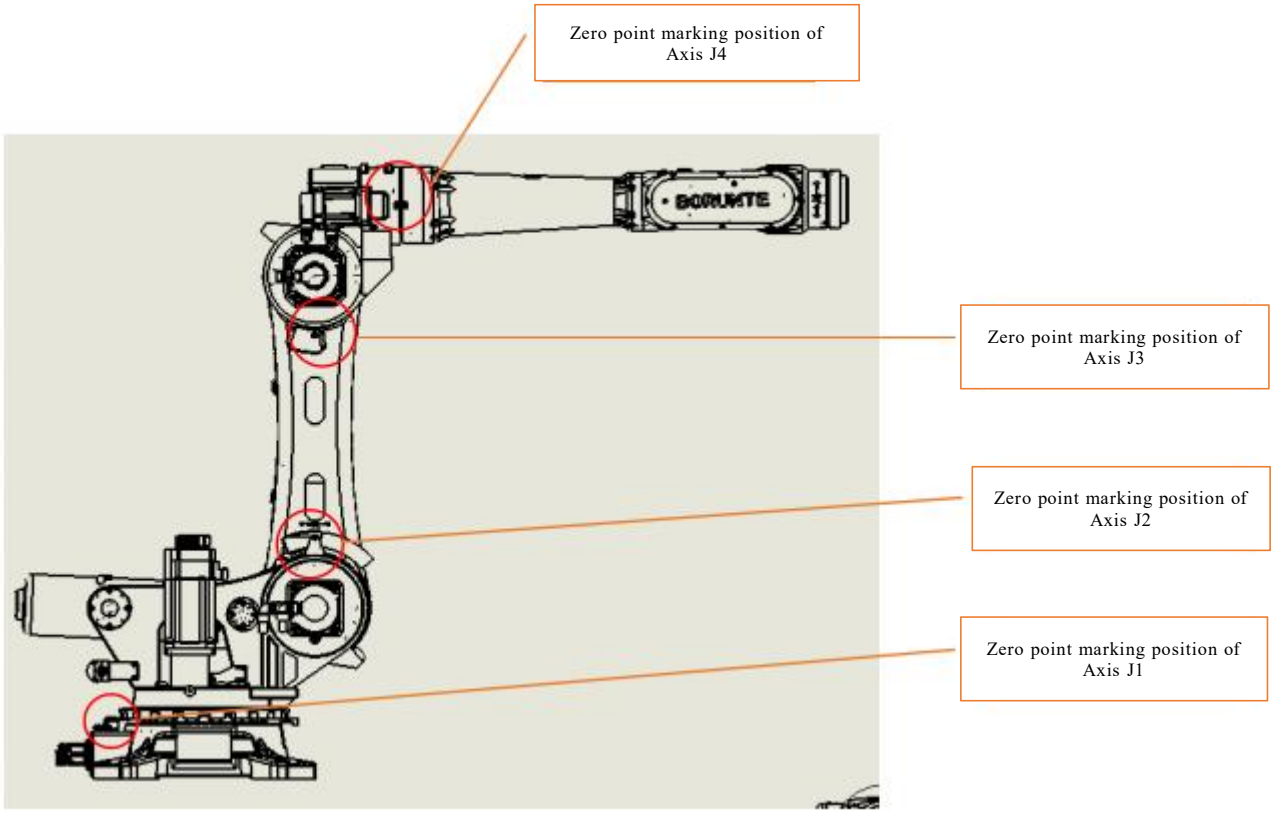
2.3.15.3 Diagram of Robot Load Capacity



Note: BRTIRUS3511A is designed with the rated load capacity up to 100kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.49 Diagram for Handling and Hoisting of BRTIRUS3511A Robot

2.3.15.4 Origin Calibration/Oil Injection Hole Position of Robot



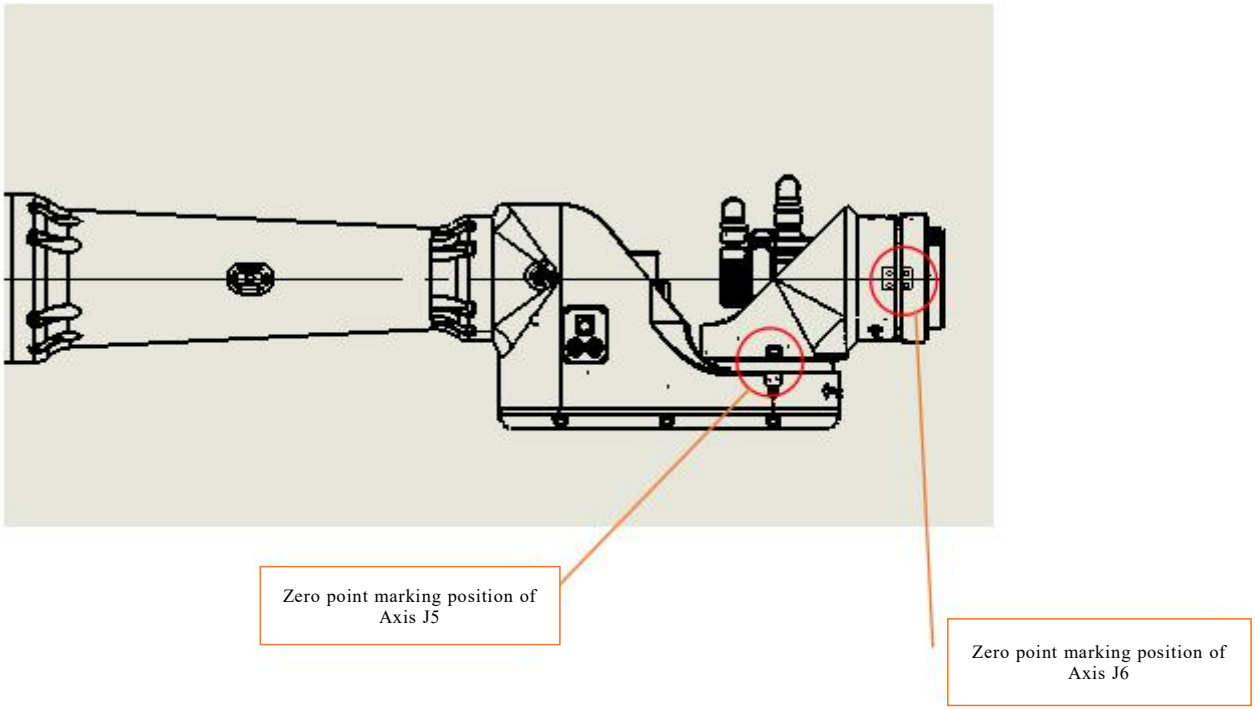
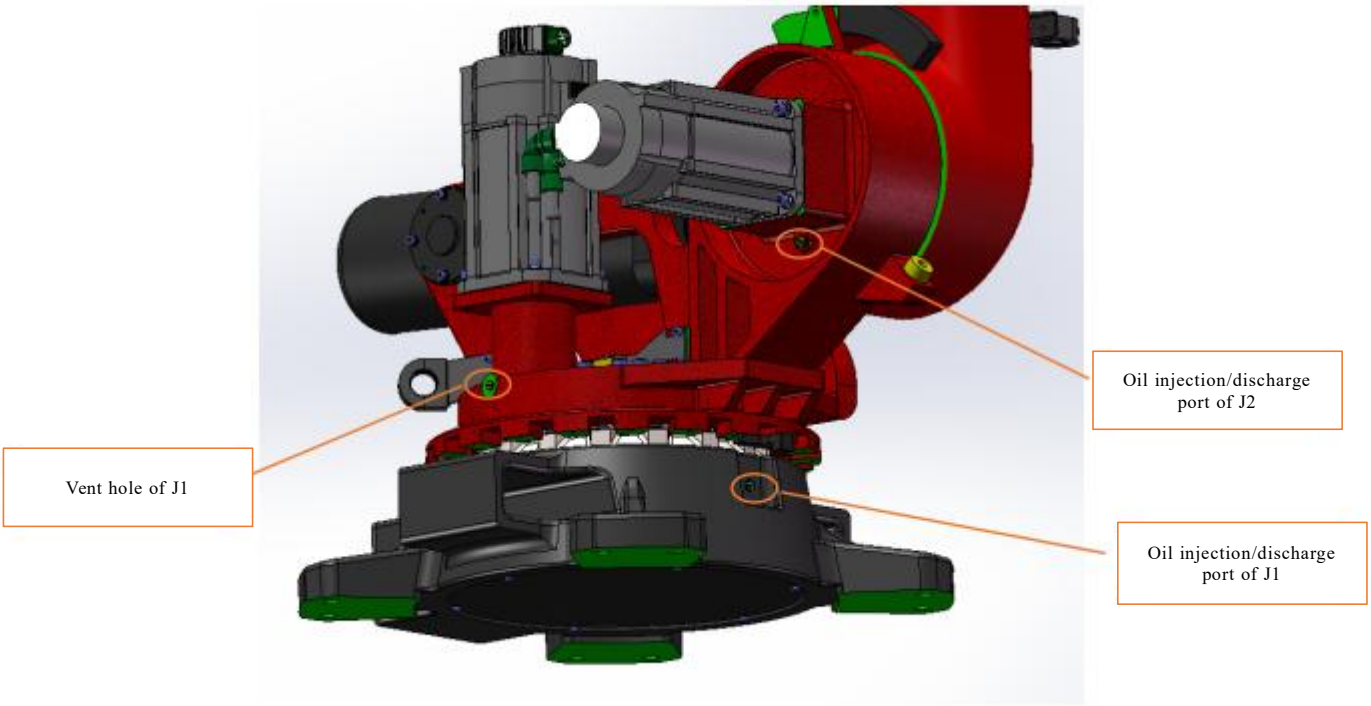
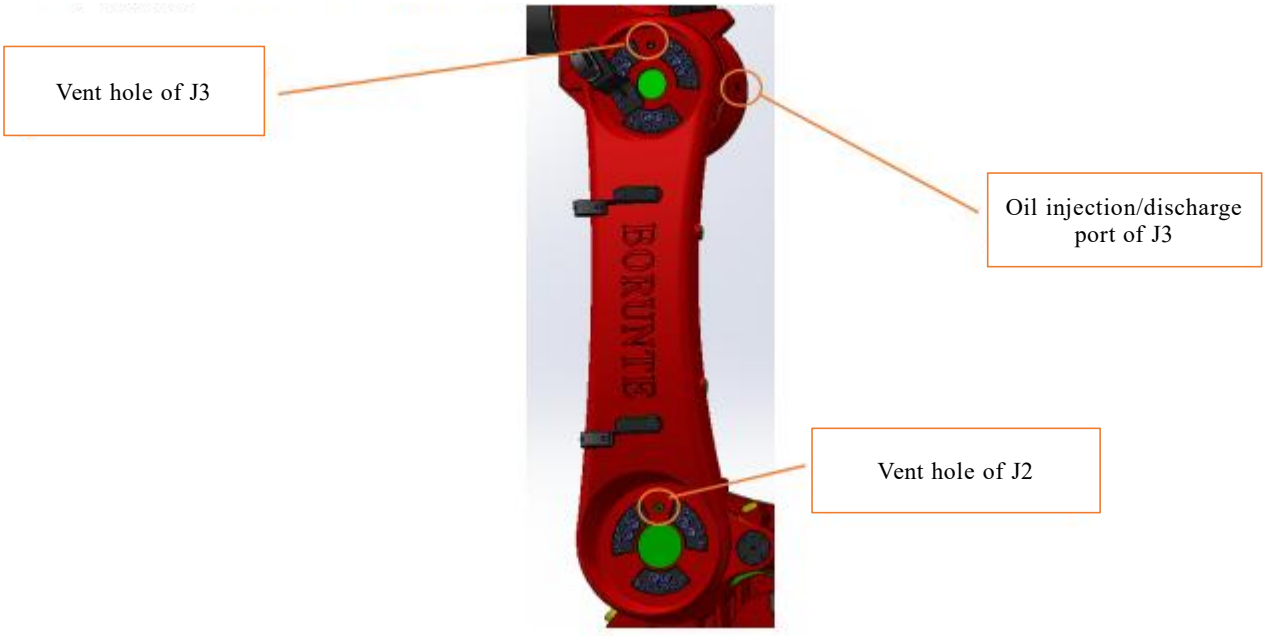


Fig. 2.3.50 Diagram for Origin Calibration of BRTIRUS3511A

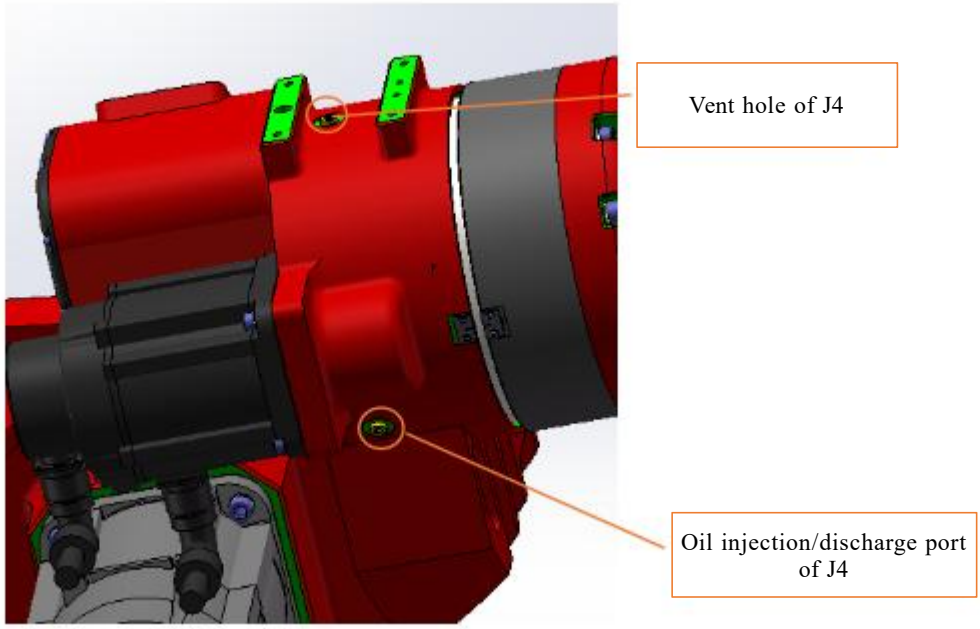
Angle of machine: Any angle



Angle of J2 oil discharge machine: J1: 0° J2: -70° J3: 30° J4/ J5/J6: Random



Angle of J3/ J4 oil discharge machine: J1: 0° J2: -70° J3: 30° J4: 0° J5/J6: Random



Angle of J5 oil injection/discharge machine (J6 oil injection): J1: 0° J2: -70° J3: 42° J4: 0° J5: 24° J6: Random

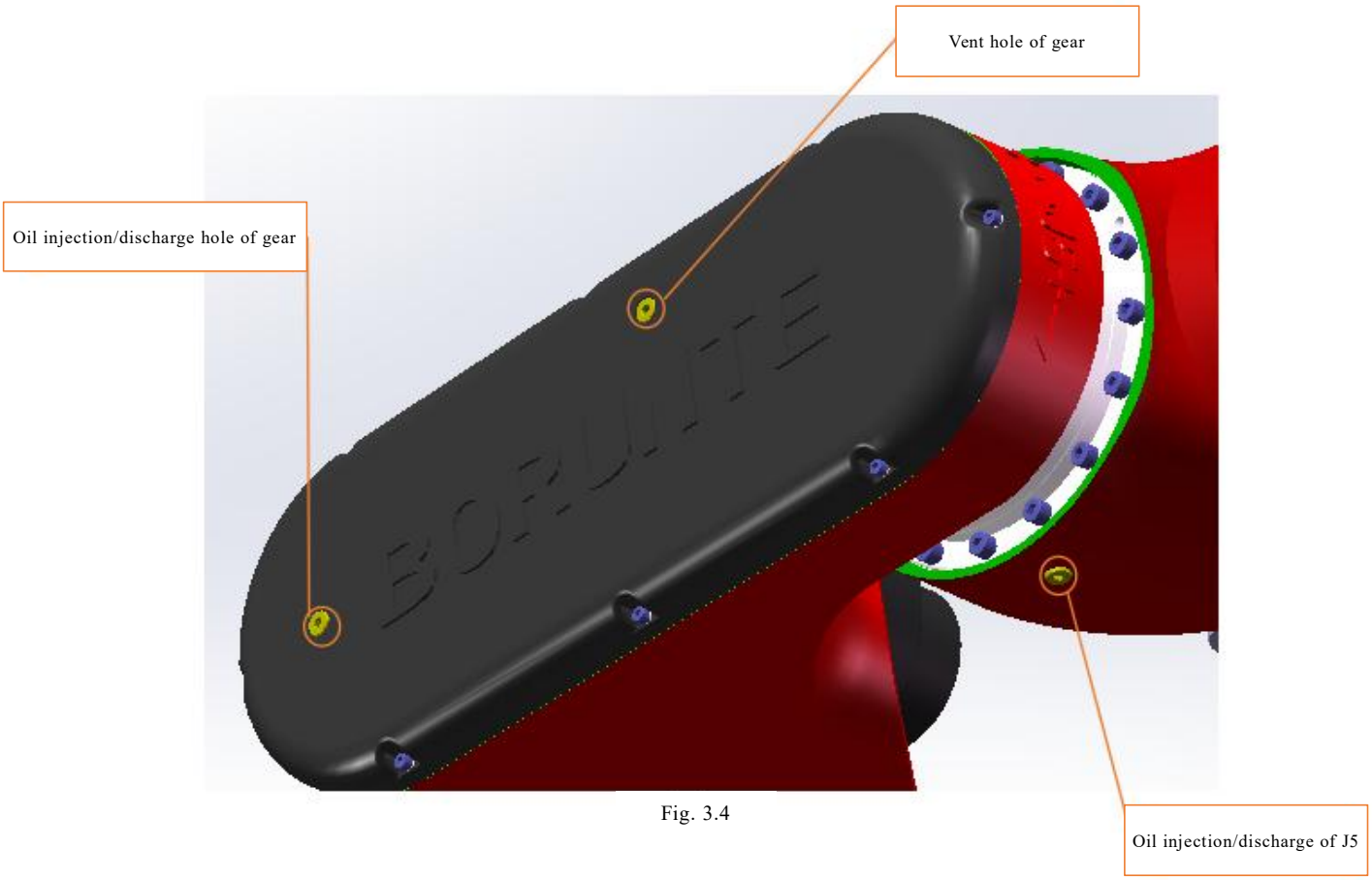


Fig. 3.4

Angle of J6 oil discharge machine: J1: 0° J2: -70° J3: 42° J4: 0° J5: -65° J6: Random

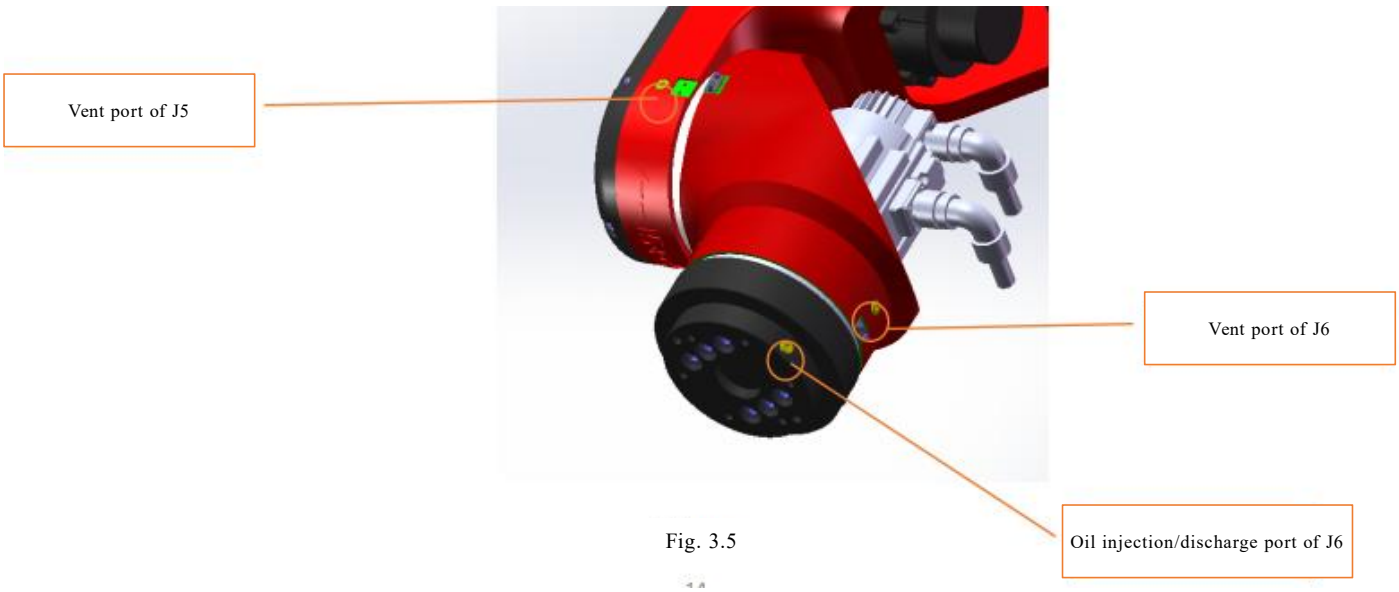


Fig. 3.5

Fig. 2.3.51 Diagram for Oil Injection/discharge Hole of BRTIRUS3511A

2.3.15.5 Diagram of Robot Handling and Hoisting

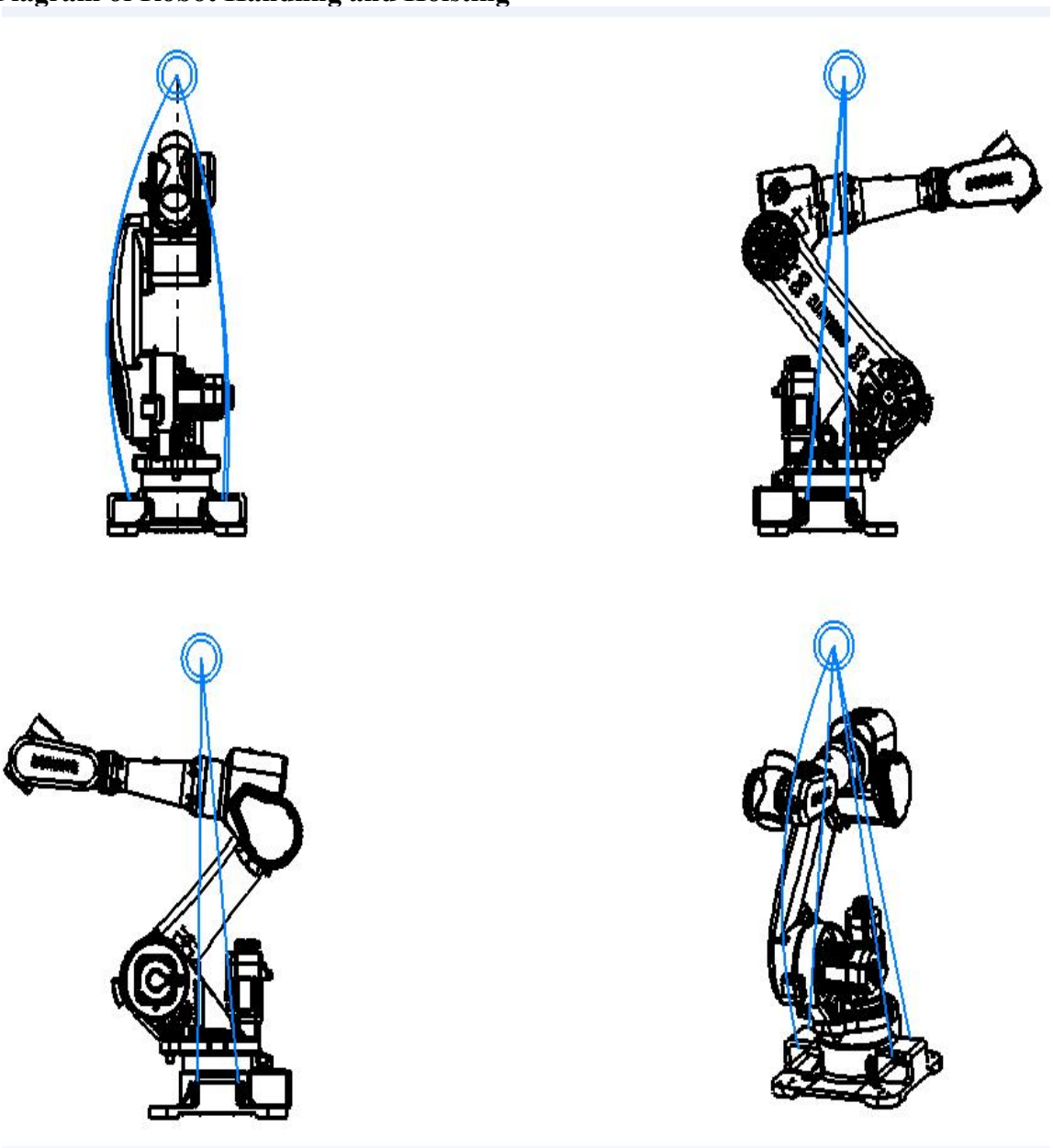


Fig. 2.3.52 Diagram for Handling and Hoisting of BRTIRUS3511A Robot

2.3.16 Six-axis Robot BRTIRUS2520B (Version 21)

2.3.16.1 Introduction to BRTIRUS2520B Robot

2.3.16.1.1 Picture of BRTIRUS2520B Robot



2.3.16.1.2 Introduction to BRTIRUS2520B Robot

BRTIRUS2520B is a six-axis robot that is developed for monotonous, frequent and long-term operation, or operation under hazardous and severe environment. It has 2,637mm arm span and the max. load capacity up to 200kg. With the flexibility of multi-degree of freedom, it applies to the scenarios such as feeding/discharging, handling and stacking.

High accuracy: Repeated positioning accuracy is ±0.2mm.

2.3.16.1.3 Application Scenarios of BRTIRUS2520B

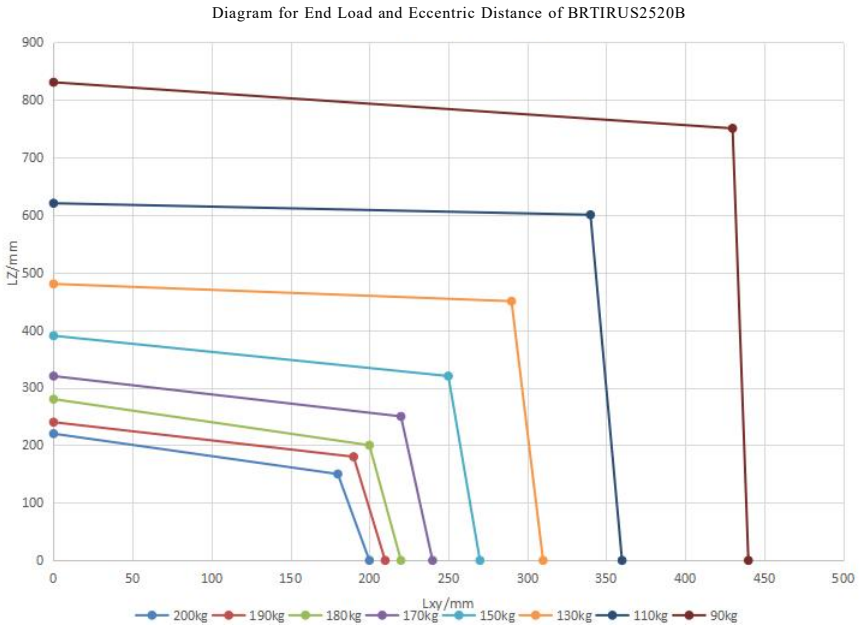
(1) palletizing (2) transporting (3) loading and unloading, etc.

2.3.16.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS2520B

Model	BRTIRUS2520B					
Number of axes	Axis 6					
Payload	200kg					
Repeated positioning accuracy	±0.2mm					
Max. radius of arm span	2637mm					
Body weight	Approx. 1,106kg					
Max. speed	J1	63°/s			J2	52°/s
	J3	52°/s			J4	94°/s
	J5	101°/s			J6	133°/s
Motion range	J1	±160°			J2	-73°/+35°
	J3	-80°/+105°			J4	±180°
	J5	±95°			J6	±360°
Max. driving torque	J4	4872N*m	J5	1296N*m	J6	476N*m
Max. rotational inertia	J4	415kg*m²	J5	62kg*m²	J6	14kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	380V±10% 50/60Hz	
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	5400ML	J2	1800ML	J3	1800ML
	J4	1500ML	J5	2700ML	J6	1100ML
Wearing parts	NO					
Attached documents	USB					

2.3.16.3 Diagram of Robot Load Capacity



Note: BRTIRUS2520B is designed with the rated load capacity up to 200kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center. Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The

Fig. 2.3.53 Diagram for Handling and Hoisting of BRTIRUS2520B Robot

2.3.16.4 Origin Calibration/Oil Injection Hole Position of Robot

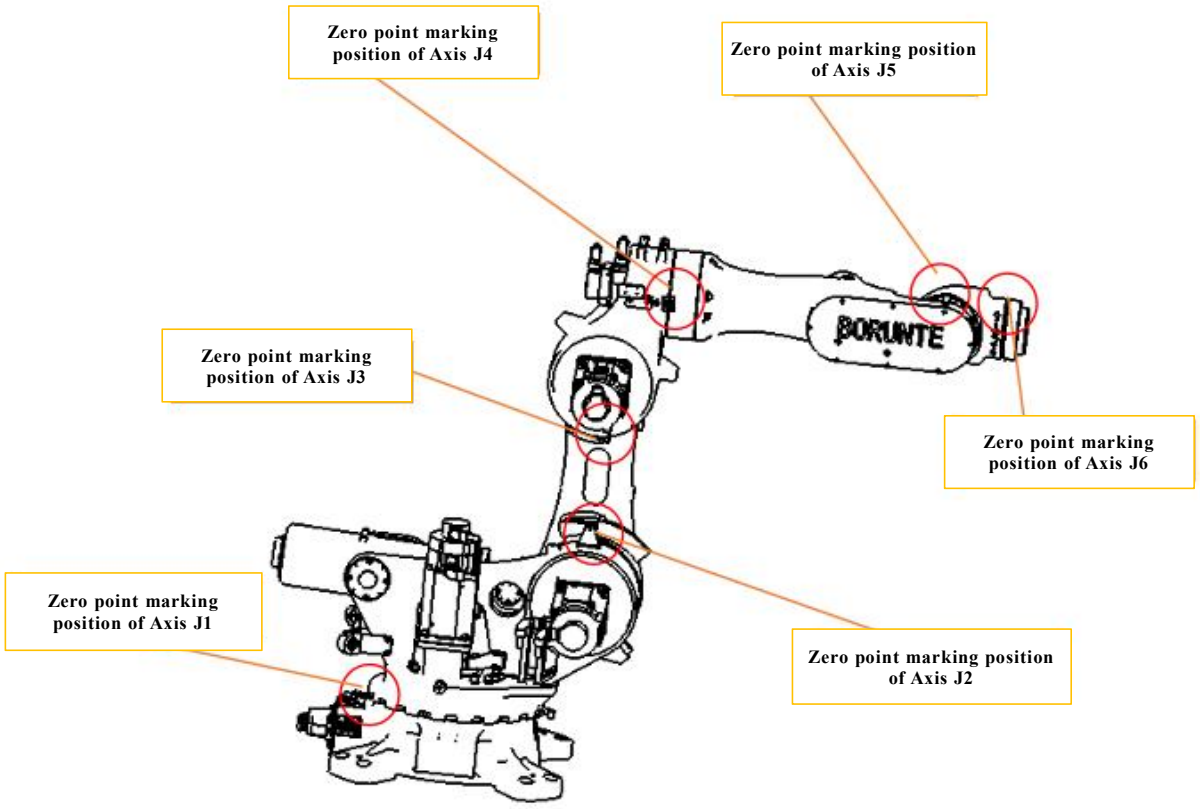


Fig. 2.3.54 Diagram for Handling and Hoisting of BRTIRUS2520B Robot

2.3.16.5 Diagram of Robot Handling and Hoisting

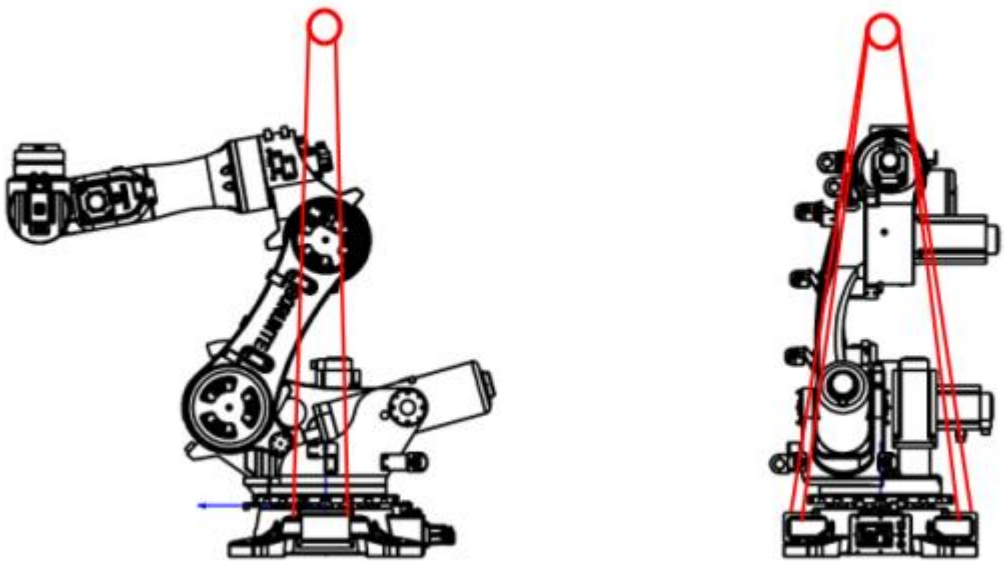


Fig. 2.3.55 Diagram for Handling and Hoisting of BRTIRUS2520B Robot

2.3.17 Six-axis Robot BRTIRWD1506A (Version 21)

2.3.17.1 Introduction to BRTIRWD1506A Robot

2.3.17.1.1 Picture of BRTIRWD1506A Robot



2.3.17.1.2 Introduction to BRTIRWD1506A Robot

BRTIRWD1506A is a six-axis robot that is developed by Borunte for the welding industry. The robot has compact structure, small volume and light weight. Its max. load is 6kg and arm span is 1,647mm. The wrist is provided with vacuum structure which features easy wiring and more flexible actions.

High accuracy: Repeated positioning accuracy is ±0.05mm.

2.3.17.1.3 Application Scenarios of BRTIRWD1506A

(1) welding (2) injection molding (3) stamping (4) loading and unloading, etc.

2.3.17.2 Performance Parameter Table of Robot

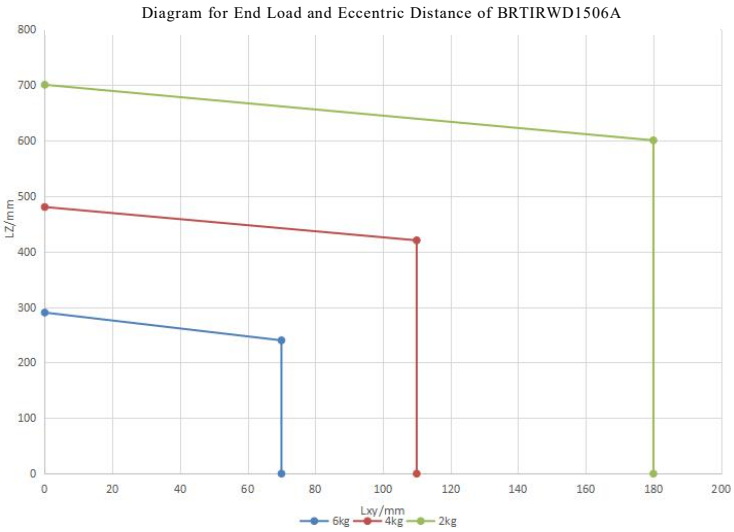
Performance Parameter Table of BRTIRWD1506A

Model	BRTIRWD1506A					
Number of axes	Axis 6					
Payload	6kg					
Repeated positioning accuracy	±0.06mm					
Max. radius of arm span	1647mm					
Body weight	166kg					
Max. speed	J1	163°/s			J2	149°/s
	J3	223°/s			J4	169°/s
	J5	270°/s			J6	398°/s
Motion range	J1	±165°			J2	-100°/+70°
	J3	±80°			J4	±150°
	J5	±110°			J6	±360°
Max. driving torque	J4	15N*m	J5	25.24N*m	J6	25.563N*m
Max. rotational inertia	J4	0.262kg*m²	J5	0.542kg*m²	J6	0.395kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	220V±10% 50/60Hz	
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	900ML	J2	800ML	J3	400ML
	J4	/	J5	30ML	J6	250ML
Vulnerable part	Timing Belt	MBT233090503 HTD-5M-09 belt width-89 teeth				
	Timing Belt	MBT233090305 HTD-3M-09 belt width-188 teeth				
	Timing Belt	MBT233090306 HTD-3M-09 belt width-245 teeth				
Attached documents	USB					

2.3.17.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRWD1506A

XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end



Note: BRTIRWD1506A is designed with the rated load capacity up to 6kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.56 Diagram for Handling and Hoisting of BRTIRWD1506A Robot

2.3.17.4 Origin Calibration/Oil Injection Hole Position of Robot

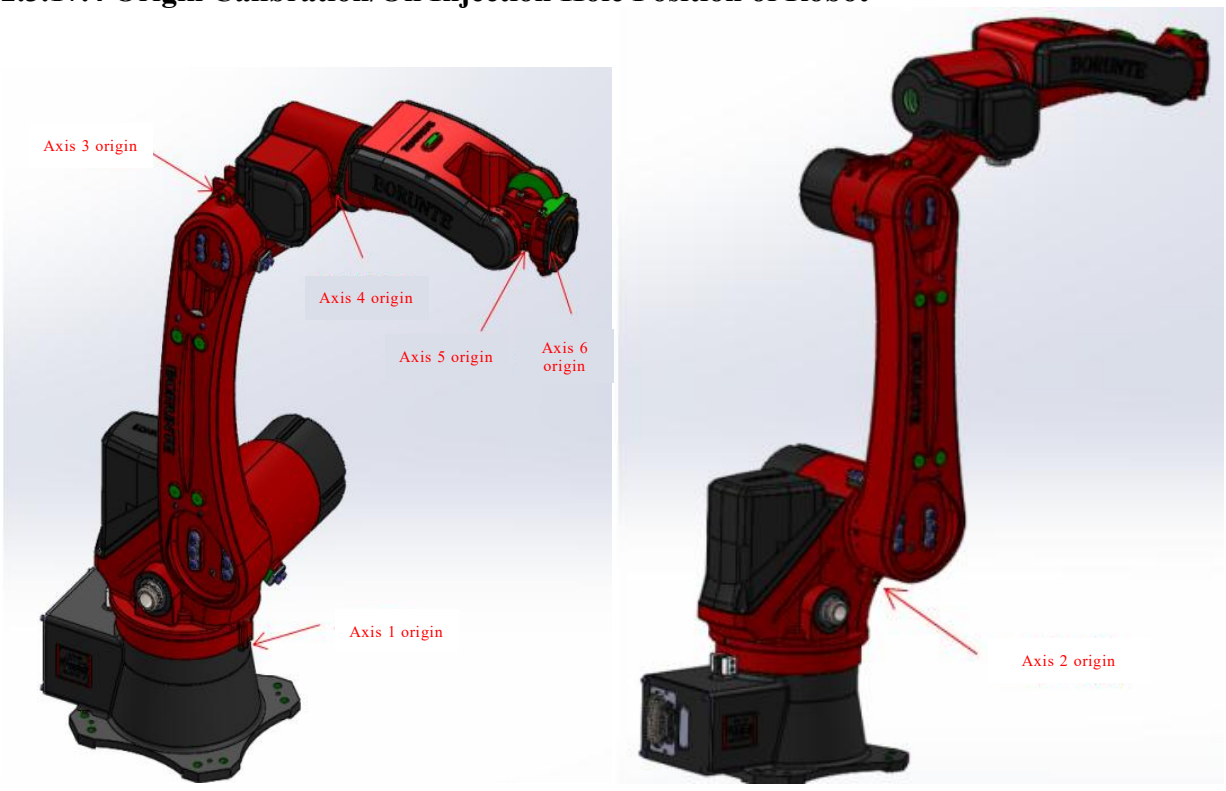


Fig. 2.3.57 Diagram for Origin Calibration of BRTIRWD1506A

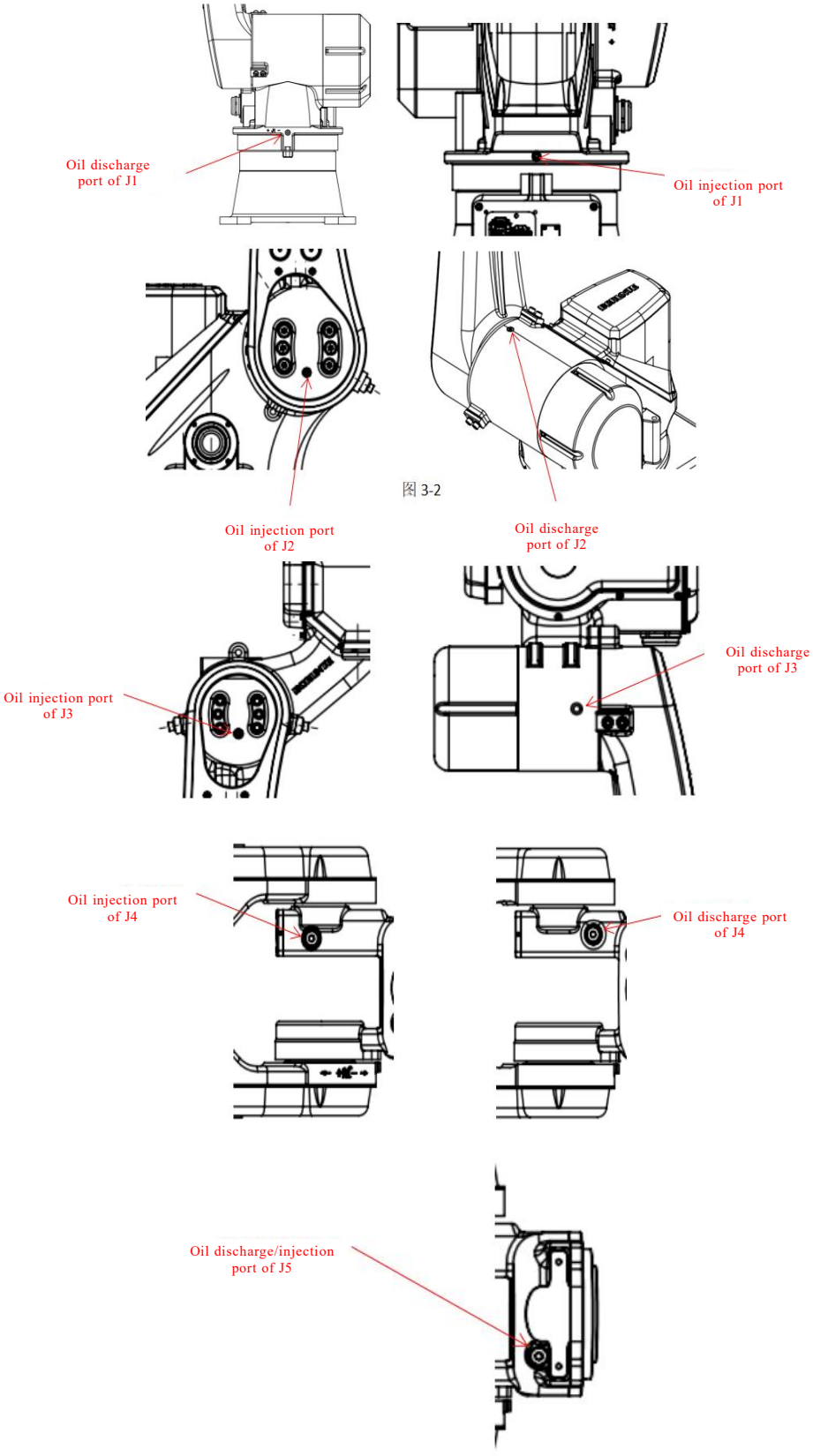


图 3-2

Fig. 2.3.58 Diagram for Oil Injection/discharge of BRTIRWD1506A

2.3.17.5 Diagram of Robot Handling and Hoisting

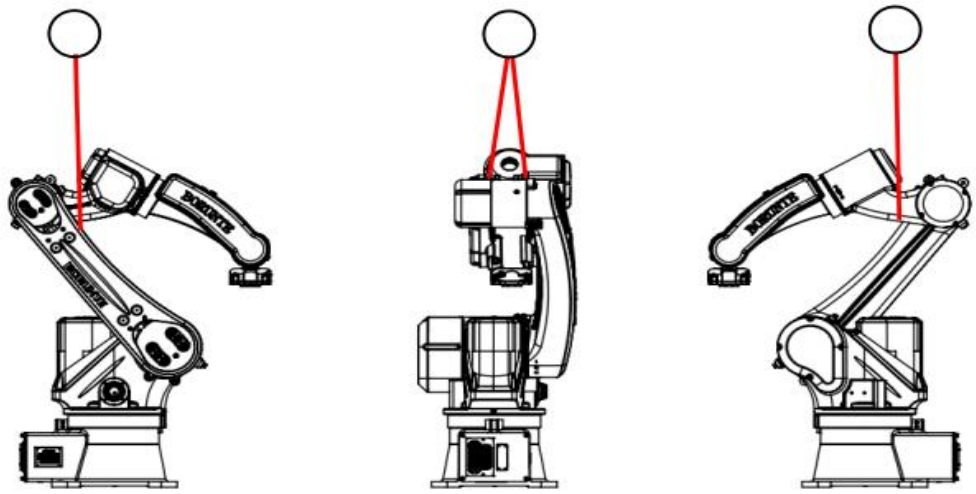


Fig. 2.3.59 Diagram for Handling and Hoisting of BRTIRWD1506A Robot

2.3.18 Six-axis Robot BRTIRWD2206A (Version 21)

2.3.18.1 Introduction to BRTIRWD2206A

2.3.18.1.1 Picture of BRTIRWD2206A



2.3.18.1.2 Introduction to BRTIRWD2206A Robot

BRTIRWD2206A is a six-axis robot that is developed by Borunte for the welding industry. The robot has compact structure, small volume and light weight. Its max. load is 6kg and arm span is 2,280mm. The wrist is provided with vacuum structure which features easy wiring and more flexible actions.

High accuracy- Repeated positioning accuracy is ±0.08mm.

2.3.18.1.3 Application Scenarios of BRTIRWD2206A

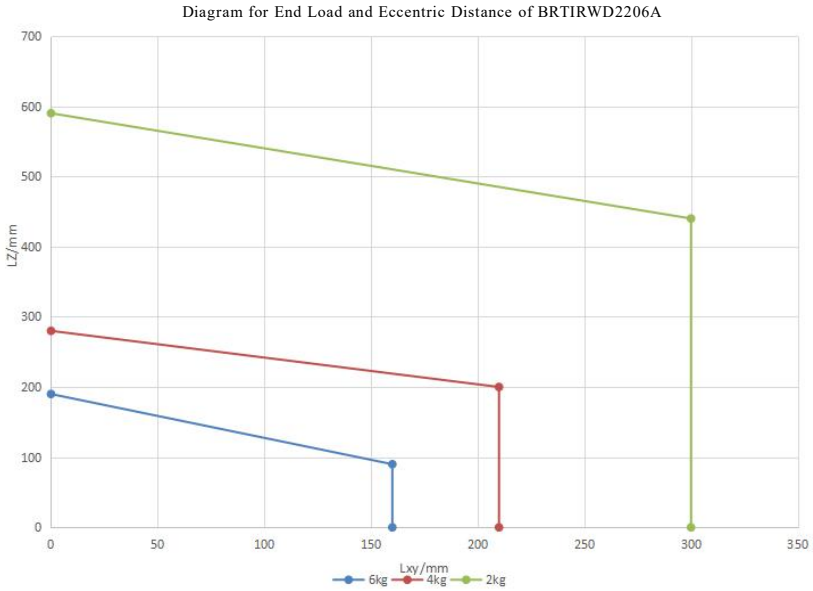
(1) welding (2) injection molding (3) stamping (4) loading and unloading, etc.

2.3.18.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRWD2206A

Model	BRTIRWD2206A					
Number of axes	6 axes					
Payload	6kg					
Repeated positioning accuracy	±0.08mm					
Max. radius of arm span	2280mm					
Body weight	167kg					
Max. speed	J1	106°/s			J2	135°/s
	J3	128°/s			J4	168°/s
	J5	324°/s			J6	504°/s
Motion range	J1	±155°			J2	-130°/+68°
	J3	-75°/+110°			J4	±153°
	J5	-130°/+120°			J6	±360°
Allowable torque	J4	8.21N*m	J5	13.16N*m	J6	9.29N*m
Allowable inertia moment	J4	0.3kg*m²	J5	0.142kg*m²	J6	0.072kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	220V±10%	50/60Hz
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	1400ML	J2	1000ML	J3	1000ML
	J4	/	J5	200ML	J6	100ML
Wearing parts	Timing Belt	MBT233090502 450-5MHP-9 belt width -90 teeth Optibelt OMEGA				
Attached documents	USB					

2.3.18.3 Diagram of Robot Load Capacity



Note: BRTIRWD2206A is designed with the rated load capacity up to 6kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.60 Diagram for Handling and Hoisting of BRTIRWD2206A Robot

2.3.18.4 Origin Calibration/Oil Injection Hole Position of Robot

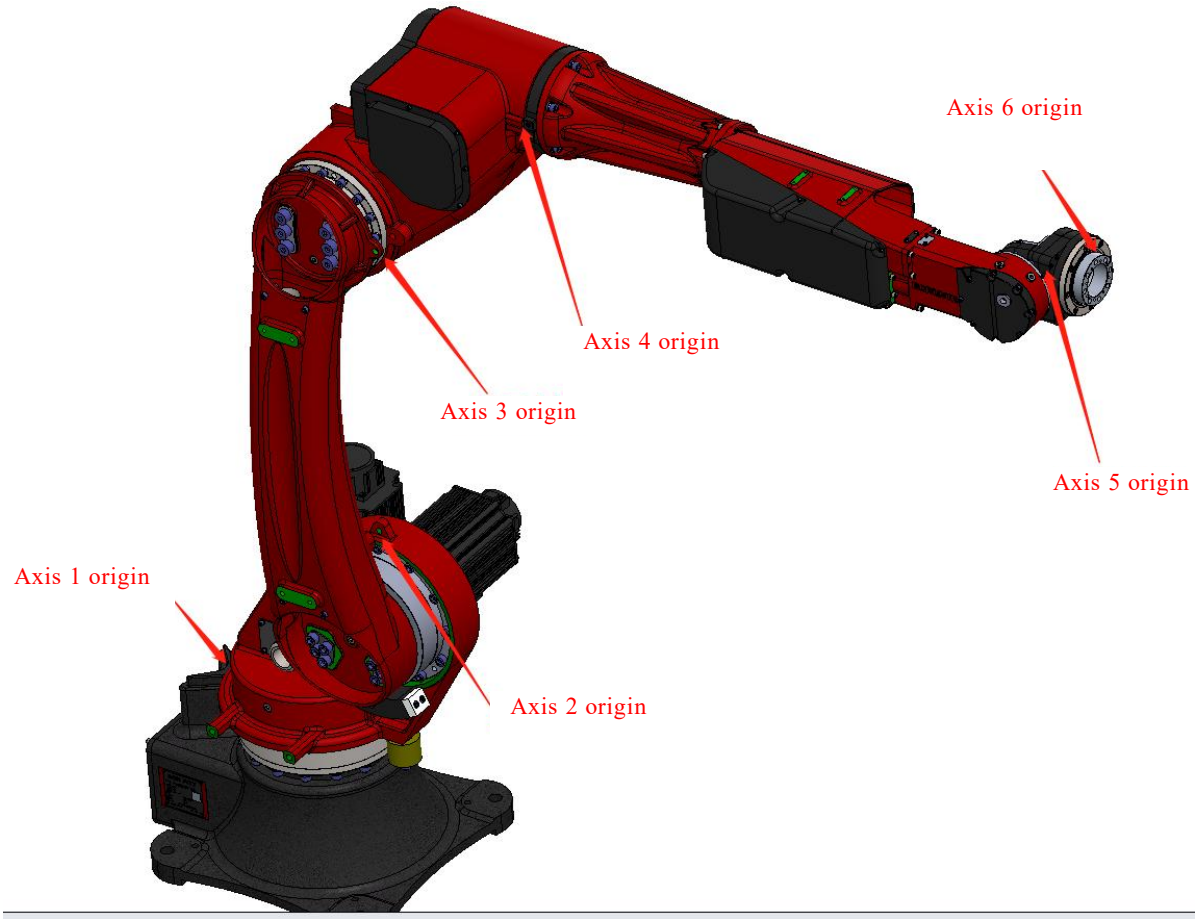
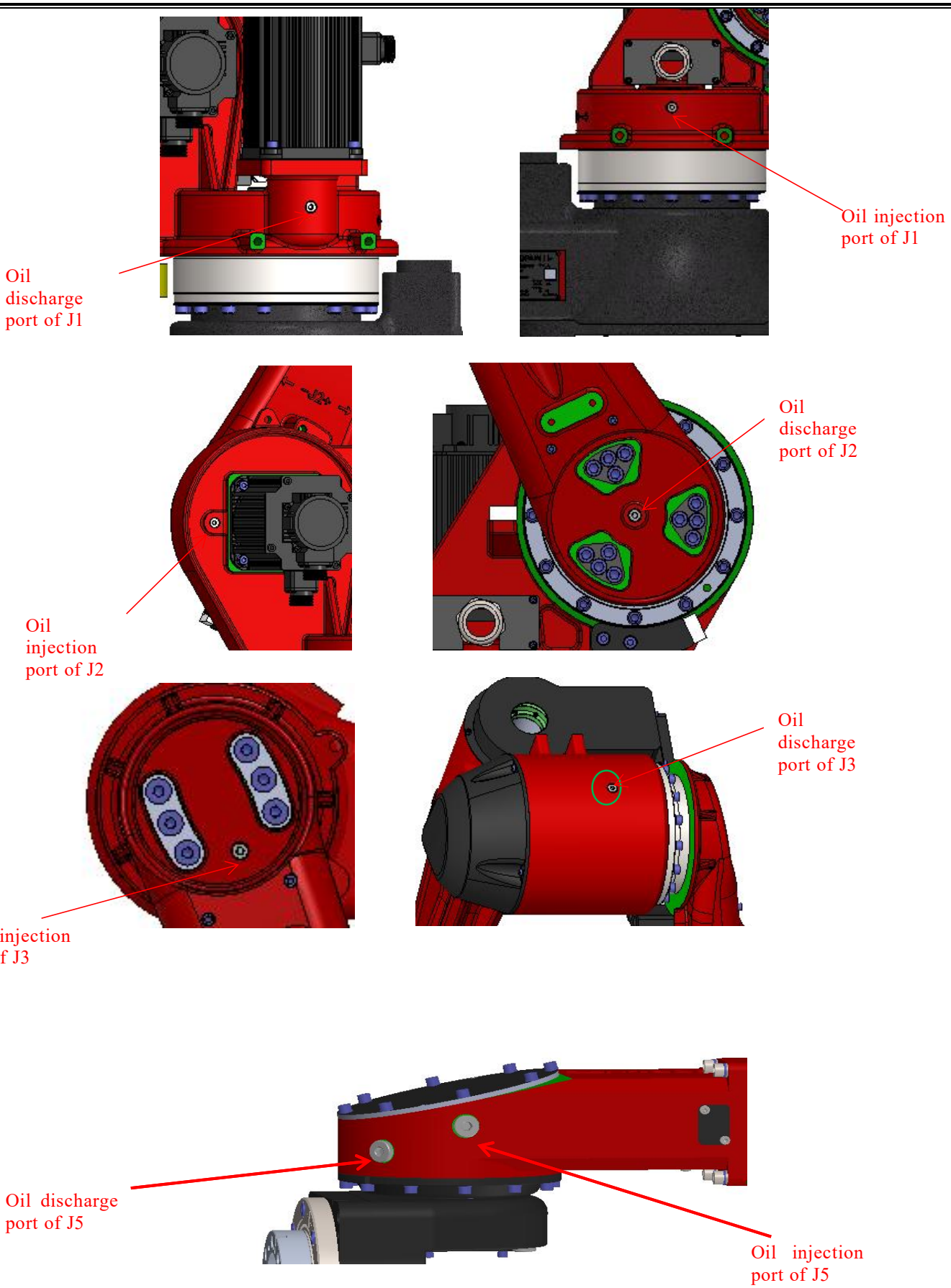
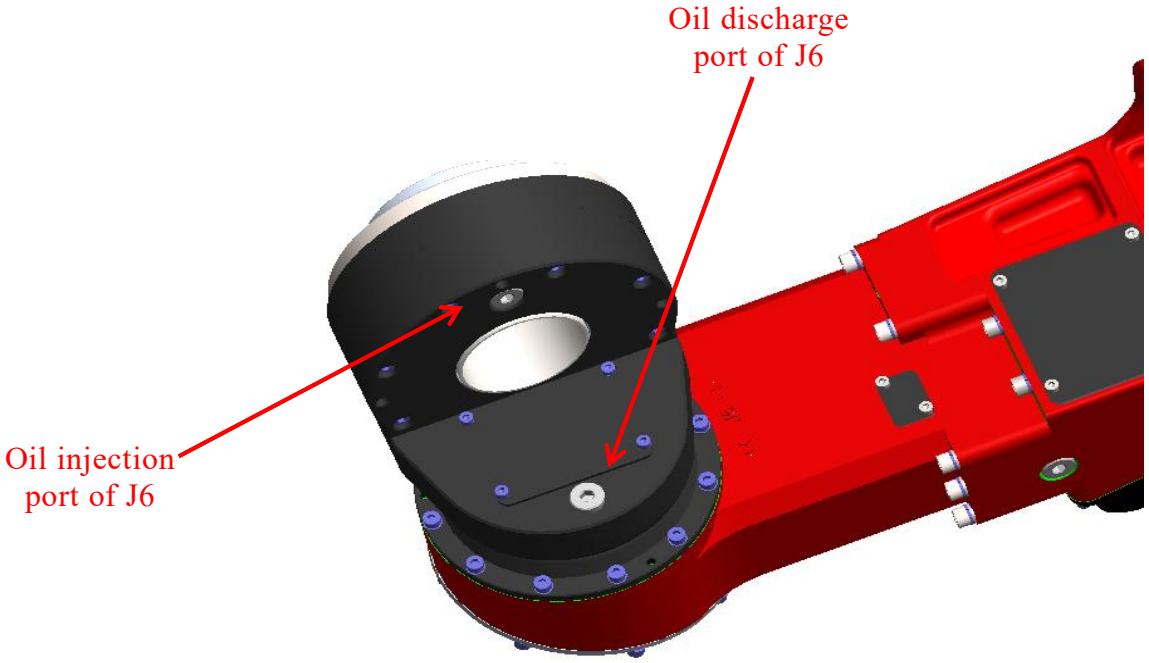


Fig. 2.3.61 Diagram for Origin Calibration of BRTIRWD2206A



Axis 4 rotates by -90° while Axis J5 has oil discharge



Axis 5 rotates by +90° while Axis J6 has oil discharge

Fig. 2.3.62 Diagram for Oil Injection/discharge of BRTIRWD2206A

2.3.18.5 Diagram for Robot Transport, Handling and Hoisting

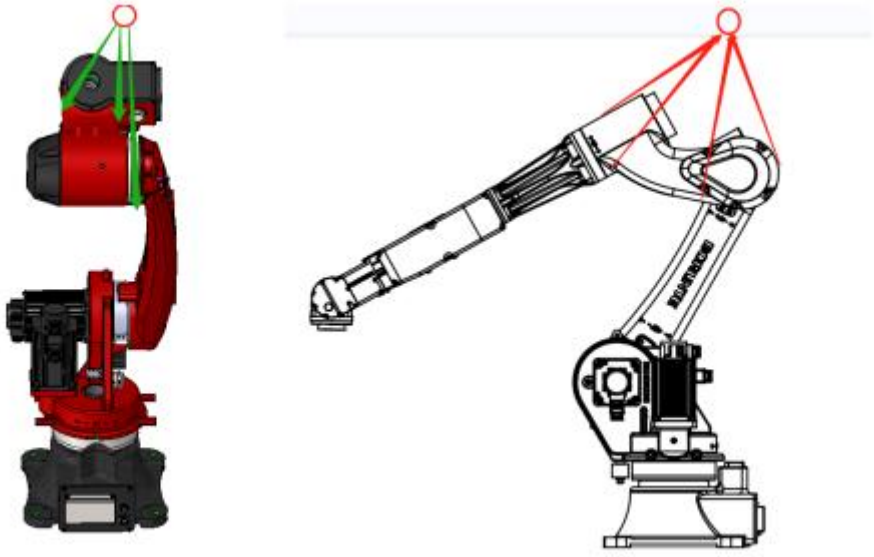


Fig. 2.3.63 Diagram for Handling and Hoisting of BRTIRWD2206A Robot

2.3.19 Six-axis Robot BRTIRSE2013A (Version 21)

2.3.19.1 Introduction to BRTIRSE2013A Robot

2.3.19.1.1 Picture of BRTIRSE2013A Robot



2.3.19.1.2 Introduction to BRTIRSE2013A Robot

BRTIRSE2013A is a six-axis robot that is developed by Borunte for the spraying industry. It has 2,134mm arm span and the max. load capacity up to 13kg. With compact structure, high flexibility and advanced technology, the robot can be widely applied in the fields such as spraying industry and accessory handling.

High protection grade: IP65, dustproof and waterproof.

High accuracy: Repeated positioning accuracy is ±0.5mm.

2.3.19.1.3 Application Scenarios of BRTIRSE2013A

(1) Spraying, etc.

2.3.19.2 Performance Parameter Table of Robot

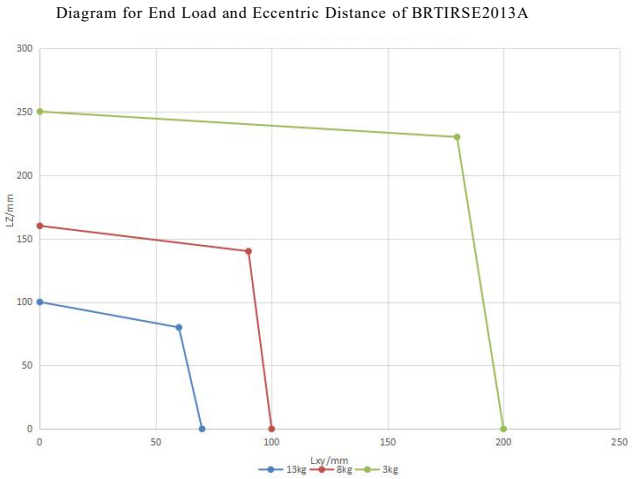
Performance Parameter Table of BRTISE2013A

Model	BRTIRSE2013A					
Number of axes	Axis 6					
Payload	13kg					
IP grade	IP65, dustproof and waterproof					
Repeated positioning accuracy	±0.5mm					
Max. radius of arm span	2134mm					
Body weight	Approx. 385kg					
Max. speed	J1	101.4°/s			J2	105.6°/s
	J3	130.49°/s			J4	368.4°/s
	J5	415.38°/s			J6	545.45°/s
Motion range	J1	±162.5°			J2	±124°
	J3	-57°~+237°			J4	±180°
	J5	±180°			J6	±360°
Allowable torque	J4	15N*m	J5	25.24N*m	J6	25.563N*m
Allowable inertia moment	J4	0.262kg*m²	J5	0.542kg*m²	J6	0.395kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	220V±10% 50/60Hz	
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	2200ML	J2	2200ML	J3	900ML
	J4	/	J5	/	J6	/
Wearing parts	NO					
Attached documents	USB					

2.3.19.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRSE2013A

XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end



Note: BRTIRSE2013A is designed with the rated load capacity up to 13kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life

Fig. 2.3.64 Diagram for Eccentric Load and Distance of BRTIRSE2013A

2.3.19.4 Origin Calibration/Oil Injection Hole Position of Robot

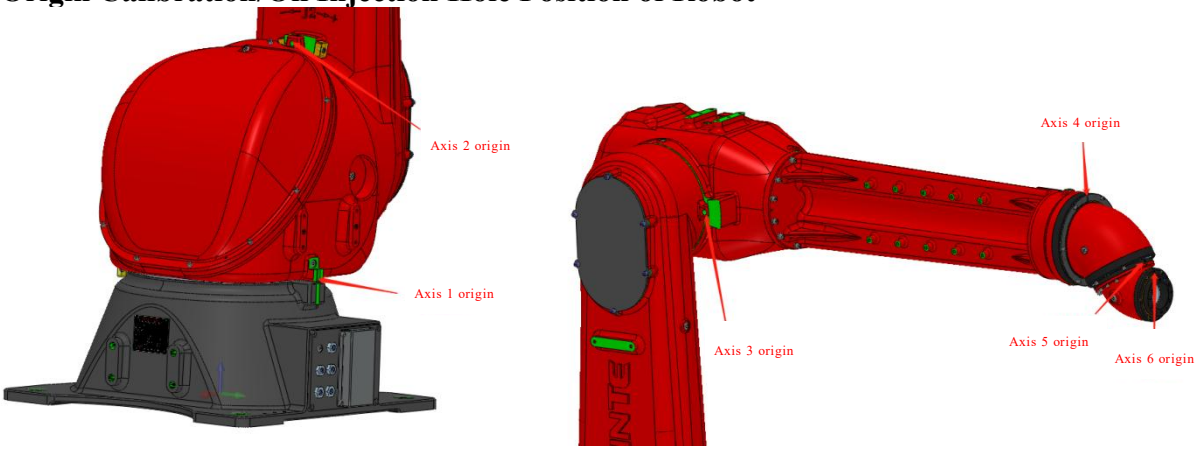


Fig. 2.3.65 Diagram for Origin Calibration of BRTIRSE2013A

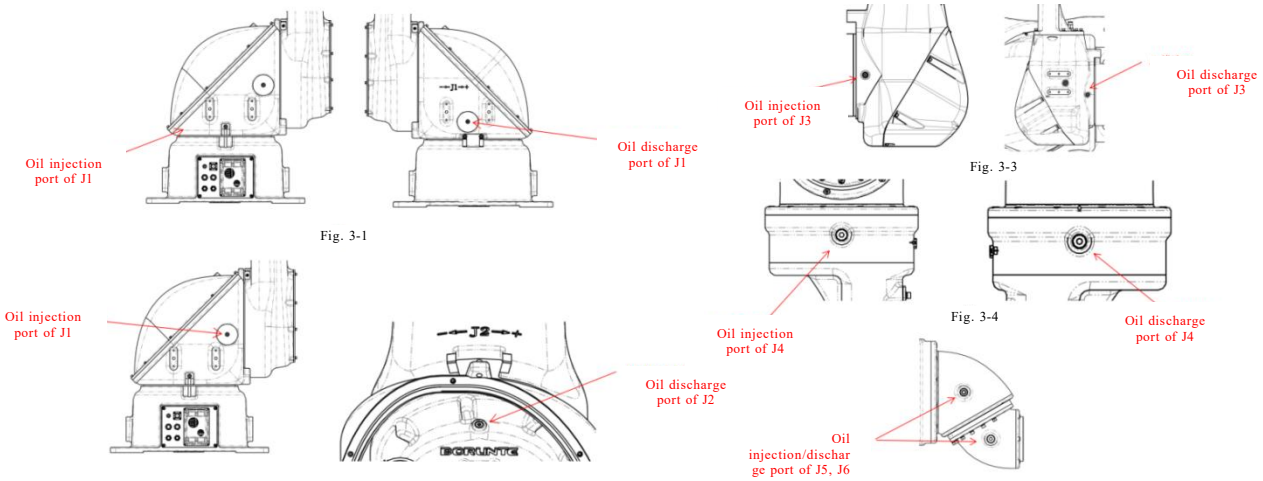


Fig. 2.3.66 Diagram for Oil Injection/discharge of BRTIRSE2013A

2.3.19.5 Diagram for Robot Hoisting and Handling

A crane should be used while handling the robot. Please refer to Fig. 2.3.67 for the handling method. Firstly, set the robot gesture according to the gesture and angle of machine received, then cross the hoisting belt below the body of four axles and make a circle, and both ends of hoisting belt should be placed at both sides of machine body for fear of rollover. The suggested length of hoisting belt is 2.2m~2.5m. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

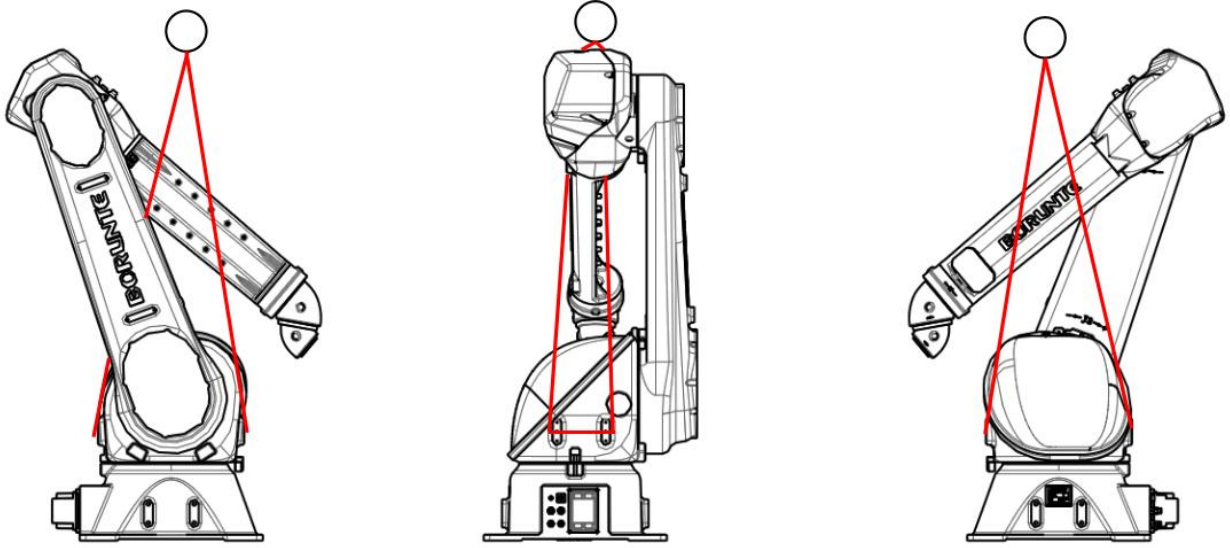


Fig. 2.3.67 Diagram for Handling and Hoisting of BRTIRSE2013A Robot

2.3.20 Six-axis Robot BRTIRSE2013F (Version 21)

2.3.20.1 Introduction to BRTIRSE2013F Robot

2.3.20.1.1 Picture of BRTIRSE2013F Robot



2.3.20.1.2 Introduction to BRTIRSE2013F Robot

BRTIRSE2013F six-axis robot is an explosion-proof spraying robot that has 2,134mm ultra-long arm span and the max. load capacity up to 13kg. The robot has compact structure and provides high-accuracy reducers at all joints. The high-speed joints can realize flexible operation such as handling, stacking, assembly and injection molding. It can be mounted flexibly.

The protection grade reaches IP65. Dust-proof and water-proof.

High accuracy: Repeated positioning accuracy is ±0.5mm.

2.3.20.1.3 Application Scenarios of BRTIRSE2013F

(1) Spraying, etc.

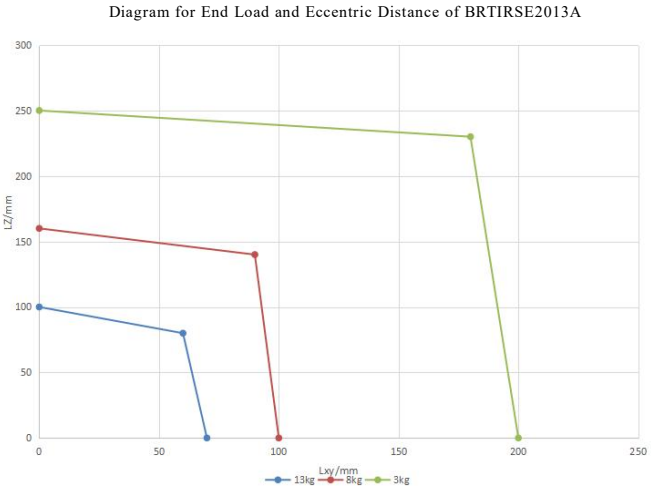
2.3.20.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTISE2013F

Model	BRTIRSE2013F					
Number of axes	Axis 6					
Payload	13kg					
IP code	IP65. Dust-proof and water-proof.					
Repeated positioning accuracy	±0.5mm					
Max. radius of arm span	2134mm					
Body weight	385kg					
Max. speed	J1	101.4°/s			J2	105.6°/s
	J3	130.49°/s			J4	368.4°/s
	J5	415.38°/s			J6	545.45°/s
Motion range	J1	±162.5°			J2	±124°
	J3	-57°~+237°			J4	±180°
	J5	±180°			J6	±360°
Allowable torque	J4	15N*m	J5	25.24N*m	J6	25.563N*m
Allowable inertia moment	J4	0.262kg*m²	J5	0.542kg*m²	J6	0.395kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	220V±10% 50/60Hz	
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	2200ML	J2	2200ML	J3	900ML
	J4	/	J5	/	J6	/
Wearing parts	NO					
Attached documents	USB					

2.3.20.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRSE2013F
XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end



Note: BRTIRSE2013F is designed with the rated load capacity up to 13kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.68 Diagram for Eccentric Load and Distance of BRTIRSE2013F

2.3.20.4 Origin Calibration/Oil Injection Hole Position of Robot

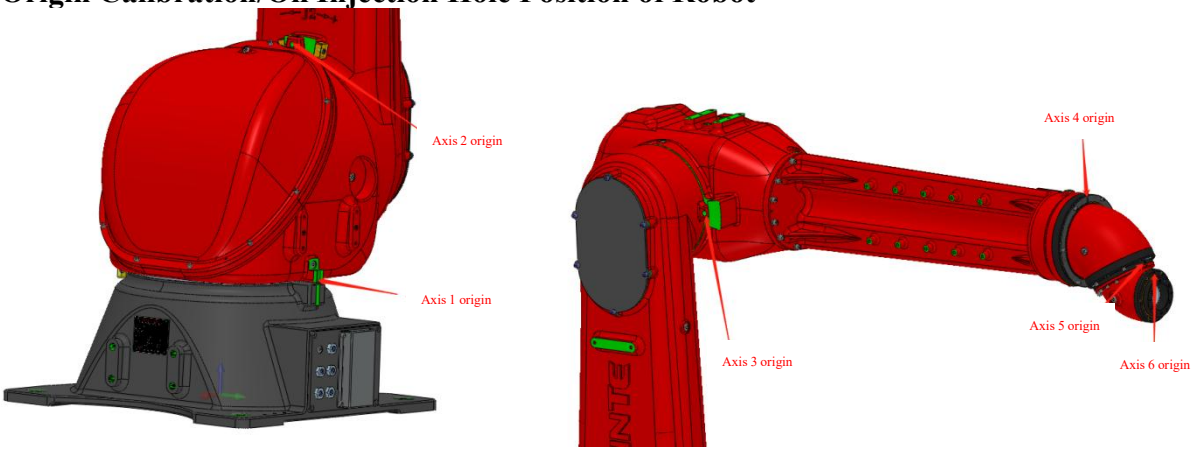


Fig. 2.3.69 Diagram for Origin Calibration of BRTIRSE2013F

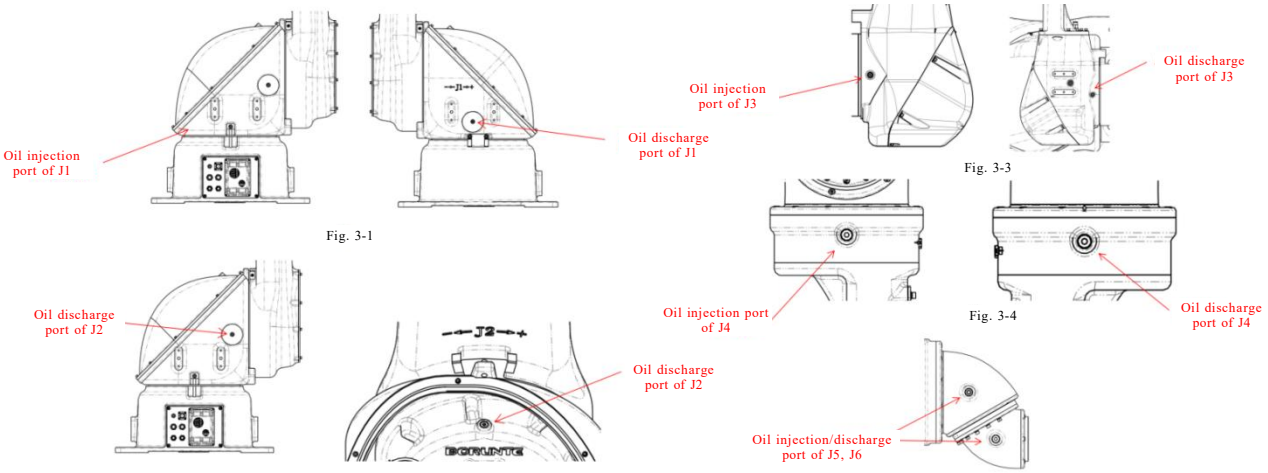


Fig. 2.3.70 Diagram for Oil Injection/discharge of BRTIRSE2013F

2.3.20.5 Diagram for Robot Hoisting and Handling

A crane should be used while handling the robot. Please refer to Fig. 2.3.71 for the handling method. Firstly, set the robot gesture according to the gesture and angle of machine received, then cross the hoisting belt below the body of four axles and make a circle, and both ends of hoisting belt should be placed at both sides of machine body for fear of rollover. The suggested length of hoisting belt is 2.2m~2.5m. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

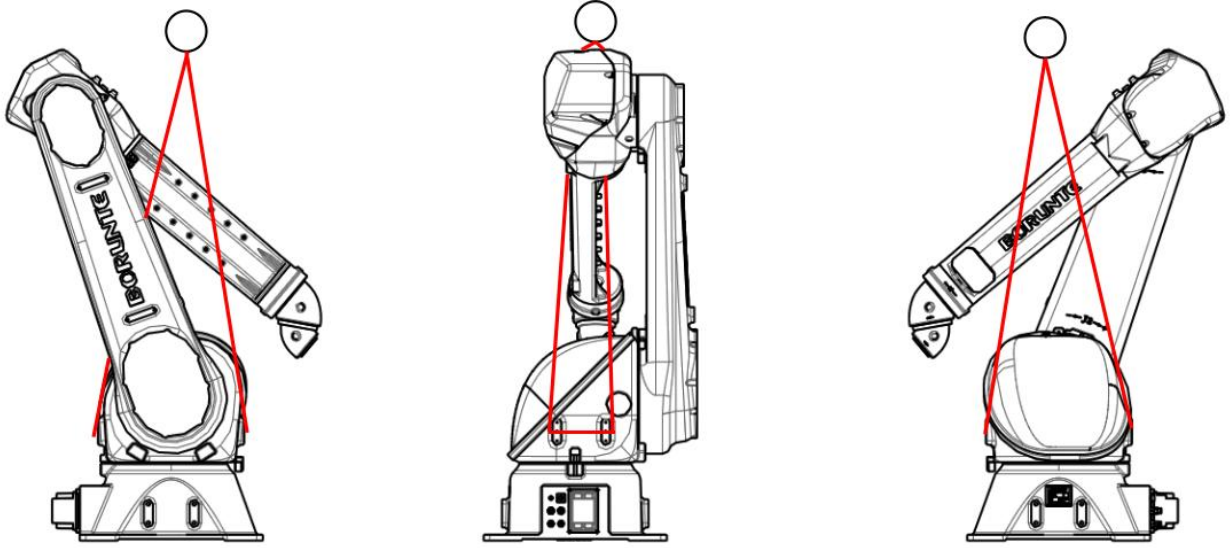


Fig. 2.3.71 Diagram for Handling and Hoisting of BRTIRSE2013F Robot

2.3.21 Six-axis Robot BRTIRUS3050B (Version 10)

2.3.21.1 Introduction to BRTIRUS3050B Robot

2.3.21.1.1 Picture of BRTIRUS3050B Robot



2.3.21.1.2 Introduction to BRTIRUS3050B Six-axis Robot

BRTIRUS3050B is a six-axis robot that is developed by Borunte for the application industries such as handling and stacking. Its max. load capacity can reach 500kg and has 3,050mm arm span. The robot has compact structure and provides high-accuracy reducers at all joints. The high-speed joints can realize flexible operation such as handling and bending of metal plates.

High accuracy: Repeated positioning accuracy is ±0.5mm;

2.3.21.1.3 Application Scenarios of BRTIRUS3050B

(1) palletizing (2) transporting (3) loading and unloading, etc.

2.3.21.2 Performance Parameter Table of Robot

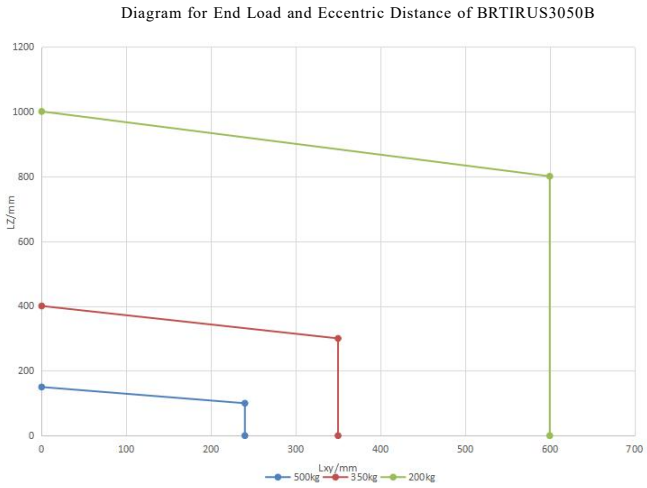
Performance Parameter Table of BRTIRUS3050B

Model	BRTIRUS3050B					
Number of axes	Axis 6					
Payload	500kg					
Repeated positioning accuracy	±0.5mm					
Max. radius of arm span	3366mm					
Body weight	Approx. 3,200kg					
Max. speed	J1	51.1° /s			J2	54.2° /s
	J3	52.4° /s			J4	99.7° /s
	J5	103.7° /s			J6	161.4° /s
Motion range	J1	±160°			J2	±55°
	J3	-55°/+18°			J4	±360°
	J5	±110°			J6	±360°
Allowable torque	J4	2600N*m	J5	2600N*m	J6	930N*m
Allowable inertia moment	J4	1015kg*m²	J5	1015kg*m²	J6	296kg*m²
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	380V±10% 50/60Hz	
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	11000ML	J2	5396ML	J3	5396ML
	J4	17000ML	J5	1857ML	J6	2100ML
Wearing parts	NO					
Attached documents	USB					

2.3.21.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRUS3050B

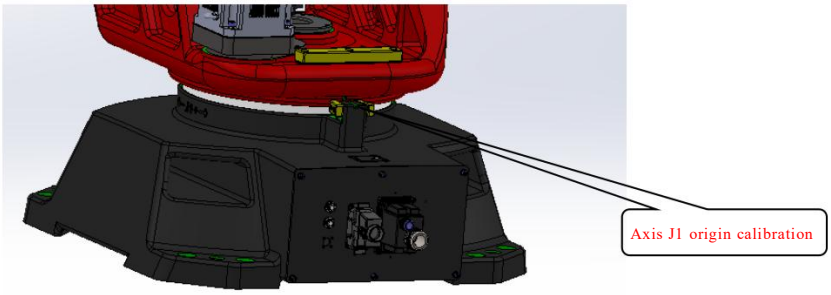
XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end

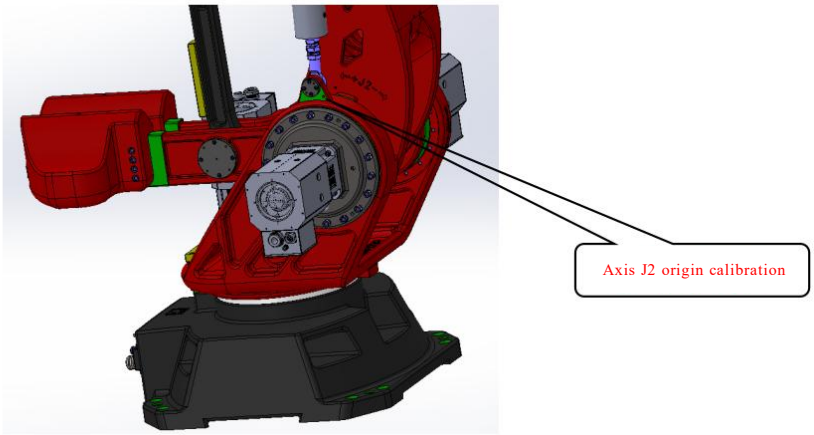


Attention: BRTIRUS3050B is designed with the rated load capacity up to 500kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center. Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.72 Diagram for Eccentric Load and Distance of BRTIRUS3050B

2.3.21.4 Origin Calibration/Oil Injection Hole Position of Robot





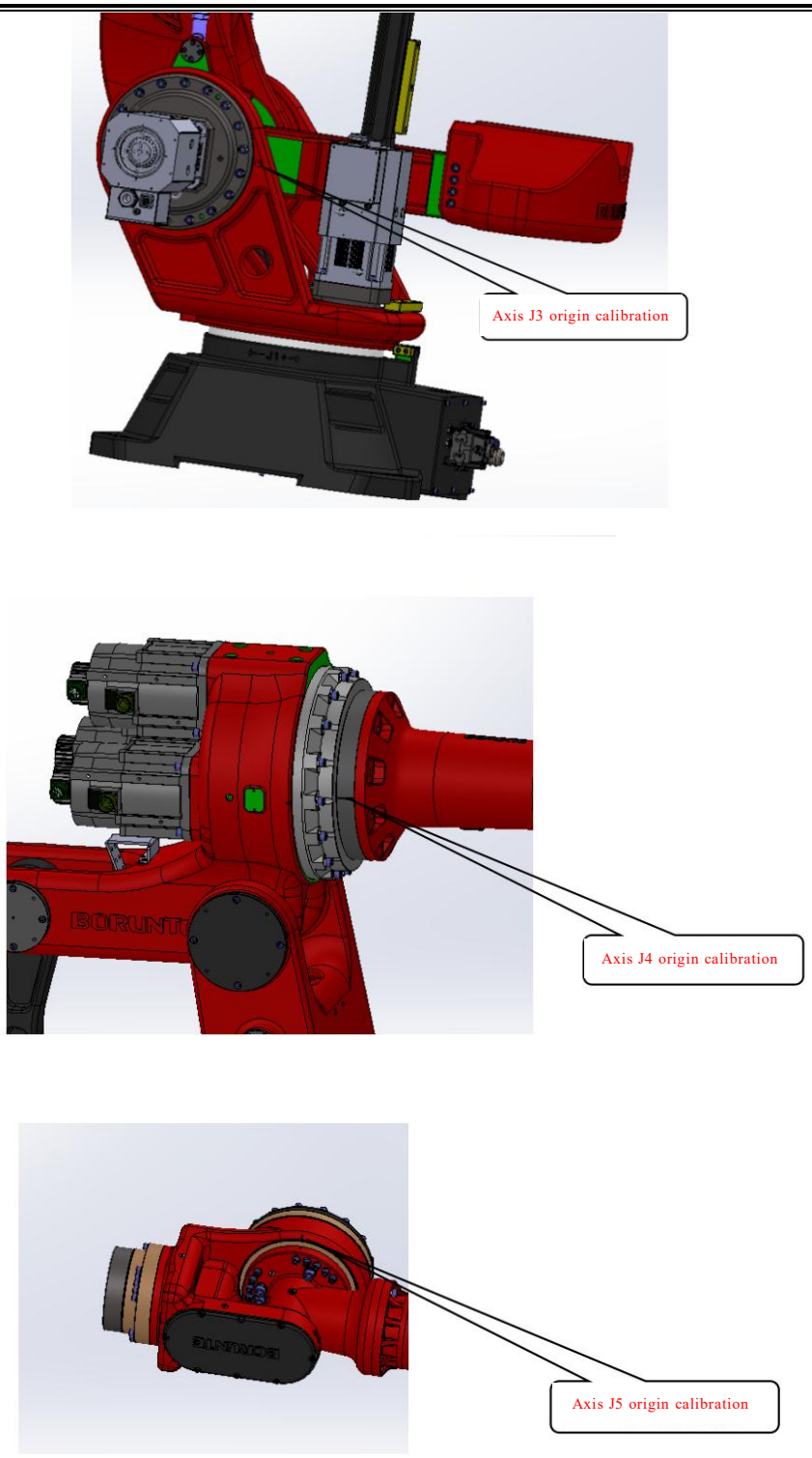
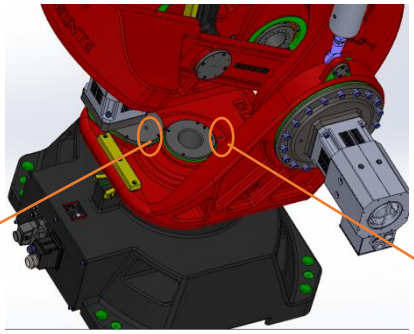
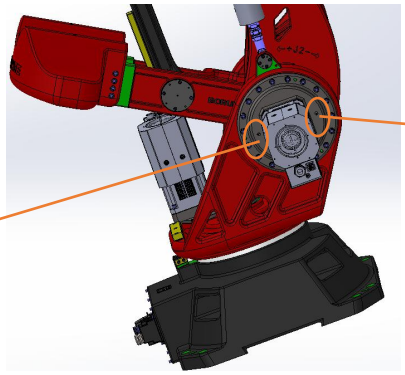
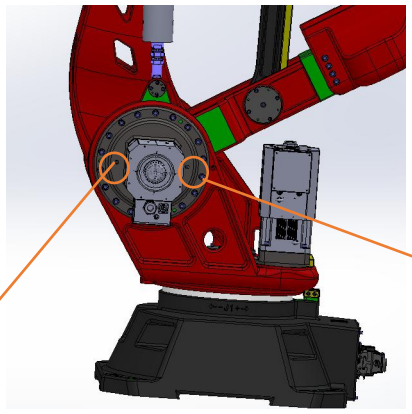
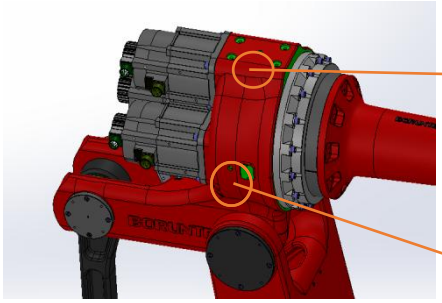


Fig. 2.3.73 Diagram for Origin Calibration of BRTIRUS3050B


Oil discharge port of J1
Oil injection port of J1


Oil injection port of J2
Oil discharge port of J2


Oil discharge port of J3
Oil injection port of J3


Oil discharge port of J4
Oil injection port of J4

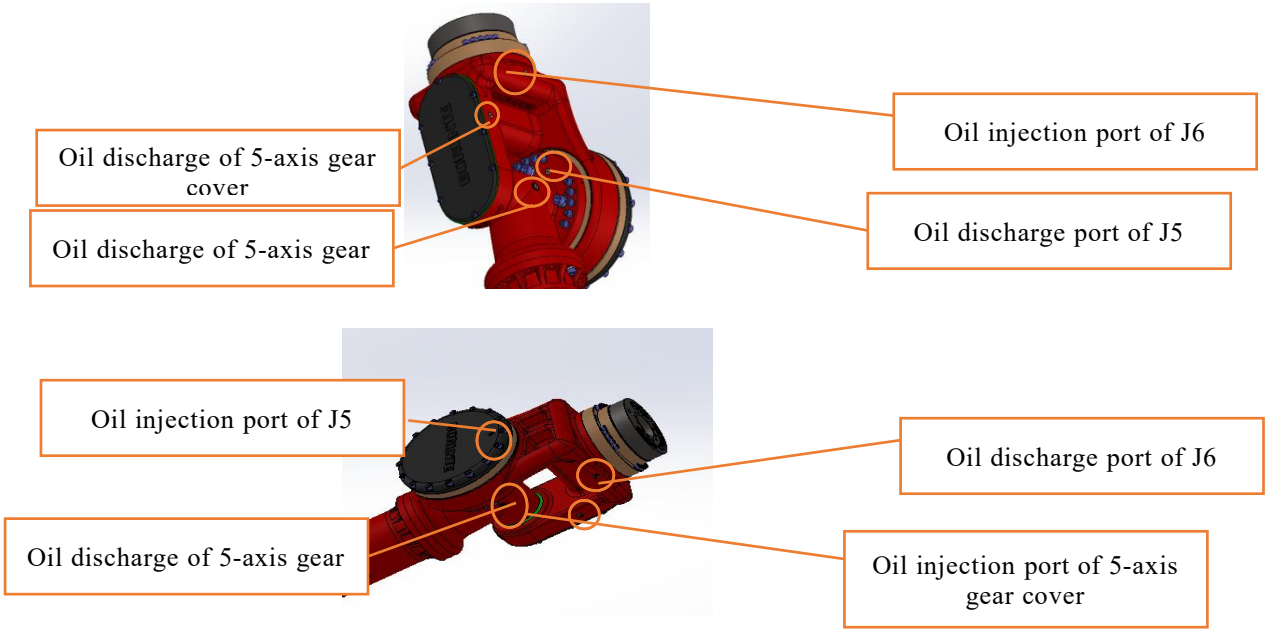


Fig. 2.3.74 Diagram for Oil Injection/discharge of BRTIRUS3050B

2.3.21.5 Diagram for Robot Hoisting and Handling

A crane should be used while handling the robot. Please refer to Fig. 2.3.78 for the handling method. Firstly, set the robot gesture according to the gesture and angle of retracted machine, then cross the hoisting belt through the body of base and evade the corrugated pipe. The suggested length of hoisting belt is 8M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

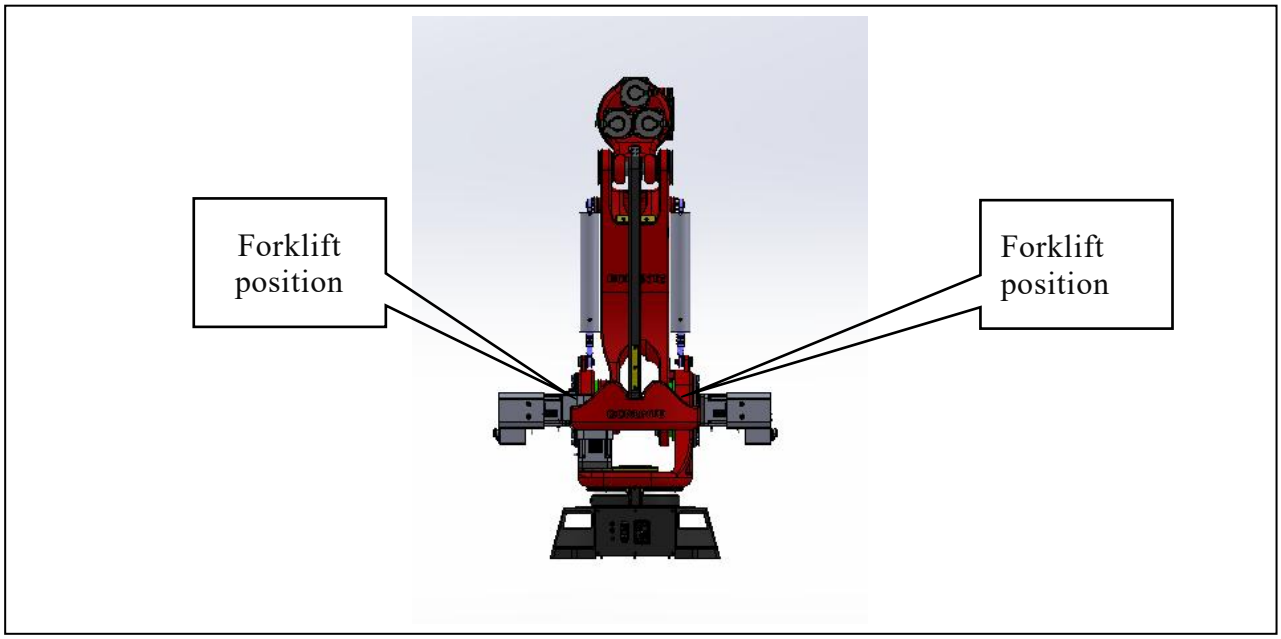


Fig. 2.3.75 Diagram for Handling and Hoisting of BRTIRUS3050B Robot

2.3.22 Four-axis Robot BRTIRPZ2480A (Version 10)

2.3.22.1 Introduction to BRTIRPZ2480A Robot

2.3.22.1.1 Picture of BRTIRPZ2480A Robot



2.3.22.1.2 Introduction to BRTIRPZ2480A Four-axis Robot

BRTIRPZ2480A is a four-axis robot that is developed for monotonous, frequent and long-term operation, or operation under hazardous and severe environment. It has 2,412mm arm span and the max. load capacity up to 80kg. With the flexibility of multi-degree of freedom, it applies to the scenarios such as feeding/discharging, handling, unstacking and stacking.

High accuracy: Repeated positioning accuracy is ±0.2mm.

2.3.22.1.3 Application Scenarios of BRTIRPZ2480A

(1) palletizing (2) depalletizing, etc.

2.3.22.2 Performance Parameter Table of Robot

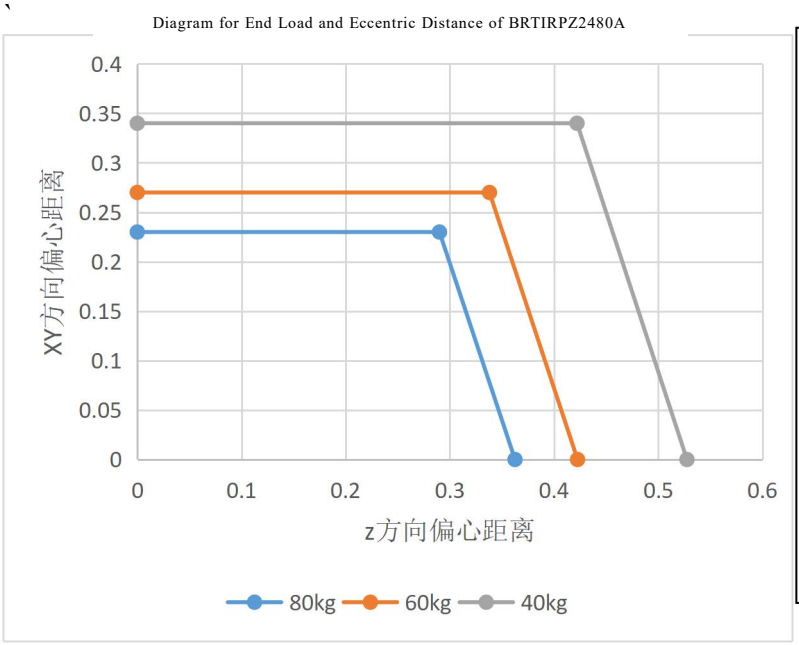
Performance Parameter Table of BRTIRPZ2480A

Model	BRTIRPZ2480A					
Number of axes	Axis 4					
Payload	80kg					
Repeated positioning accuracy	0.2mm					
Max. radius of arm span	2412mm					
Body weight	Approx. 686kg					
Max. speed	J1	148°/s			J2	148°/s
	J3	148°/s			J4	299°/s
Motion range	J1	±160°			J2	-80°/+40°
	J3	-45°/+60°			J4	±360°
	R34	82°~140°				
Allowable torque	J4	120N*m	J5	\	J6	\
Allowable inertia moment	J4	8kg*m²	J5	\	J6	\
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)			Air source pressure	0.5~0.7MPa	
				Power	380V±10% 50/60Hz	
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	2800ML	J2	1600ML	J3	800ML
	J4	150ML				
Wearing parts	NO					
Attached documents	USB					

2.3.22.3 Diagram of Robot Load Capacity

Diagram for End Load and Eccentric Distance (load capacity, unit: mm) of BRTIRPZ2480A

XY direction: Plane direction of robot end Z direction: Vertical to plane direction of end



Attention: BRTIRPZ2480A is designed with the rated load capacity up to 80kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.

Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

Fig. 2.3.76 Diagram for Load Capacity of BRTIRPZ2480A Robot

2.3.22.4 Origin Calibration/Oil Injection Hole Position of Robot

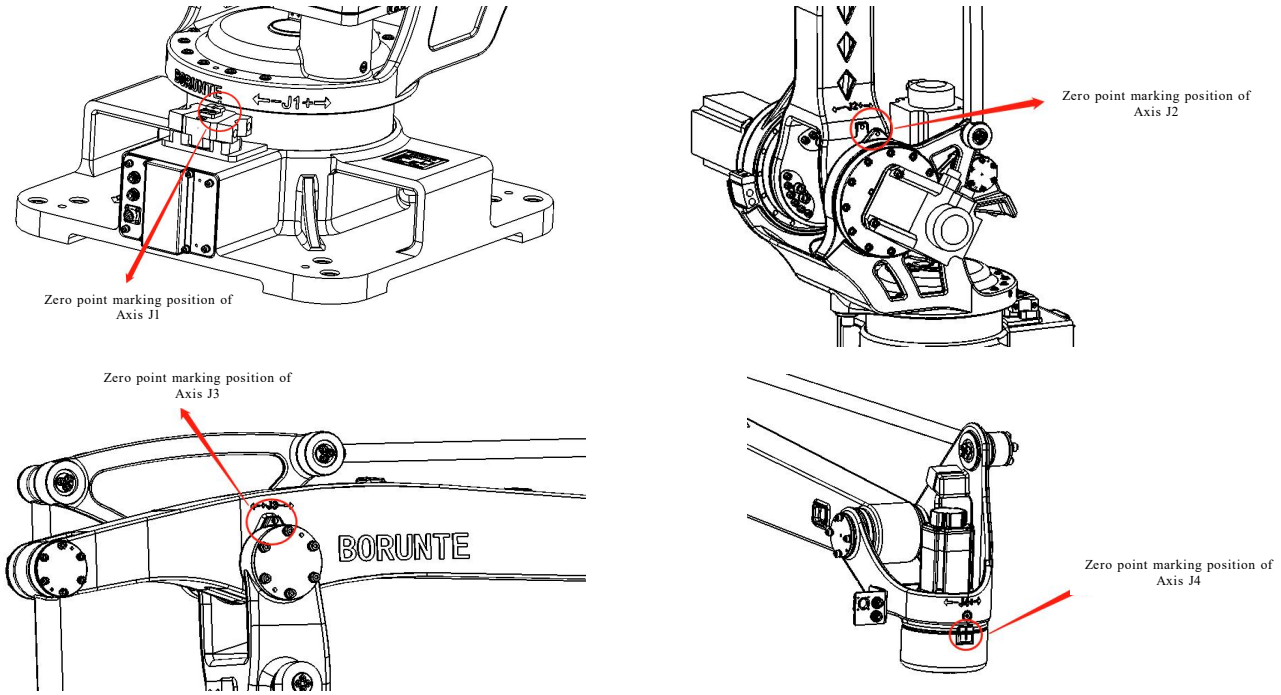


Fig. 2.3.77 Diagram for Origin Calibration of BRTIRPZ2480A

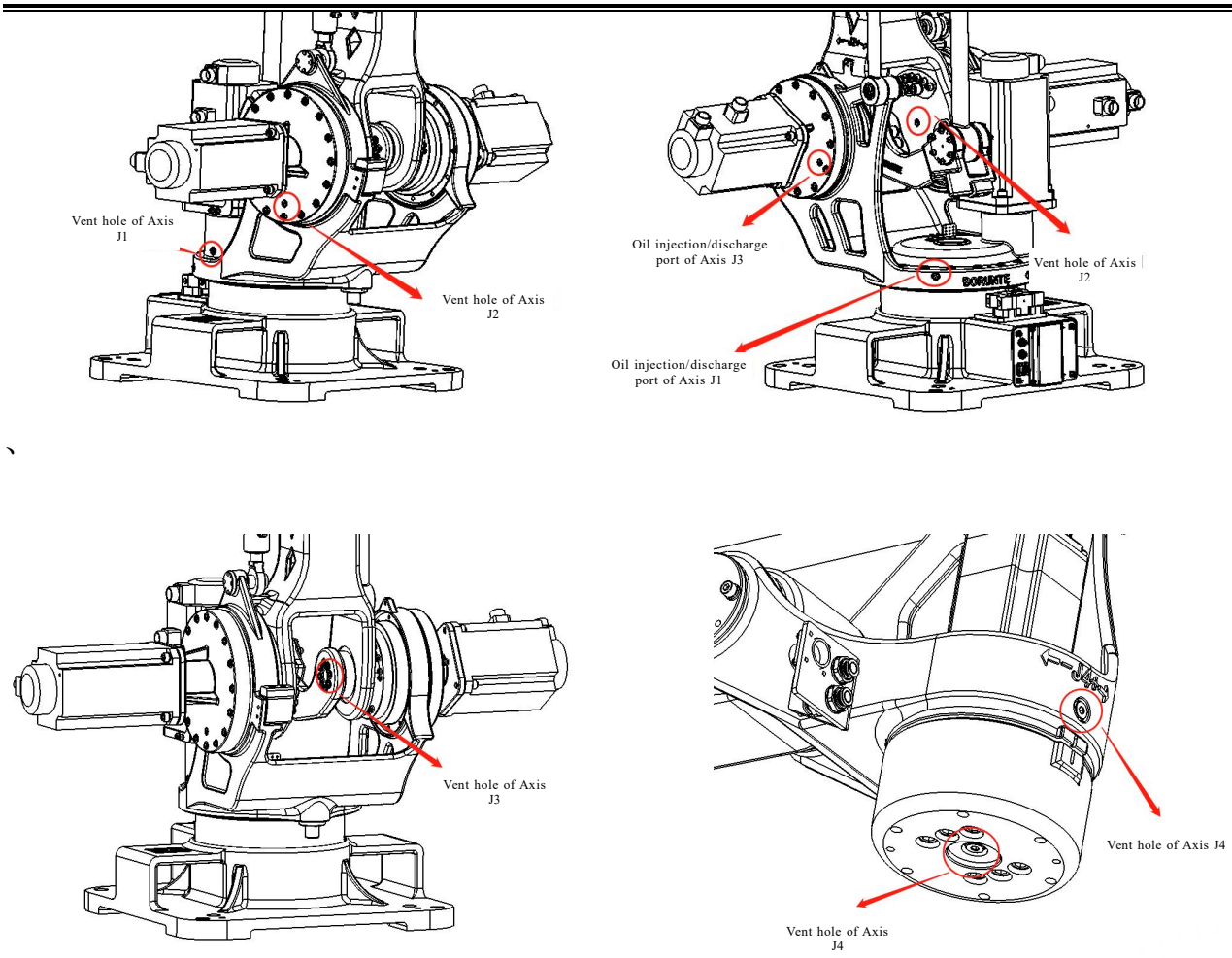


Fig. 2.3.78 Diagram for Oil Injection/discharge Hole Position of BRTIRPZ2480A

2.3.22.5 Diagram for Robot Handling and Hoisting

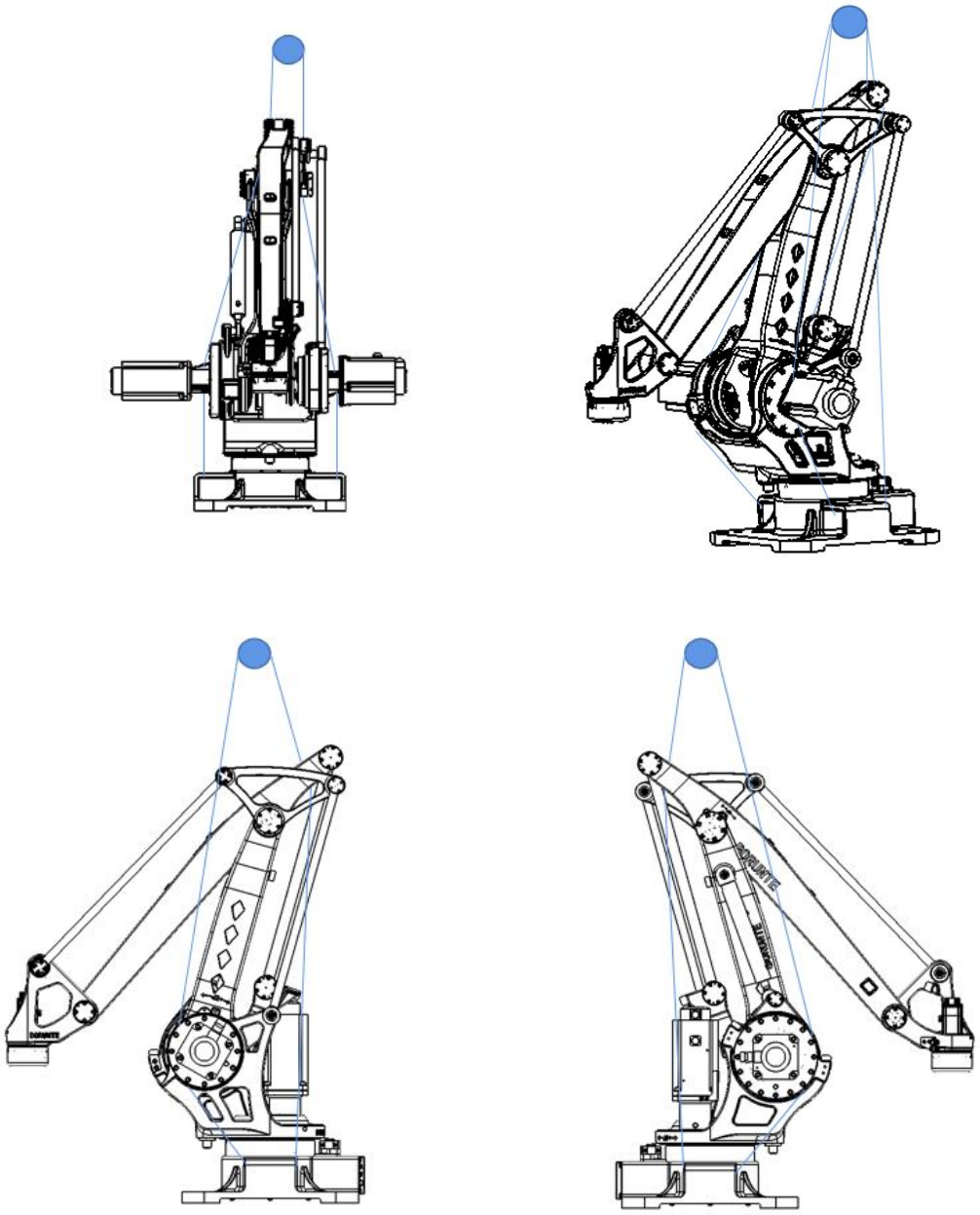


Fig. 2.3.79 Diagram for Handling and Hoisting of BRTIRPZ2480A Robot

2.3.23 Four-axis Robot BRTIRPL1608A (Version 21)

2.3.23.1 Introduction to BRTIRPL1608A Robot

2.3.23.1.1 Picture of BRTIRPL1608A Robot



2.3.23.1.2 Introduction to BRTIRPL1608A Robot

BRTIRPL1608A is a four-axis robot that is developed for the application scenarios, such as assembly and sorting of lightweight, small and scattered objects. It can be mounted with visual system, has 1,600mm arm span and the max. load capacity up to 8kg.

High accuracy: Repeated positioning accuracy is ±0.1mm.

2.3.23.1.3 Application Scenarios of BRTIRPL1608A

(1) sorting (2) transporting, etc.

2.3.23.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRPL1608A

Model	BRTIRPL1608A				
Number of axes	Axis 4				
Payload	8kg				
Repeated positioning accuracy of position	±0.1mm				
Repeated positioning accuracy of angle	±0.5°				
Max. radius of arm span	1600mm				
Weight	95kg				
Max speed	J1	463°/s	J2	463°/s	
	J3	463°/s	J4	600°/s	
Motion range	J1	-38°/+98°	J2	-38°/+98°	
	J3	-38°/+98°	J4	±360°	
Maximum rotational torque	J4	\			
Maximum moment of inertia	J4	\			
Cycle time (times/min)（25-305-25mm）	0kg	3kg	5kg	8kg	
	150	150	130	115	
S Acceleration and deceleration time	0.05s/0.06s	0.05s/0.06s	0.07s/0.09s	0.08s/0.09s	
Maximum linear speed	2.6m/s	2.6m/s	2.6m/s	2.2m/s	
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)		Air source pressure	0.5~0.7MPa	
			Power	220V±10% 50/60Hz	
Core Parts	Name	Operating system	Brand	BORUNTE	
		Casting main body		BORUNTE	
		Servo motor		BORUNTE	
		Reducer		BORUNTE	
		Electrical components		BORUNTE	
Grease amount	J4		25ML		
Vulnerable part	NO				
Attached documents	USB				

2.3.23.3 Diagram of Robot Load Capacity

NO

2.3.23.4 Origin Calibration/Oil Injection Hole Position of Robot

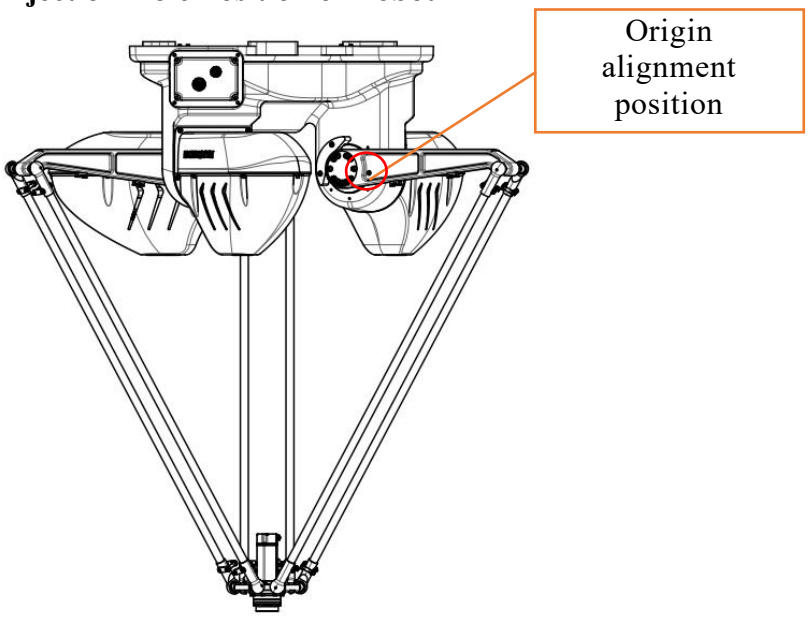


Fig. 2.3.80 Diagram for Origin Calibration of BRTIRPL1608A

2.3.23.5 Diagram for Robot Handling and Hoisting

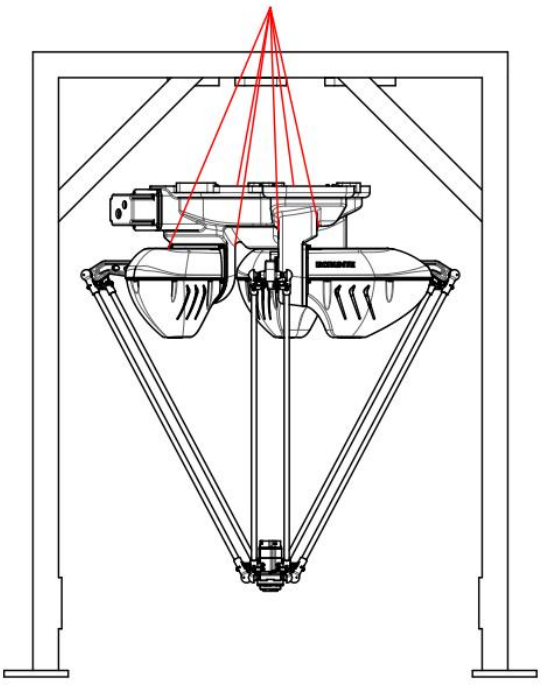


Fig. 2.3.81 Diagram for Handling and Hoisting of BRTIRPL1608A Robot

2.3.24 Five axis robotBRTIRPL1203A(10 version)

2.3.24.1 BRTIRPL1203A robot profile

2.3.24.1.1 BRTIRPL1203A robot picture



2.3.24.1.2 Introduction of BRTIRPL1203A

BRTIRPL1203A is a five axis robot developed by BORUNTE for the assembly, sorting and other application scenarios of light and small scattered materials. It can achieve horizontal grasping, flipping and vertical placement, and can be paired with vision. It has a 1200mm arm span and a maximum load of 3kg.

High accuracy：repeated positioning accuracy: ±0.1mm.

2.3.24.1.3 Application cases of BRTIRPL1203A

(1). sorting (2). transporting, etc.

2.3.24.2 Robot specifications

BRTIRPL1203A robot parameters

Model	BRTIRPL1203A				
Axes	5 axis				
Loading ability	3kg				
Repeated positioning accuracy	±0.1mm				
Angle repeated positioning accuracy	±0.5°				
Maximum arm span	1200mm				
Weight	107kg				
Max speed	J1	595°/s	J2	595°/s	
	J3	595°/s	J4	600°/s	
	J5	600°/s			
Motion range	J1	-35°/+83°	J2	-35°/+83°	
	J3	-35°/+83°	J4	±180°	
	J5	±90°			
Maximum rotational torque	J4	\			
Maximum moment of inertia	J4	\			
Cycle time(time/min）（25-305-25mm）	0kg		3kg		
	143 times/min		143 times/min		
S acceleration and deceleration time	0.05s/0.06s				
Max linear speed	2.5m/s				
Mounting environment	Operating temperature: 0℃~40℃， Relative humidity: 20~80%RH(No condensation)				
Air pressure	0.5-0.7MPa				
Power source	220V±10％ 50Hz±1％				
Core component	Name	Operating system	Brand	BORUNTE	
		Casting body		BORUNTE	
		Servo motor		BORUNTE	
		Reducer		BORUNTE	
		Electrical component		BORUNTE	
Oil content	J4		25ml		
	J5		20ml		
Vulnerable parts	None				
Robot accompanying materials	USB				

2.3.24.3 Robot load capacity diagram

None

2.3.24.4 Robot origin calibration diagram/oil injection hole position

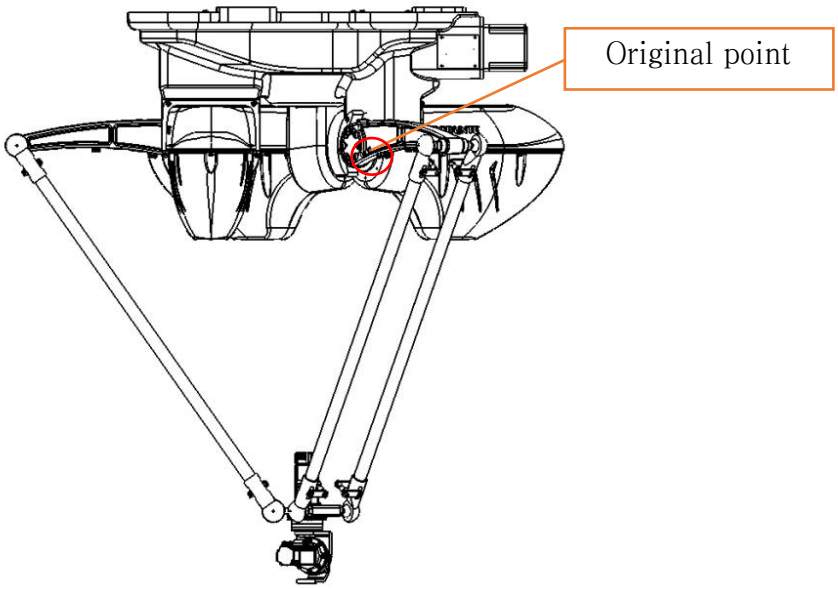


Fig.2.3.82 BRTIRPL1203A Robot origin proofreading diagram

2.3.24.5 Robot handling and lifting diagram

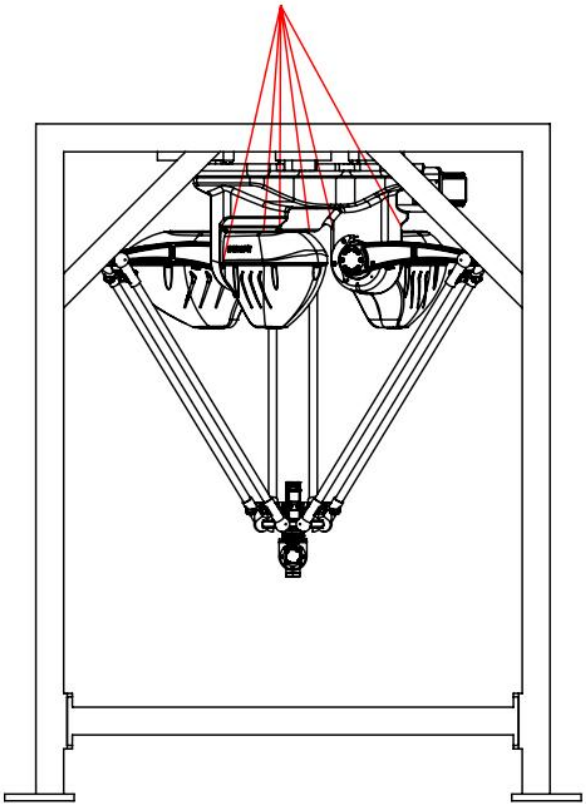


Fig.2.3.83 BRTIRPL1203A Robot handling and lifting diagram

2.3.25 Four axis robot BRTIRPL1215A(10 version)

2.3.25.1 BRTIRPL1215A robot profile

2.3.25.1.1 BRTIRPL1215A robot picture



2.3.25.1.2 Introduction of BRTIRPL1215A

BRTIRPL1215A is a four axis robot developed by BORUNTE for the assembly, sorting, and other appl ication scenarios of scattered materials with medium to large loads. It can be paired with vision and has a 12 00mm arm span, with a maximum load of 15kg.

High accuracy：repeated positioning accuracy: ±0.1mm.

2.3.25.1.3 Application cases of BRTIRPL1215A

(1). sorting (2). transporting, etc.

2.3.25.2 robot specifications

BRTIRPL1215A robot parameters

Model	BRTIRPL1215A						
Axes	4 axis						
Loading ability	15kg						
Repeated positioning accuracy	±0.1mm						
Angle repeated positioning accuracy	±0.5°						
Maximum arm span	1200mm						
Weight	105kg						
Max speed	J1	450°/s		J2	450°/s		
	J3	450°/s		J4	600°/s		
Motion range	J1	-35°/+83°		J2	-35°/+83°		
	J3	-35°/+83°		J4	±360°		
Maximum rotational torque	J4	\					
Maximum moment of inertia	J4	\					
Maximum moment of inertia(time/min）（25-305-25mm）	0kg	5kg	10kg	15kg			
	143	121	107	94			
S acceleration and deceleration time	0.05s/0.06s	0.07s/0.09s	0.08s/0.1s	0.1s/0.12s			
Max linear speed	2.5m/s	2.5m/s	2.2m/s	2.0m/s			
Mounting environment	Operating temperature 0℃~40℃， Relative humidity: 20~80%RH(No condensation)						
Air pressure	0.5-0.7MPa						
Power source	220V±10％ 50Hz±1％						
Core component	Name	Operating system	Brand	BORUNTE			
		Casting body		BORUNTE			
		Servo motor		BORUNTE			
		Reducer		BORUNTE			
		Electrical component		BORUNTE			
Oil content	J4	25ml					
Vulnerable parts	None						
Robot accompanying materials	USB						

2.3.25.3 Robot load capacity diagram

None

2.3.25.4 Robot origin calibration diagram/oil injection hole position

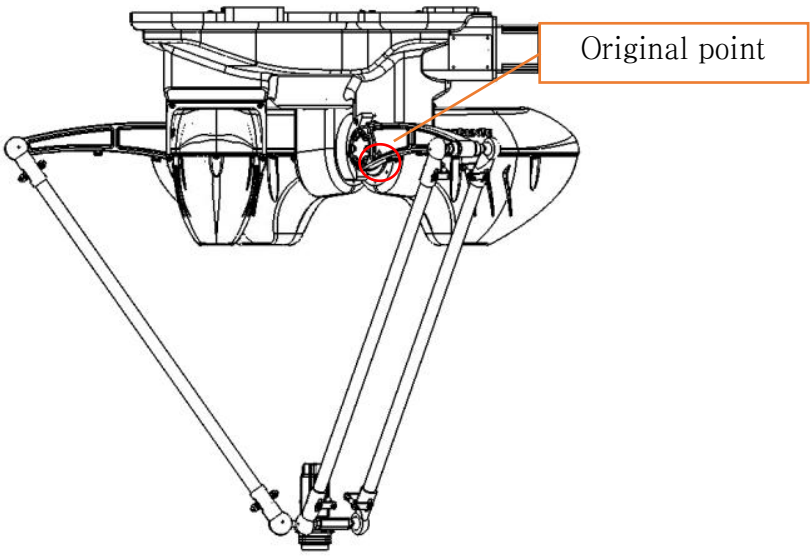


Fig.2.3.84 BRTIRPL1215A Robot origin proofreading diagram

2.3.25.5 Robot handling and lifting diagram

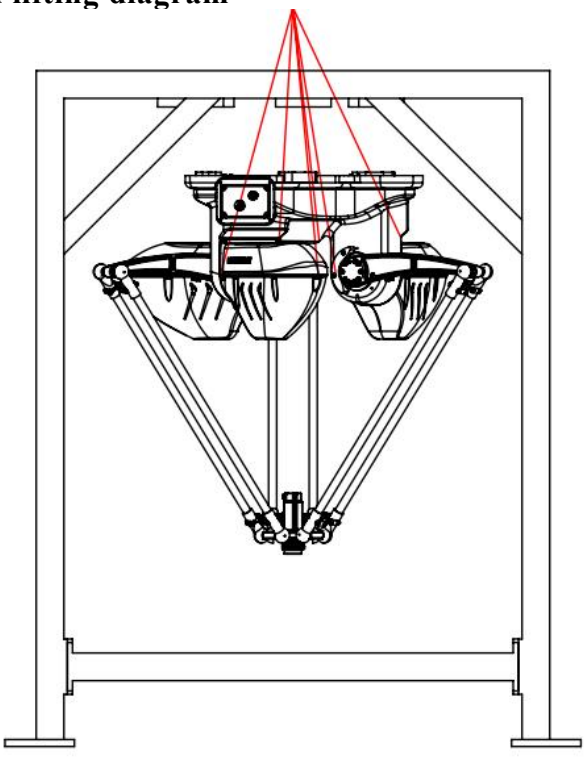


Fig.2.3.85 BRTIRPL1215A Robot handling and lifting diagram

2.3.26 Six axis robot BRTIRXZ1515A (20 version)

2.3.26.1 BRTIRXZ1515A Robot Profile

2.3.26.1.1 BRTIRXZ1515A Robot Picture



2.3.26.1.2 Introduction of BRTIRXZ1515A

BRTIRXZ1515A is a Six axis robot (lightweight) with drag-teaching function independently developed by BORUNTE. with a maximum load of 15kg and a maximum arm length of 1500mm. It has the functions of collision detection、3D Visual Recognition and track reproduction.It is safe and efficient, intelligent and easy to use, flexible and light, economical and reliable, low power consumption and other characteristics, which greatly meet the needs in man-machine cooperation. Its high sensitivity and quick response can be applied to high density flexible production line, to meet the needs of product packaging, injection molding, loading and unloading, assembly and other operations, especially for man-machine collaborative work application demand.

High IP code：IP65, dust-proof and water-proof

High accuracy：repeated positioning accuracy: ±0.08mm.

2.3.26.1.3 Application cases of BRTIRPL1515A

(1) injection molding (2) stamping (3) transporting (4) loading and unloading, etc.

2.3.26.2 robot specifications

BRTIRPL1515A robot parameters

Model	BRTIRXZ1515A					
Axes	6 axis					
Loading ability	15kg					
IP code	IP65 dust-proof, water-proof					
Repeated positioning accuracy	±0.08mm					
Maximum arm span	1500mm					
Weight	63kg					
Max speed	J1	120°/s			J2	113°/s
	J3	106°/s			J4	181°/s
	J5	181°/s			J6	181°/s
Motion range	J1	±180°			J2	±180°
	J3	-65°~+250°			J4	±180°
	J5	±180°			J6	±360°
Maximum rotational torque	J4	33.6N*m	J5	33.6N*m	J6	42N*m
Maximum moment of inertia	J4	0.096kg*m^2	J5	0.096kg*m^2	J6	0.04kg*m^2
Mounting environment	Operating temperature：0℃~40℃ Relative humidity：20~80%RH（No condensation）			Air pressure	0.5~0.7MPa	
				Power source	220V±10% 50Hz±1%	
Core component	Name	Operating system		Brand	BORUNTE	
		Casting body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical component			BORUNTE	
Oil content	None					
Vulnerable parts	None					
Robot accompanying materials	USB					

2.3.26.3 Robot Load Capacity Diagram

None

2.3.26.4 Robot origin calibration diagram/oil injection hole position

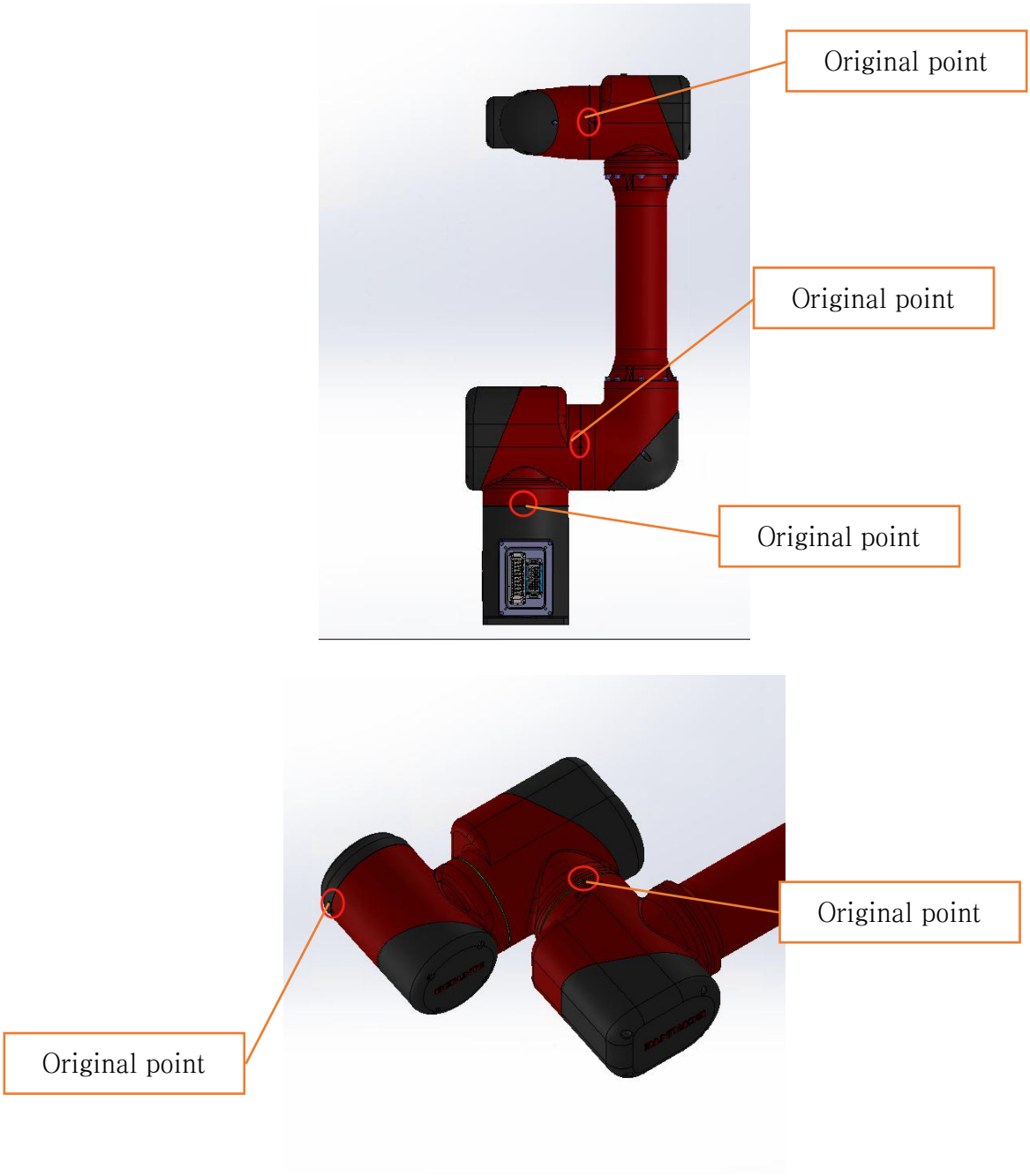


Fig.2.3.86 BRTIRXZ1515A Robot Load Capacity Diagram

None Oil injection and drainage view

2.3.26.5 Robot lifting and handling diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.87. First, set the robot posture according to the standard angle of the receiver posture, and then thread the lifting belt through the three-axis body. It is recommended that the length of the lifting belt be 1M. If there is a plastic bag, the lifting belt should be pierced through the plastic bag.

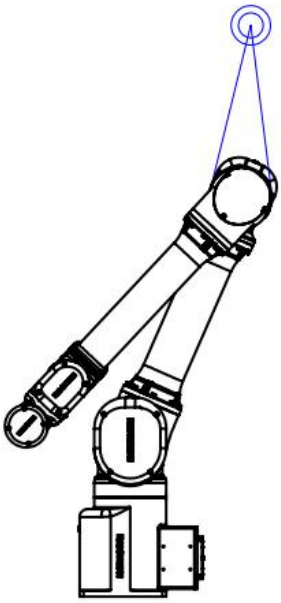


Fig.2.3.87 BRTIRXZ1515A Robot lifting and handling diagram

2.3.27 Four axis robot BRTIRPZ2080A(12 version)

2.3.27.1 BRTIRPZ2080A robot profile

2.3.27.1.1 BRTIRPZ2080A robot picture



2.3.27.1.2 Introduction of Four axis robot BRTIRPZ2080A

BRTIRPZ2080A is a four axis column palletizing robot developed by BORUNTE Robot Co., Ltd. for certain monotonous, frequent, and repetitive long-term operations, or operations in dangerous and harsh environments. It has a 2000mm arm span, a maximum load of 80kg, The flexibility of multiple degrees of freedom can handle scenarios such as loading and unloading, handling, unpacking, and palletizing with ease.

High precision, repeated positioning accuracy: ±0.15mm

2.3.27.1.3 BRTIRPZ2080A Application cases

（1）palletizing（2）depalletizing,etc.

2.3.27.2 Robot parameters

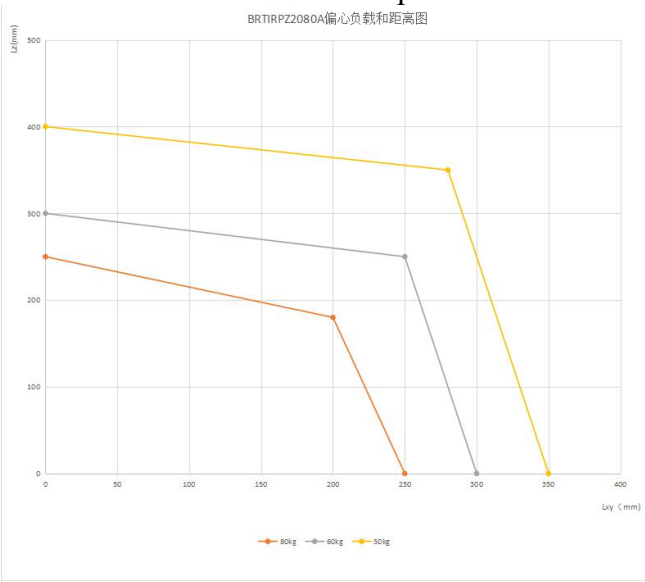
BRTIRPZ2080A robot parameters

<table>
<tr><td>Model</td><td colspan="9">BRTIRPZ2080A</td></tr>
<tr><td>Axes</td><td colspan="9">4 axis</td></tr>
<tr><td>Payload</td><td colspan="9">80kg</td></tr>
<tr><td>Repeated positioning accuracy</td><td colspan="9">±0.15mm</td></tr>
<tr><td>Arm span</td><td colspan="9">2000mm</td></tr>
<tr><td>Driving method</td><td colspan="9">Servo</td></tr>
<tr><td>Weight</td><td colspan="9">577kg</td></tr>
<tr><td rowspan="2">Max speed</td><td>J1</td><td colspan="2">129.6°/s</td><td>J2</td><td colspan="5">600mm/s</td></tr>
<tr><td>J3</td><td colspan="2">160°/s</td><td>J4</td><td colspan="5">296°/s</td></tr>
<tr><td rowspan="2">Motion range</td><td>J1</td><td colspan="2">±100°</td><td>J2</td><td colspan="5">-1800^+5mm</td></tr>
<tr><td>J3</td><td colspan="2">±145°</td><td>J4</td><td colspan="5">±360°</td></tr>
<tr><td rowspan="3">Mounting environment</td><td colspan="3" rowspan="3">Usage temperature： 0℃~40℃
Best temperature：15℃~25℃
Relative humidity：20~80%RH（No condensation）</td><td>Air pressure</td><td colspan="5">0.5~0.7MPa</td></tr>
<tr><td>Power source</td><td colspan="5">220V±10%
50Hz±1%</td></tr>
<tr><td></td><td colspan="5"></td></tr>
<tr><td rowspan="5">Core component</td><td rowspan="5">Name</td><td colspan="2">Operating system</td><td rowspan="5">Brand</td><td colspan="5">BORUNTE</td></tr>
<tr><td colspan="2">Casting body</td><td colspan="5">BORUNTE</td></tr>
<tr><td colspan="2">Servo motor</td><td colspan="5">BORUNTE</td></tr>
<tr><td colspan="2">Reducer</td><td colspan="5">BORUNTE</td></tr>
<tr><td colspan="2">Electrical component</td><td colspan="5">BORUNTE</td></tr>
<tr><td>Oil content</td><td>J1</td><td>/</td><td>J2</td><td>/</td><td>J3</td><td>/</td><td>J4</td><td>/</td></tr>
<tr><td>Vulnerable parts</td><td colspan="9">None</td></tr>
<tr><td>Robot data</td><td colspan="9">USB</td></tr>
</table>

2.3.27.3 Robot Load Capacity Diagram

BRTIRPZ2080A End Load and Eccentricity Diagram (Load Capacity, Unit: mm)

XY direction: robot end plane direction Z direction: perpendicular to the end plane direction



Attention: BRTIRPZ2080A is designed for a rated load capacity of 80kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE Robotics R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.88 BRTIRPZ2080A Robot load capacity diagram

2.3.27.4 Robot origin calibration diagram/oil injection hole position

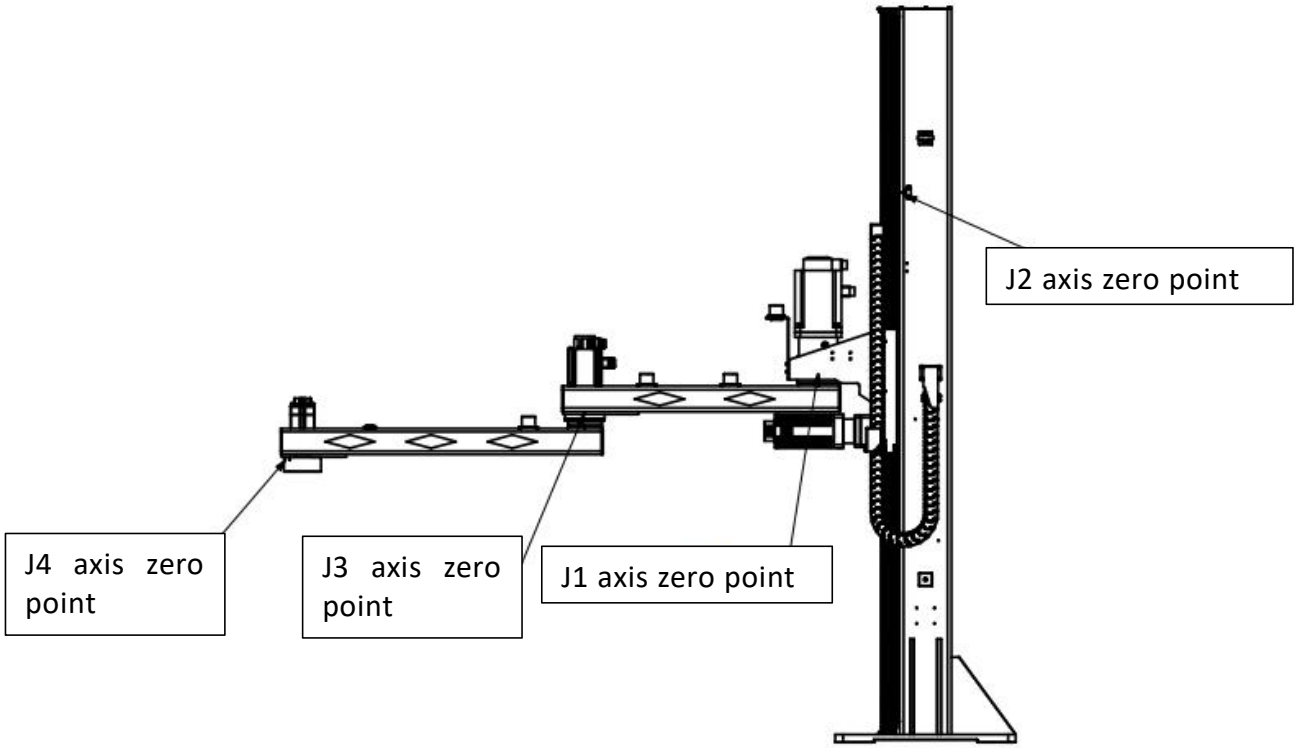


Fig.2.3.89 BRTIRPZ2080A Origin verification diagram

Oil injection and drainage view

None

2.3.27.5 Robot handling and lifting diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.90. First, set the robot posture according to the standard angle of the receiver posture. Then, thread the lifting belt through the lifting ring screw. It is recommended to use two lifting belts with a length of 1.2M. If there is a plastic bag, the lifting belt should be pierced through the plastic bag.

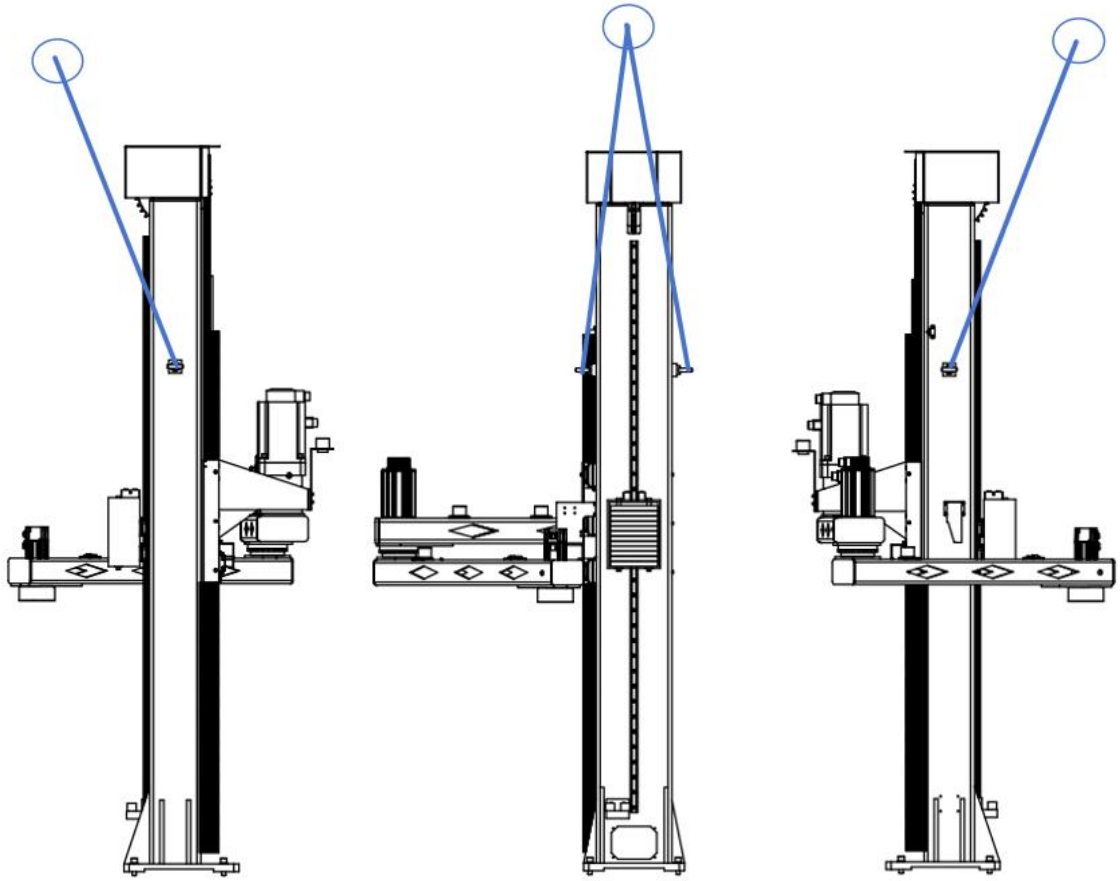


Fig.2.3.90 BRTIRPZ2080A Robot Handling and Lifting Diagram

2.3.28 Four axis robot BRTIRPZ2035A(21version)

2.3.28.1 BRTIRPZ2035A robot profile

2.3.28.1.1 BRTIRPZ2035A robot picture



2.3.28.1.2 Introduction of Four axis robot BRTIRPZ2035A

BRTIRPZ2035A is a four axis robot developed by BORUNTE for certain monotonous, frequent, and repetitive long-term operations, or operations in dangerous and harsh environments. It has a 2040mm arm span and a maximum load capacity of 35kg. With multi degree of freedom flexibility, it can handle loading and unloading, handling, unpacking, palletizing and other scenario.

High precision, repeated positioning accuracy: ±0.15mm

2.3.28.1.3 BRTIRPZ2035A Application cases

（1）stamping（2）palletizing（3）loading and unloading,etc.

2.3.28.2 Robot parameters

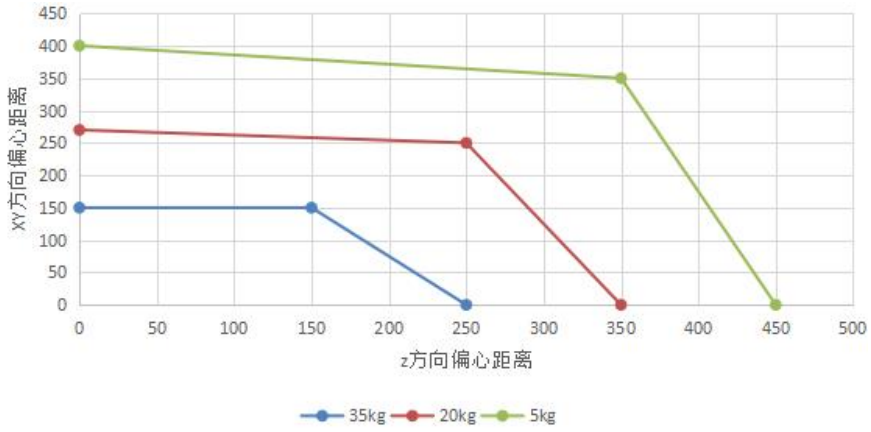
BRTIRPZ2035A robot parameters

Model	BRTIRPZ2035A			
Axes	4 axis			
Payload	35kg			
Repeated positioning accuracy	±0.1mm			
Arm span	2040mm			
Weight	290kg			
Max speed	J1	163°/s	J2	131°/s
	J3	177°/s	J4	296°/s
Motion range	J1	±160°	J2	-100°~+20°
	J3	-60°~+57°	J4	±360°
	R34	68°~198°		
Maximum rotational torque	J4	154.8N*m		
Maximum moment of inertia	J4	2.35Kg*m2		
Mounting environment	Use temperature： 0℃~40℃ Best temperature： 15℃~25℃ Relative humidity：20~80%RH（No condensation）		Air pressure	0.5~0.7MPa
			Power supply	220V±10% 50Hz/60Hz
Core component	Name	Operate sysytem	Brand	BORUNTE
		Casting body		BORUNTE
		Servo motor		BORUNTE
		Reducer		BORUNTE
		Electrical component		BORUNTE
Oil content	None			
Vulnerable parts	None			
Robot data	USB			

2.3.28.3 Robot Load Capacity Diagram

BRTIRPZ2035AEnd load and eccentricity diagram (load capacity, unit: mm)

XY direction: robot end plane direction Z direction: perpendicular to the end plane direction

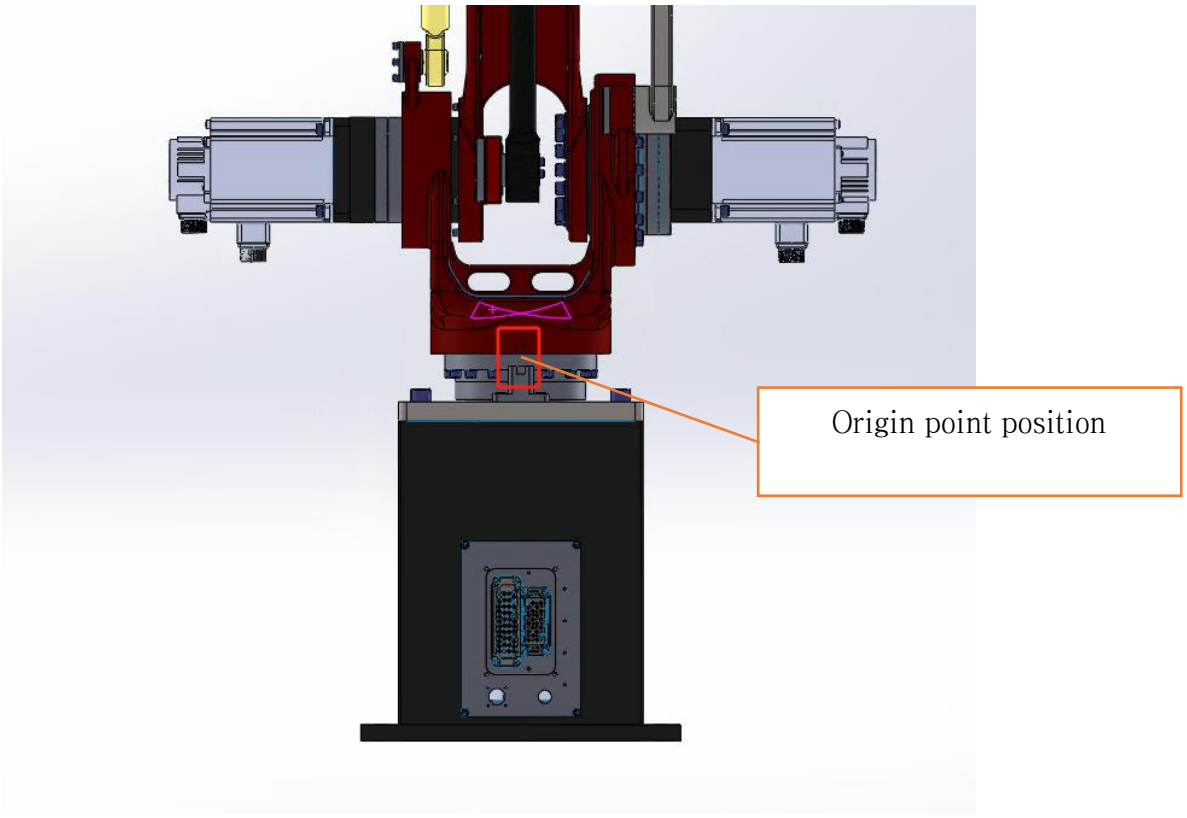


Attention: BRTIRPZ2035A is designed for a rated load capacity of 35kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.91 BRTIRPZ2035A Robot Load Capacity Diagram

2.3.28.4 Robot origin calibration diagram/oil injection hole position



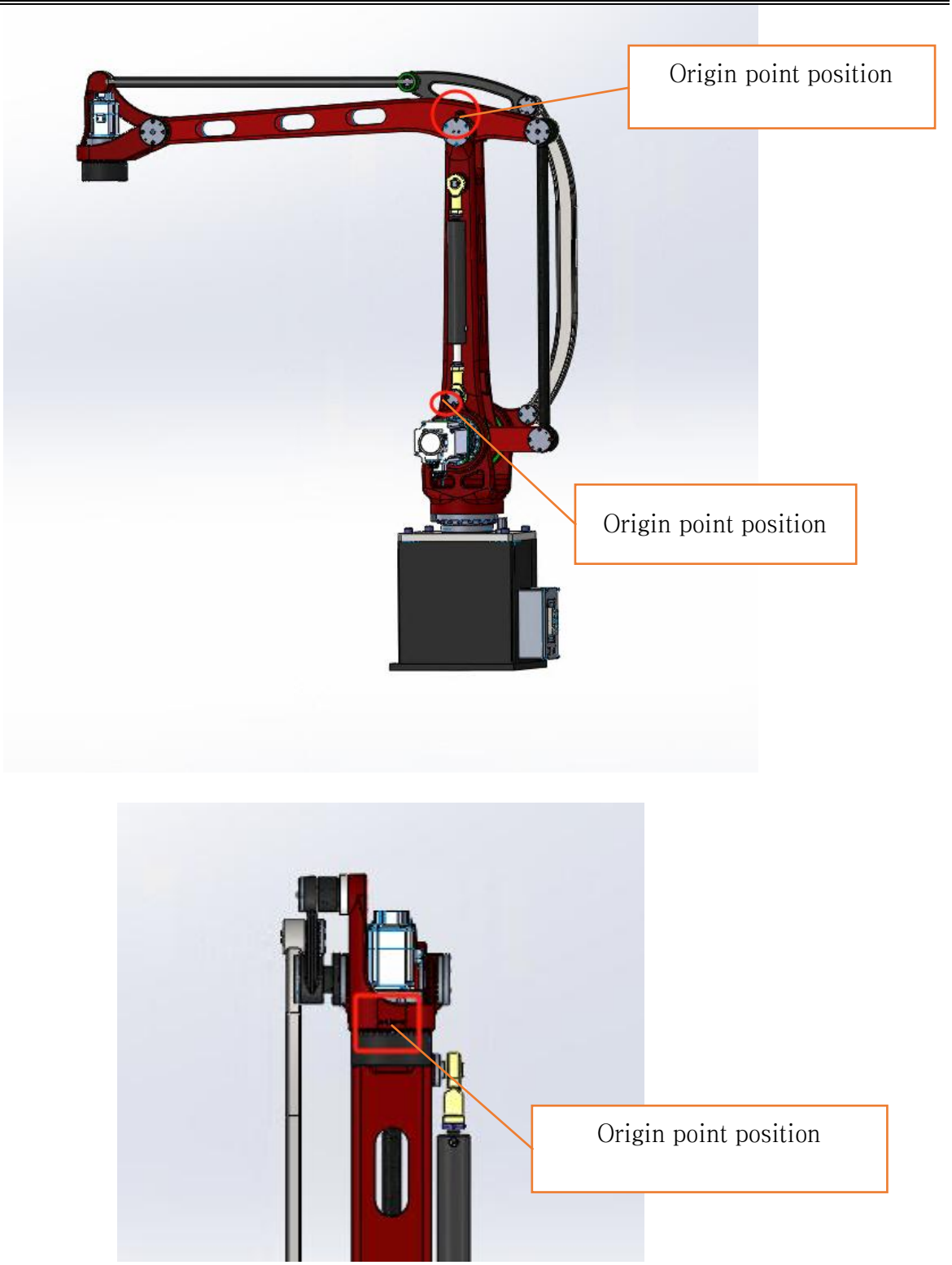


Fig.2.3.92 BRTIRPZ2035A Origin point verification diagram

No oil injection and oil discharge view

2.3.28.5 Robot handling and lifting diagram

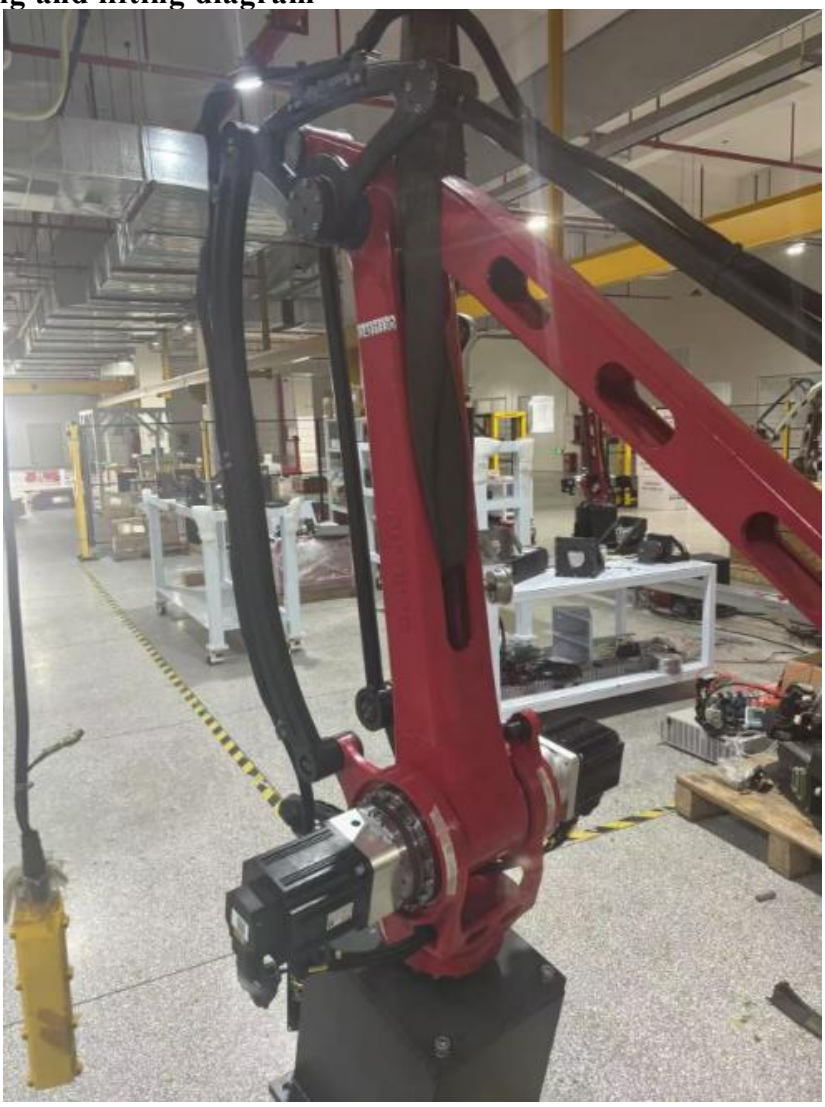


Fig.2.3.93 BRTIRPZ2035A Robot Handling and Lifting Diagram

2.3.29 Four axis robot BRTIRPZ3116B(21 version)

2.3.29.1 BRTIRPZ3116B robot profile

2.3.29.1.1 BRTIRPZ3116B robot picture



2.3.29.1.2 Introduction of Four axis robot BRTIRPZ3116B

BRTIRPZ3116B is a four axis robot developed by BORUNTE, with fast response speed and high accuracy. Its maximum load is 160KG and the maximum arm span can reach 3100mm. Realize large-scale movements with a compact structure, flexible and precise movements. Usage: Suitable for stacking materials in packaging forms such as bags, boxes, bottles, etc.

High precision, repeated positioning accuracy: ±0.15mm

2.3.29.1.3 BRTIRPZ3116B Application cases

(1) palletizing (2) depalletizing, etc

2.3.29.2 robot parameters

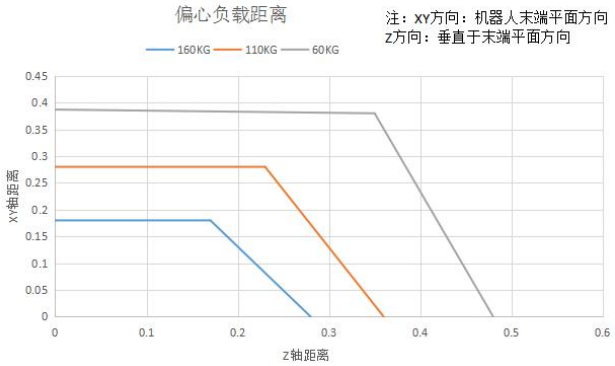
BRTIRPZ3116B robot parameters

<table>
<tr><td>Model</td><td colspan="8">BRTIRPZ3116B</td></tr>
<tr><td>Axes</td><td colspan="8">4 axis</td></tr>
<tr><td>Payload</td><td colspan="8">160kg</td></tr>
<tr><td>Repeated position accuracy</td><td colspan="8">±0.5mm</td></tr>
<tr><td>Arm span</td><td colspan="8">3100mm</td></tr>
<tr><td>Weight</td><td colspan="8">1085kg</td></tr>
<tr><td rowspan="2">Max speed</td><td>J1</td><td colspan="2">120°/s</td><td>J2</td><td colspan="4">120°/s</td></tr>
<tr><td>J3</td><td colspan="2">108°/s</td><td>J4</td><td colspan="4">288°/s</td></tr>
<tr><td rowspan="3">Motion range</td><td>J1</td><td colspan="2">±158°</td><td>J2</td><td colspan="4">-84°/+40°</td></tr>
<tr><td>J3</td><td colspan="2">-65°/+70°</td><td>J4</td><td colspan="4">±360°</td></tr>
<tr><td>R34</td><td colspan="2">65°~190°</td><td colspan="5">/</td></tr>
<tr><td>Maximum rotational torque</td><td colspan="3">J4</td><td colspan="5">250N*m</td></tr>
<tr><td>Maximum moment of inertia</td><td colspan="3">J4</td><td colspan="5">15kg*m²s</td></tr>
<tr><td rowspan="2">Mounting environment</td><td colspan="3" rowspan="2">Use temperature： 0℃~40℃
Best temperature：15℃~25℃
Relative humidity：20~80%RH（No condensation）</td><td>Air pressure</td><td colspan="4">0.5~0.7MPa</td></tr>
<tr><td>Power source</td><td colspan="4">380V±10%
50Hz/60Hz</td></tr>
<tr><td rowspan="5">Core component</td><td rowspan="5">Name</td><td colspan="2">Operate system</td><td rowspan="5">Brand</td><td colspan="4">BORUNTE</td></tr>
<tr><td colspan="2">Casting body</td><td colspan="4">BORUNTE</td></tr>
<tr><td colspan="2">Servo motor</td><td colspan="4">BORUNTE</td></tr>
<tr><td colspan="2">Reducer</td><td colspan="4">BORUNTE</td></tr>
<tr><td colspan="2"></td><td colspan="4">BORUNTE</td></tr>
<tr><td>RV Oil content</td><td>J1</td><td>4400ML</td><td>J2</td><td>/</td><td>J3</td><td>/</td><td>J4</td><td>/</td></tr>
<tr><td rowspan="2">Vulnerable parts</td><td colspan="2">One axis skeleton oil seal</td><td colspan="7">PRG01072056A skeleton oil seal 72 * 56 * 9 (outer diameter * inner diameter * thickness) Material: fluorine rubber</td></tr>
<tr><td colspan="2">Two axis skeleton oil seal</td><td colspan="7">PRG01110085A skeleton oil seal 110 * 85 * 10 (outer diameter * inner diameter * thickness) Material: fluorine rubber</td></tr>
<tr><td>Robot data</td><td colspan="9">USB</td></tr>
</table>

2.3.29.3 Robot Load Capacity Diagram

BRTIRPZ3116B End Load and Eccentricity Diagram (Load Capacity, Unit: mm)

XY direction: robot end plane direction Z direction: perpendicular to the end plane direction



Attention: BRTIRPZ3116B is designed for a rated load capacity of 160kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.94 BRTIRPZ3116B Robot Load Capacity Diagram

2.3.29.4 Robot origin calibration diagram/oil injection hole position

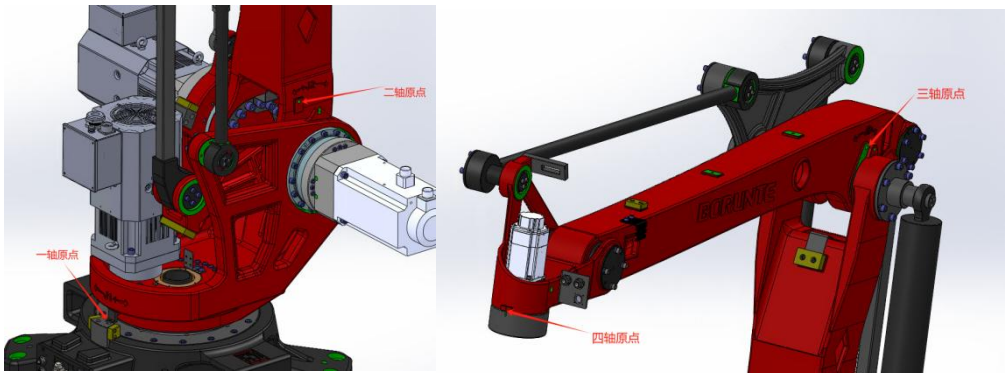


Fig.2.3.95 BRTIRPZ3116B Origin verification diagram

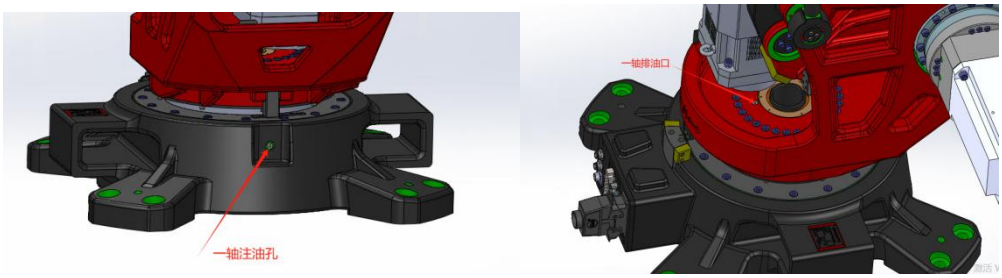


Fig.2.3.96 BRTIRPZ3116B Oil injection hole location

2.3.29.5 Robot handling and lifting diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.97. First, set the robot posture according to the standard angle of the receiver posture. Then, pass the lifting belt through the lower part of the four axis body and wrap it around once. Pay attention to placing both ends of the lifting belt on both sides of the body to avoid tipping over. It is recommended that the length of the lifting belt be 2.2m~2.5m. If there is a plastic bag wrapped around it, the lifting belt should be pierced through the plastic bag.

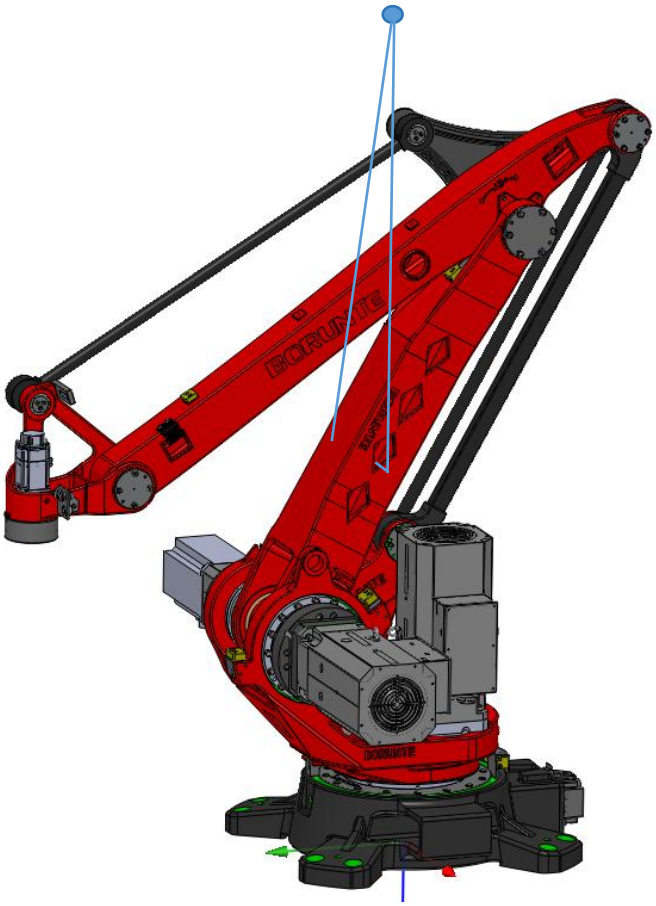


Fig.2.3.97 BRTIRPZ3116B Robot Handling and Lifting Diagram

2.3.30 Six axis robot BRTIRUS2830B(11 version)

2.3.30.1 BRTIRUS2830B robot profile

2.3.30.1.1 BRTIRUS2830B robot picture



2.3.30.1.2 Introduction of Four axis robot BRTIRUS2830B

BRTIRUS2830B is a six axis robot developed by BORUNTE for complex applications with multiple degrees of freedom. Its maximum load can reach 300kg, with a 3100mm arm span and six degrees of freedom of flexibility, making it capable of handling scenarios such as loading and unloading, assembly, and transportation of injection molded parts on the machine tool.

High precision: repeated positioning accuracy ± 0.2mm.

2.3.30.1.3 BRTIRUS2830B Application cases

(1) palletizing (2) transporting (3) loading and unloading, etc

2.3.30.2 Robot parameters

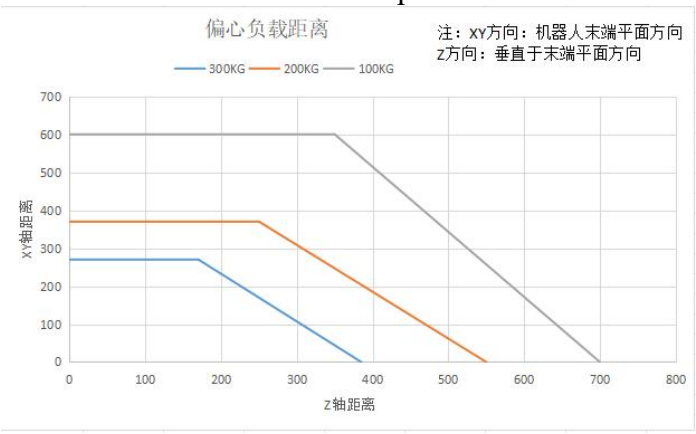
BRTIRUS2830B Robot parameters

Model	BRTIRUS2830B					
Axis	6 axis					
Load ability	300kg					
Repeated position accuracy	±0.2					
Arm span	3100mm					
Weight	1976kg					
Max speed	J1	71.3°/s			J2	74.2°/s
	J3	102.3°/s			J4	122.7°/s
	J5	71.1°/s			J6	116.3°/s
Motion range	J1	±160°			J2	-85°~+55°
	J3	-60°~+105°			J4	±180°
	J5	±130°			J6	±360°
Maximum rotational torque	J4	1200N*m	J5	956N*m	J6	700N*m
Allowable moment of inertia	J4	211kg*m^2	J5	98kg*m^2	J6	56kg*m^2
Mounting environment	Use temperature： 0℃~40℃ Best temperature： 15℃~25℃ Relative humidity：20~80%RH（No condensation）			Air pressure	0.5-0.7MPa	
				Power source	380V±10% 50Hz/60Hz	
Core component	Name	Operation system	Brand	BORUNTE		
		Casting body		BORUNTE		
		Servo motor		BORUNTE		
		Reducer		BORUNTE		
		Electrical component		BORUNTE		
Oil content	J1	6320ML	J2	4700ML	J3	3750ML
	J4	2265ML	J5	4320ML	J6	511ML
Vulnerable parts	None					
Robot data	USB					

2.3.30.3 Robot Load Capacity Diagram

BRTIRUS2830B End Load and Eccentricity Diagram (Load Capacity, Unit: mm)

XY direction: robot end plane direction Z direction: perpendicular to the end plane direction



Attention: BRTIRUS2830B is designed for a rated load capacity of 300kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE Robotics R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.98 BRTIRUS3050B Eccentric load and distance diagram

2.3.30.4 Robot origin calibration diagram/oil injection hole position

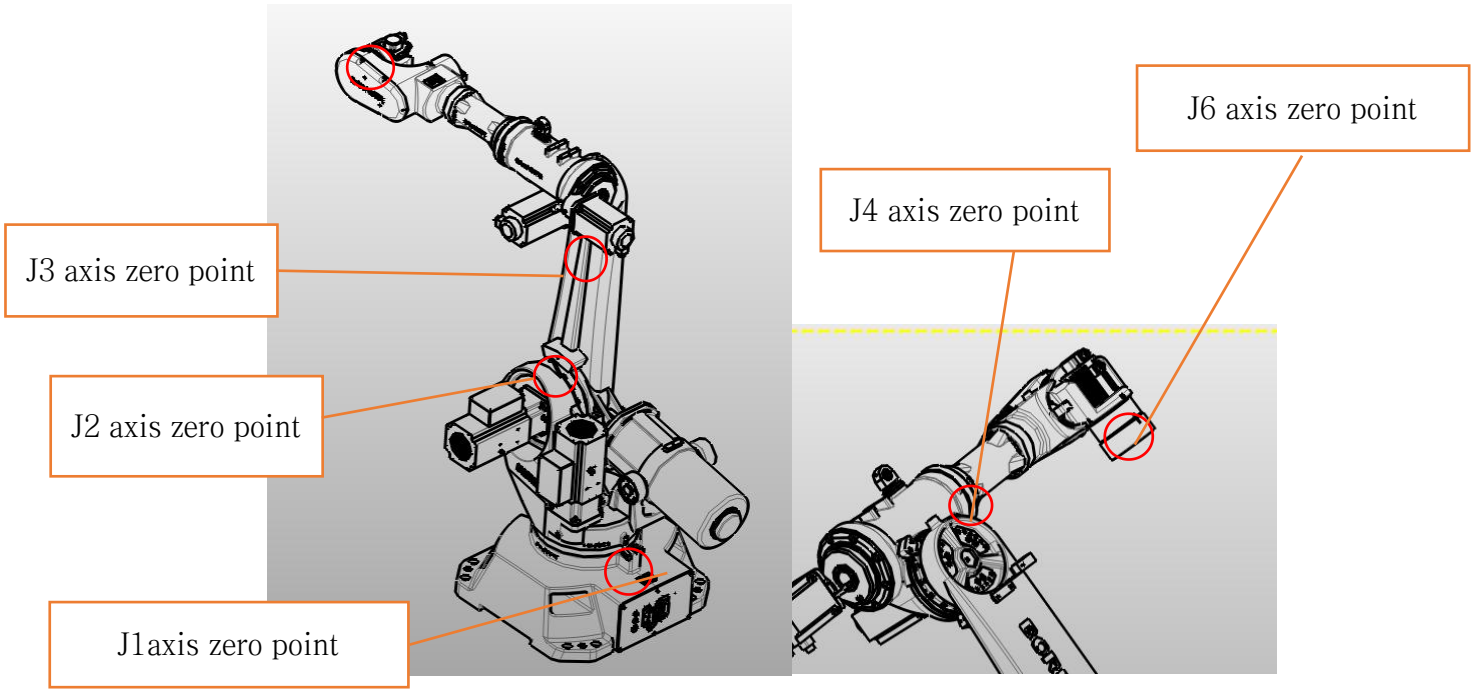


Fig.2.3.99 BRTIRUS2830B zero points

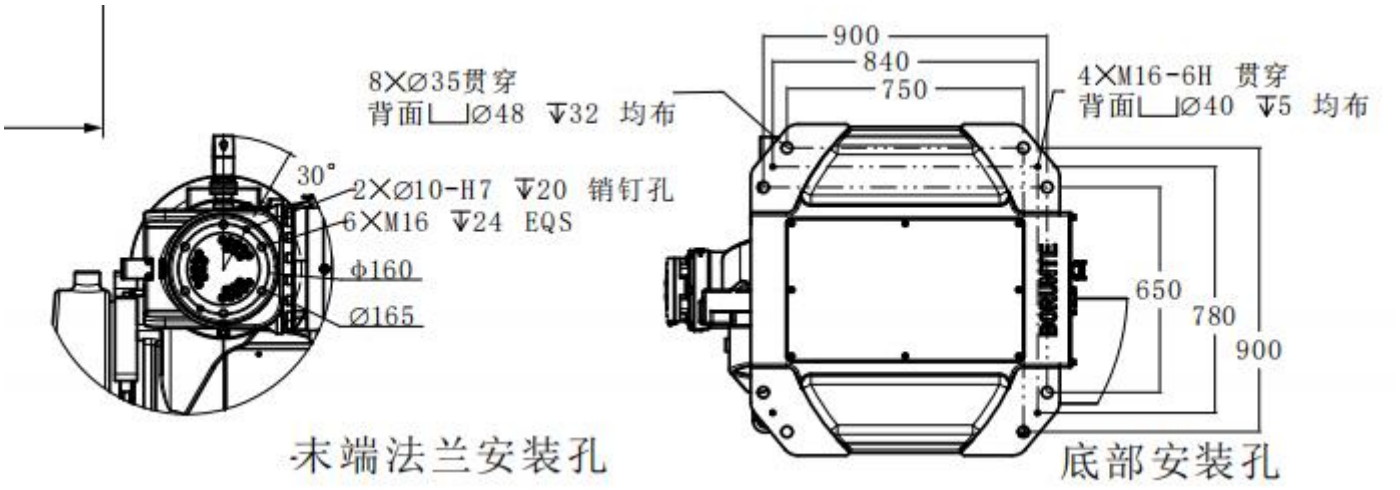


Fig.2.3.100 BRTIRUS2830B Installation hole diagram

View of oil discharge without oil injection

2.3.30.5 Machine lifting and handling view

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.101. First, set the robot posture according to the standard angle of the receiver posture. Then, thread the lifting belt through the three-axis body and avoid the corrugated pipe. It is recommended that the length of the lifting belt be 1M. If there is a plastic bag, the lifting belt should be perforated on the plastic bag.

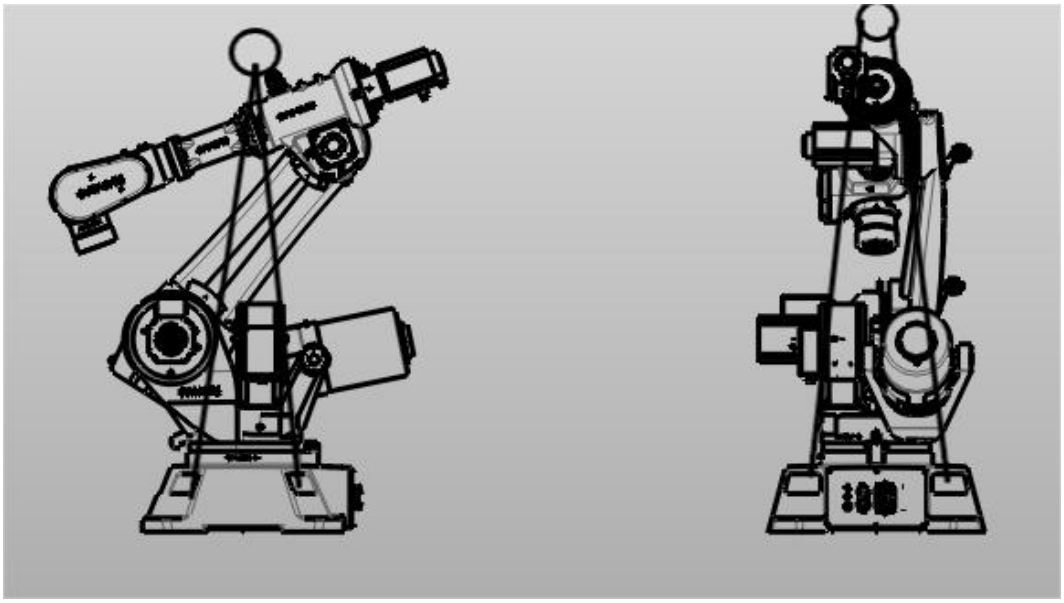


Fig.2.3.101 BRTIRUS2830B Robot lifting and handling diagram

2.3.31 Six axis robot BRTIRUS2924B(11 version)

2.3.31.1 BRTIRUS2924B robot profile

2.3.31.1.1 BRTIRUS2924B robot picture



2.3.31.1.2 Introduction of robot BRTIRUS2924B

BRTIRUS2924B is a six axis robot developed by BORUNTE for industries such as handling, palletizing, or loading and unloading. Its maximum load can reach 240kg and it has a 3176mm arm span. The robot has a compact external structure, with high-precision reducers installed on each joint, allowing for flexible operation at high joint speeds.

High precision: repeated positioning accuracy ± 0.2mm.

2.3.31.1.3 BRTIRUS2924B Application cases

(1) palletizing (2) transporting (3) loading and unloading, etc

2.3.31.2 Robot parameters

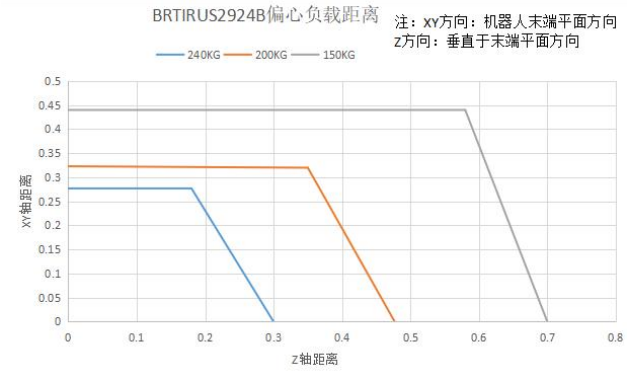
BRTIRUS2924B Robot parameters

Model	BRTIRUS2924B					
Axis	6 axis					
Load ability	240kg					
Repeated position accuracy	±0.2					
Arm span	3176mm					
Weight	1983kg					
Max speed	J1	71.3°/s			J2	76.6°/s
	J3	93°/s			J4	141.2°/s
	J5	86.8°/s			J6	120.9°/s
Motion range	J1	±160°			J2	-85°~+55°
	J3	-60°~+105°			J4	±180°
	J5	±130°			J6	±360°
Allowable torque	J4	1200N*m	J5	956N*m	J6	700N*m
Allowable moment of inertia	J4	211kg*m^2	J5	98kg*m^2	J6	56kg*m^2
Mounting environment	Use temperature： 0℃-40℃ Best temperature： 15℃-25℃ Relative humidity： 20-80%RH（No condensation）				Air pressure	0.5-0.7MPa
					Power source	380V±10% 50Hz/60Hz
Core component	Name	Operation system		Brand	BORUNTE	
		Casting body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical component			BORUNTE	
Oil content	J1	6320ML	J2	4700ML	J3	3750ML
	J4	2265ML	J5	4320ML	J6	511ML
Vulnerable parts	None					
Robot data	USB					

2.3.31.3 Robot Load Capacity Diagram

BRTIRUS2924B End load and eccentricity diagram (load capacity, unit: mm)

XY direction: robot end plane direction Z direction: perpendicular to the end plane direction



Attention: BRTIRUS2924B is designed for a rated load capacity of 240kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE Robotics R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.102 BRTIRUS2924B Eccentric load and distance diagram

2.3.31.4 Robot origin calibration diagram/oil injection hole position

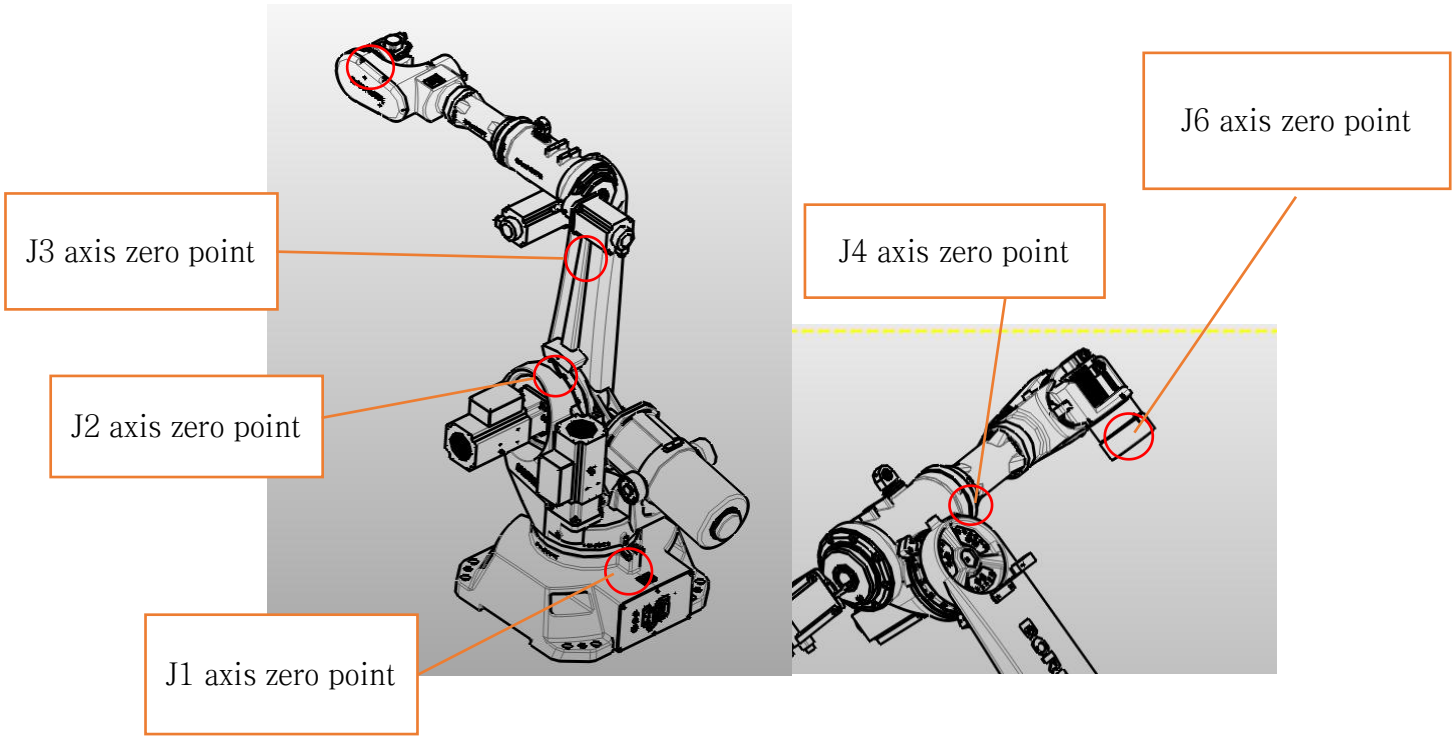


Fig.2.3.103 BRTIRUS2924B zero points

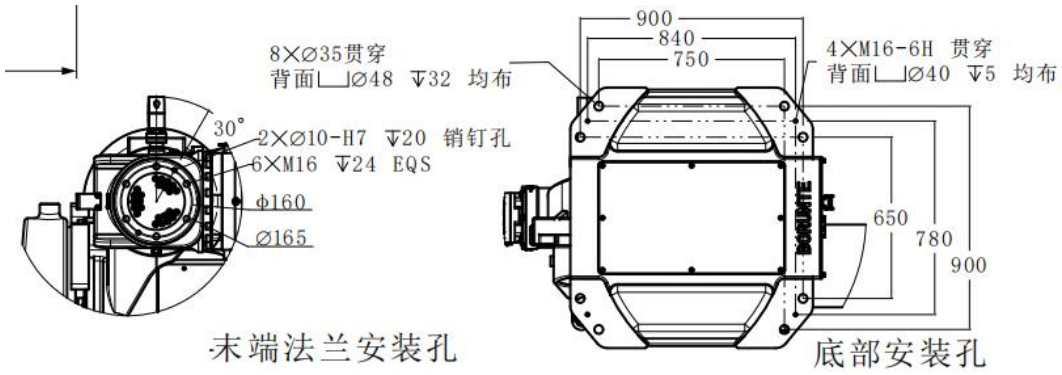


Fig.2.3.104 BRTIRUS2924B Installation hole diagram

2.3.31.5 Robot lifting and handling diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.105. First, set the robot posture according to the standard angle of the receiver posture. Then, thread the lifting belt through the three-axis body and avoid the corrugated pipe. It is recommended that the length of the lifting belt be 1M. If there is a plastic bag, the lifting belt should be perforated on the plastic bag.

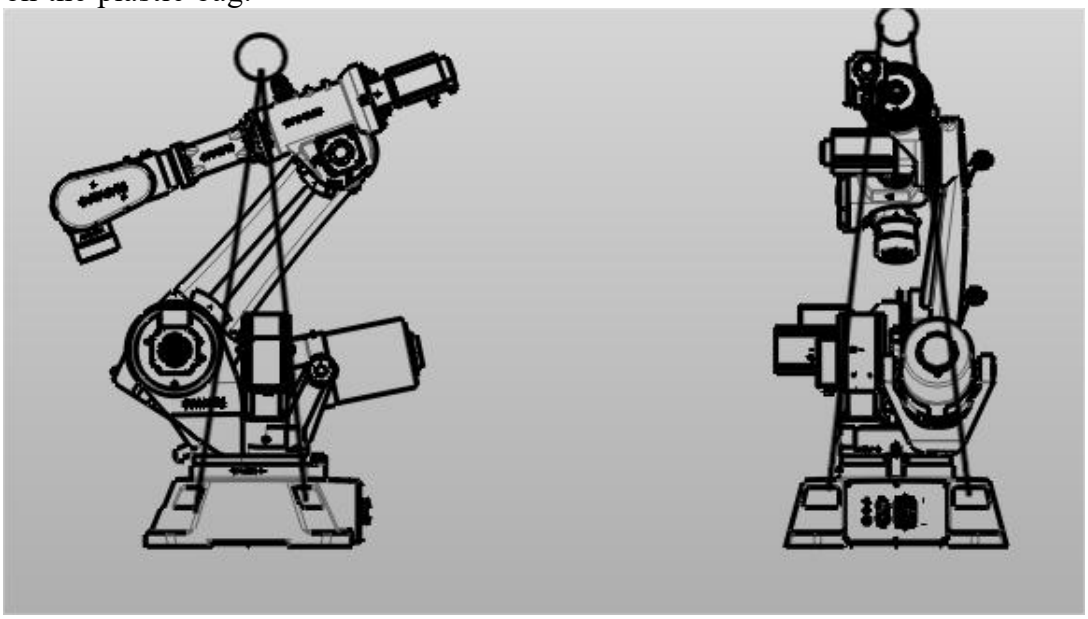


Fig.2.3.105 BRTIRUS2924B Robot lifting and handling diagram

2.3.32 Six axis robot BRTIRUS2917B(22 version)

2.3.32.1 BRTIRUS2917B Robot profile

2.3.32.1.1 BRTIRUS2917B Robot picture



2.3.32.1.2 BRTIRUS2917B Introduction to Six Axis Robots

BRTIRUS2917B is a six axis robot developed by BORUNTE for industries such as handling, palletizing, or loading and unloading. Its maximum load can reach 170kg and it has an arm span of 3168mm. The robot has a compact external structure, with high-precision reducers installed on each joint, allowing for flexible operation at high joint speeds.

High precision: repeated positioning accuracy±0.2mm。

2.3.32.1.3 BRTIRUS2917B application cases

(1) palletizing (2) transporting (3) loading and unloading, etc

2.3.32.2 Robot Performance Parameter Table

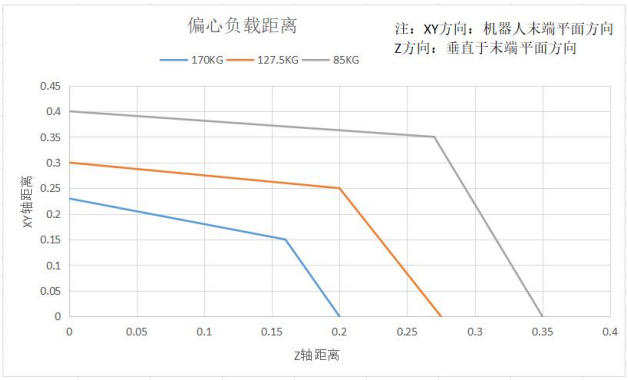
BRTIRUS2917B Robot parameters

Model	BRTIRUS2917B					
Axes	6					
Payload	170KG					
Repeated position accuracy	±0.2					
Maximum arm span radius	3168mm					
Weight	1190.5kg					
Max speed	J1	93°/s			J2	77°/s
	J3	77°/s			J4	110°/s
	J5	94°/s			J6	125°/s
Motion range	J1	±160°			J2	-75°~+30°
	J3	-80°~+85°			J4	±180°
	J5	±130°			J6	±360°
Allowable torque	J4	746N*m	J5	746N*m	J6	368N*m
Allowable moment of inertia	J4	65kg*m^2	J5	65kg*m^2	J6	56kg*m^2
Installation environments	Use temperature： 0℃-40℃ Best temperature： 15℃-25℃ Relative humidity：20-80%RH（No condensation）				Air pressure	0.5-0.7MPa
					Power supply	380V±10% 50Hz/60Hz
Core components	Name	Operation system		Brand	BORUNTE	
		Casting body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical component			BORUNTE	
Oil content	J1	/	J2	/	J3	/
	J4	/	J5	/	J6	/
Vulnerable parts	None					
Data	USB					

2.3.32.3 Robot Load Capacity Diagram

BRTIRUS2917B End load and eccentricity diagram (load capacity, unit: mm)

XY direction：Robot end plane direction　　Z direction：Vertical to the end plane direction



Attention: BRTIRUS2917B is designed for a rated load capacity of 170kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE Robot R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.106 BRTIRUS2917B Eccentric load and distance diagram

2.3.32.4 Robot origin calibration diagram / oil injection hole position

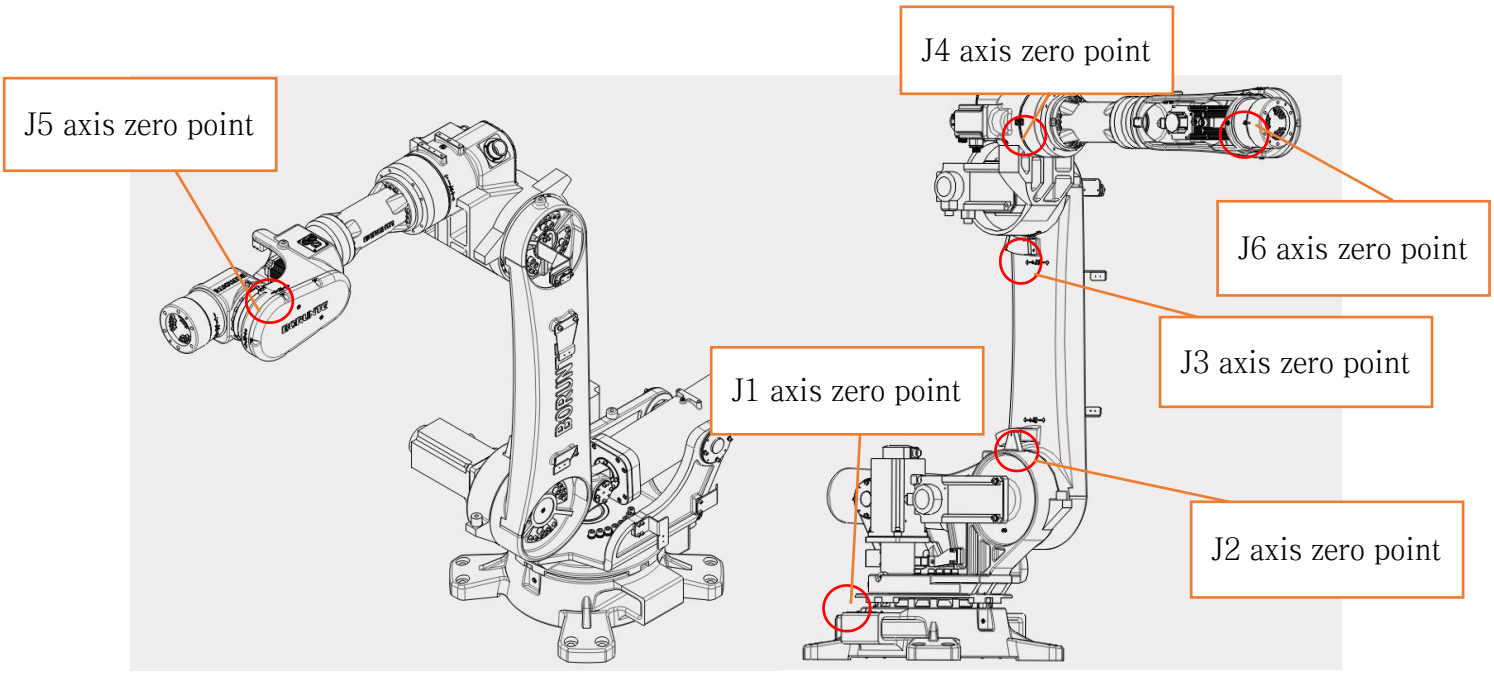


Fig.2.3.107 BRTIRUS2917B Zero point positions

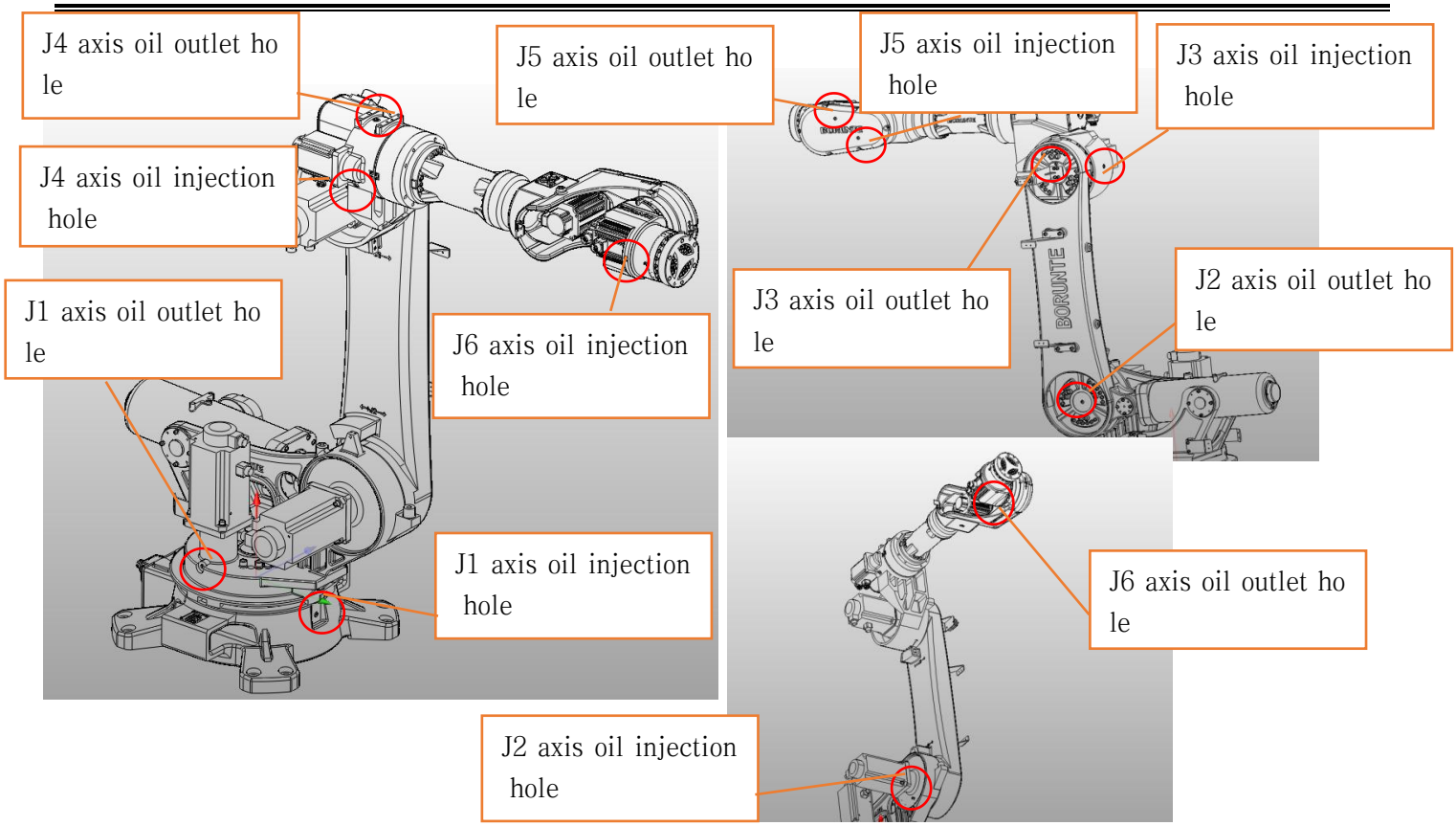


Fig.2.3.108 BRTIRUS2917 Boil injection hole position

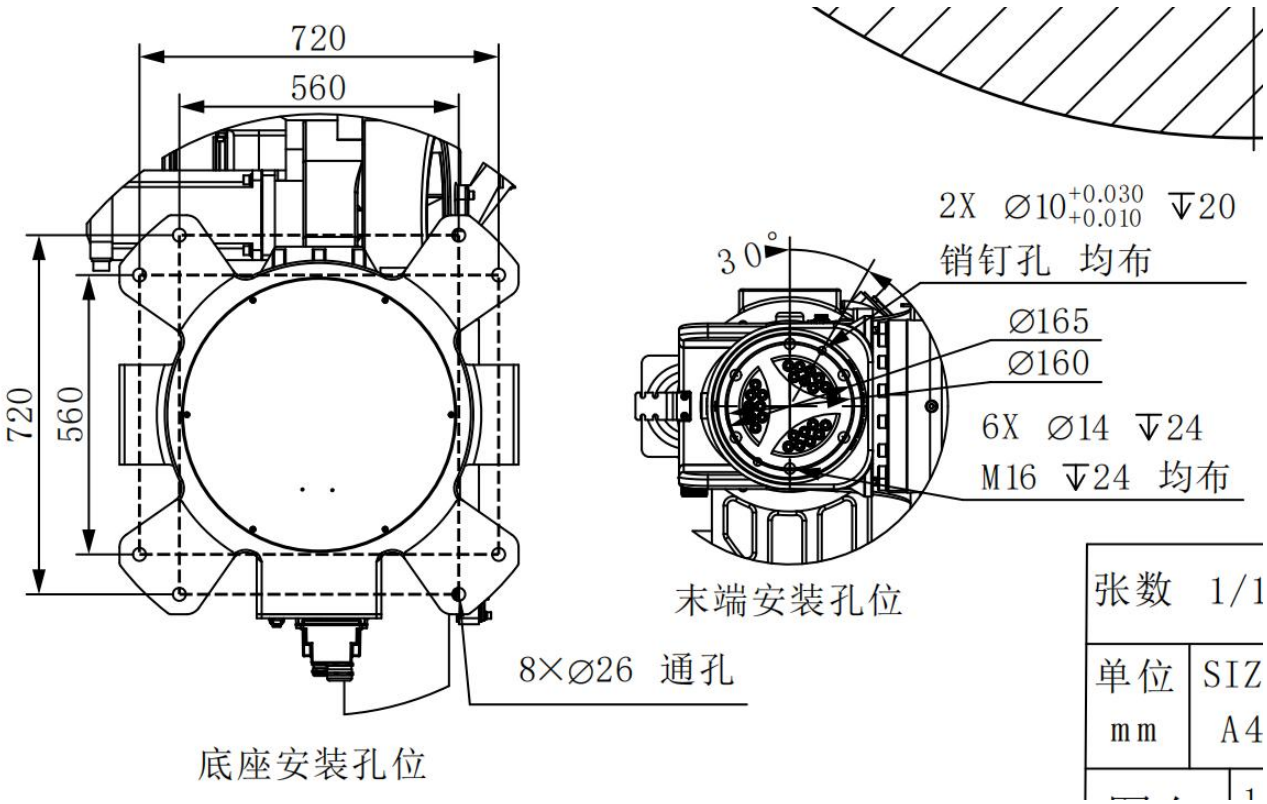


Fig.2.3.109 BRTIRUS2917B Installation hole diagram

2.3.32.5 Robot lifting and handling diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to

Figure 2.3.110. First, set the robot posture according to the standard angle of the receiver posture. Then, thread the lifting belt through the three-axis body and avoid the corrugated pipe. It is recommended that the length of the lifting belt be 1M. If there is a plastic bag, the lifting belt should be perforated on the plastic bag.

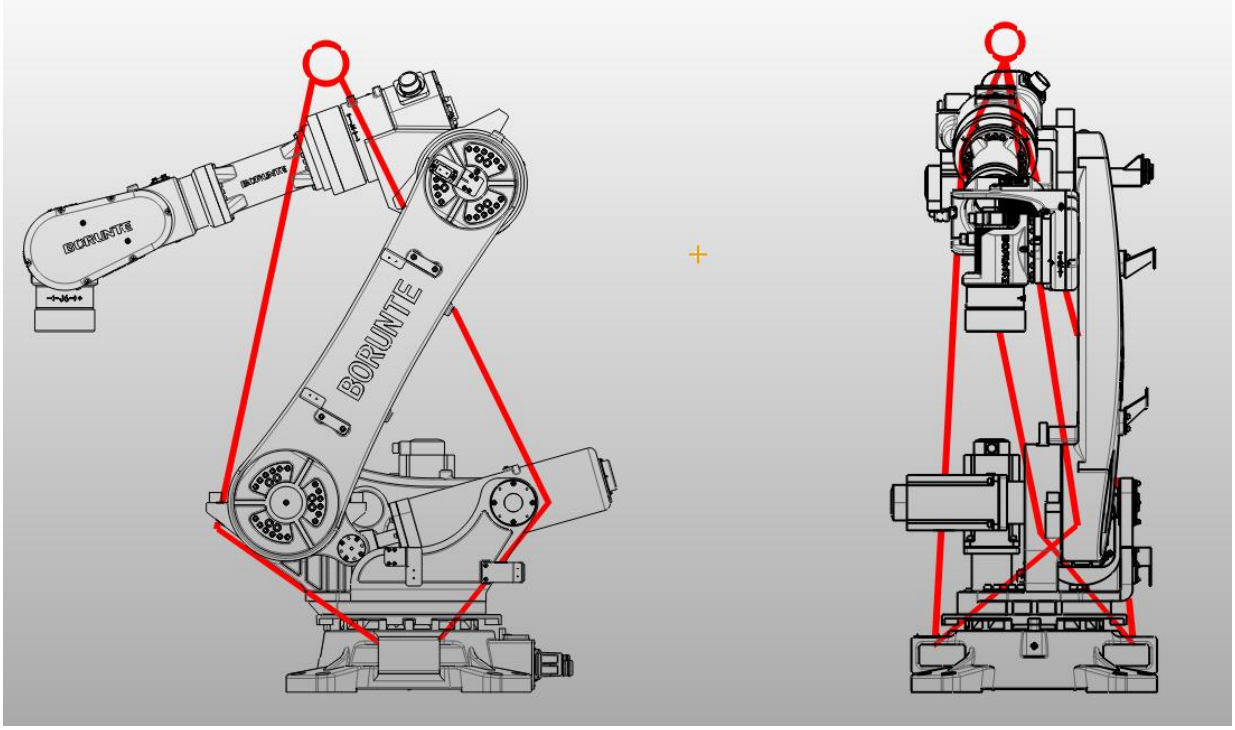


Fig.2.3.110 BRTIRUS2917B Robot lifting and handling diagram

2.3.33 Four axis robot BRTIRPZ2465A(10 version)

2.3.33.1 BRTIRPZ2465A Robot profile

2.3.33.1.1 BRTIRPZ2465A Robot picture



2.3.33.1.2 Introduction to Four Axis Robots BRTIRPZ2465A

BRTIRPZ2465A is a four axis column palletizing robot developed by BORUNTE for certain monotonous, frequent, and repetitive long-term operations, or operations in dangerous and harsh environments. The actual palletizing height can reach 2.5m, with a 2334mm arm span and a maximum load of 65kg. It has a large space coverage range (can fully cover all sizes of pallets up to 1.2m*1.2m). The flexibility of multiple degrees of freedom, streamlined structure, and easy maintenance enable it to handle scenarios such as loading and unloading, handling, unpacking and feeding, unpacking, and stacking with ease.

High precision - repeated positioning accuracy ± 0.15mm

2.3.33.1.3 BRTIRPZ2465A Application cases

(1) palletizing (2) depalletizing, etc

2.3.33.2 Robot parameters

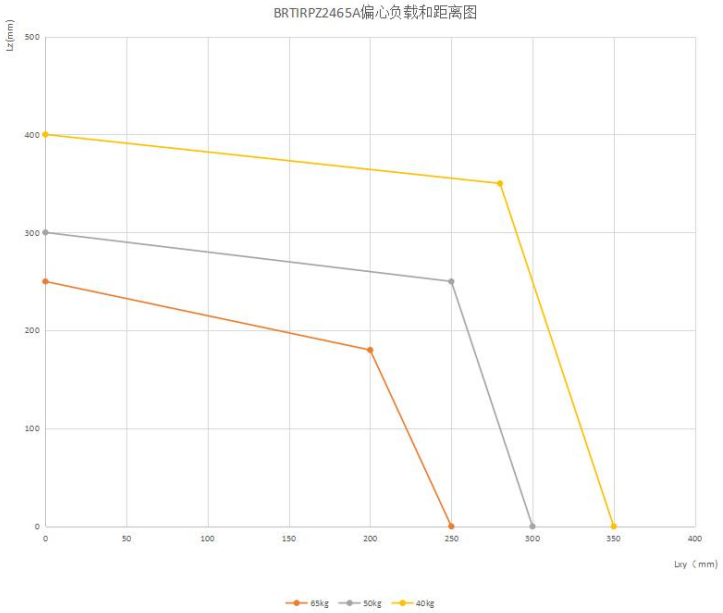
BRTIRPZ2465A robot parameters

Model	BRTIRPZ2465A							
Axes	4 axis							
Payload	65kg							
Repeat position accuracy	±0.15mm							
Arm length	2334mm							
Drive method	Servo							
Weight	693.5kg							
Maximum speed	J1	660mm/s	J2	117°/s				
	J3	171°/s	J4	296°/s				
Motion range	J1	2400mm	J2	±170°				
	J3	±145°	J4	±360°				
Install environment	Use temperature： 0℃~40℃ Best temperature： 15℃~25℃ Relative humidity： 20~80%RH （No ）				Air pressure	0.5~0.7MPa		
					Power source	220V±10％ 50Hz±1％		
Core component	Name	Operation system			Brand	BORUNTE		
		Casting body				BORUNTE		
		Servo motor				BORUNTE		
		Reducer				BORUNTE		
		Electrical component				BORUNTE		
Oil content	J1	/	J2	/	J3	/	J4	/
Vulnerable part	None							
Data	USB							

2.3.33.3 Robot Load Capacity Diagram

BRTIRPZ2465A End Load and Eccentricity Diagram (Load Capacity, Unit: mm)

XY direction: robot end plane direction Z direction: perpendicular to the end plane direction



Attention: BRTIRPZ2465A is designed for a rated load capacity of 65kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.111 BRTIRPZ2465A Robot Load Capacity Diagram

2.3.33.4 Robot origin calibration diagram/oil injection hole position

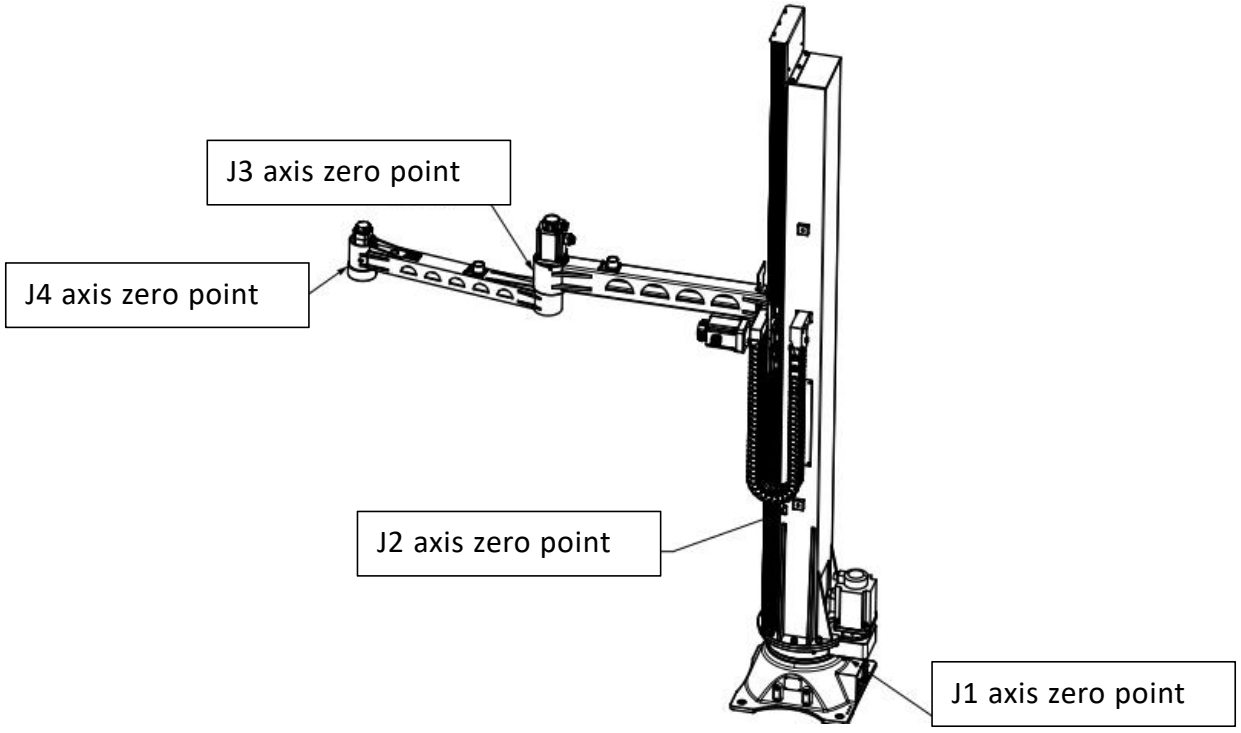


Fig.2.3.112 BRTIRPZ2465A Origin points verification

Oil injection and drainage view: None

2.3.33.5 Robot handling and lifting diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.113. First, set the robot posture according to the standard angle of the receiver posture. Then, thread the lifting belt through the lifting ring screw. It is recommended to use two lifting belts with a length of 1.3M. If there is a plastic bag, the lifting belt should be pierced through the plastic bag.

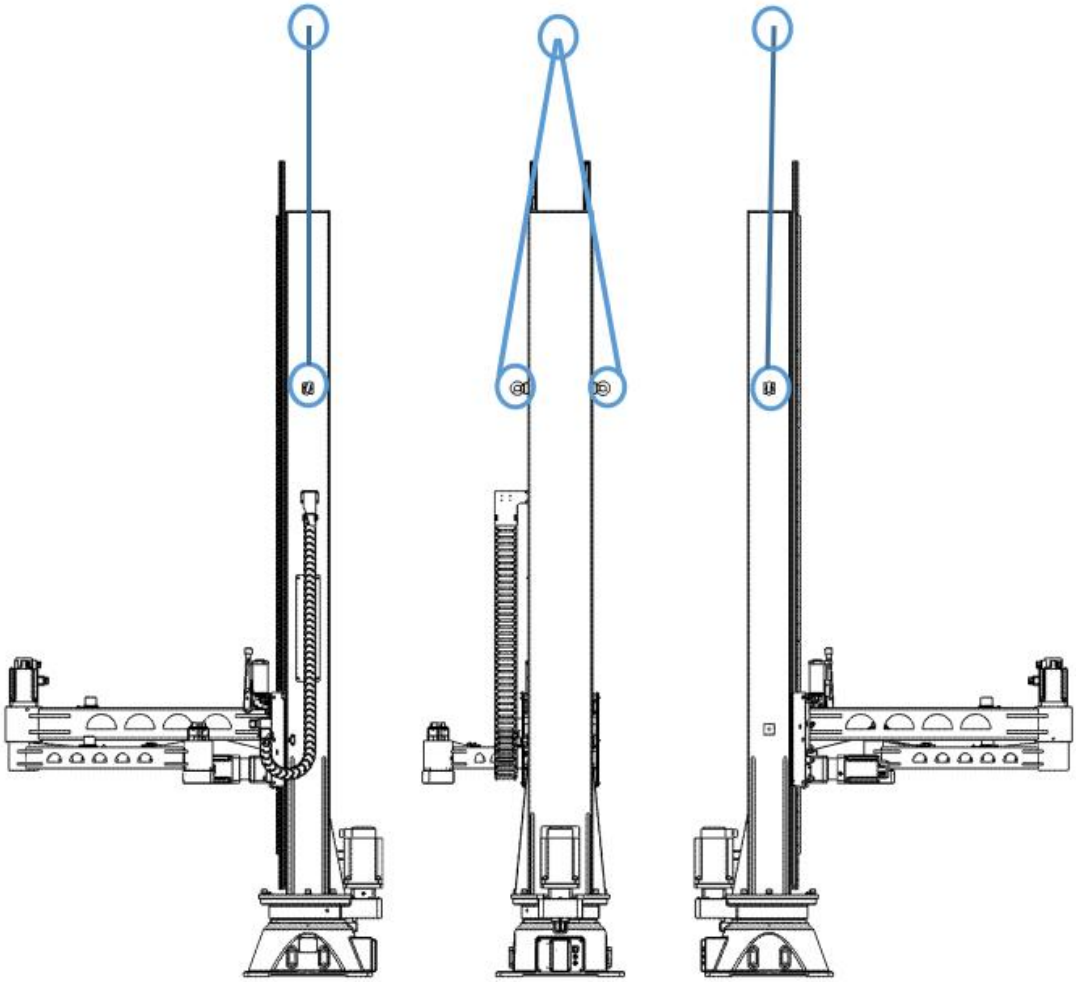
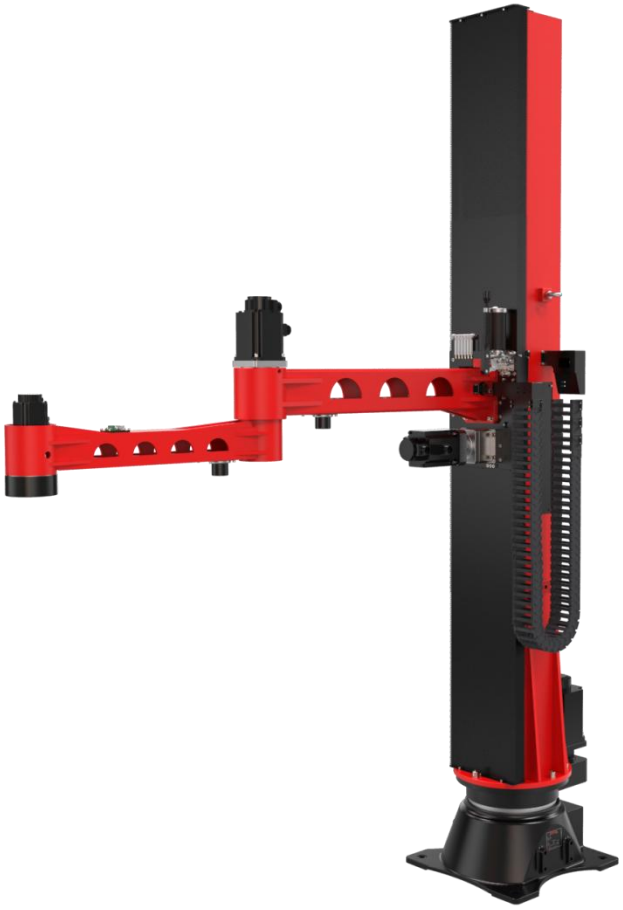


Fig.2.3.113 BRTIRPZ2465A Robot Handling and Lifting Diagram

2.3.34 Four axis robot BRTIRPZ1865A(version 10)

2.3.34.1 BRTIRPZ1865A robot profile

2.3.34.1.1 BRTIRPZ1865A robot picture



2.3.34.1.2 Introduction to Four Axis Robots BRTIRPZ1865A

BRTIRPZ1865A is a four axis column palletizing robot developed by BORUNTE for certain monotonous, frequent, and repetitive long-term operations, or operations in dangerous and harsh environments. The actual palletizing height can reach 1.8m, with a 2000mm arm span and a maximum load of 65kg. It has a large space coverage range (can fully cover all sizes of pallets up to 1.2m*1.2m). The flexibility of multiple degrees of freedom, streamlined structure, and easy maintenance enable it to handle scenarios such as loading and unloading, handling, unpacking and feeding, unpacking, and stacking with ease.

High precision - repeated positioning accuracy ±0.15mm

2.3.34.1.3 BRTIRPZ1865A Application cases

(1) palletizing (2) depalletizing, etc

2.3.34.2 Robot Parameters

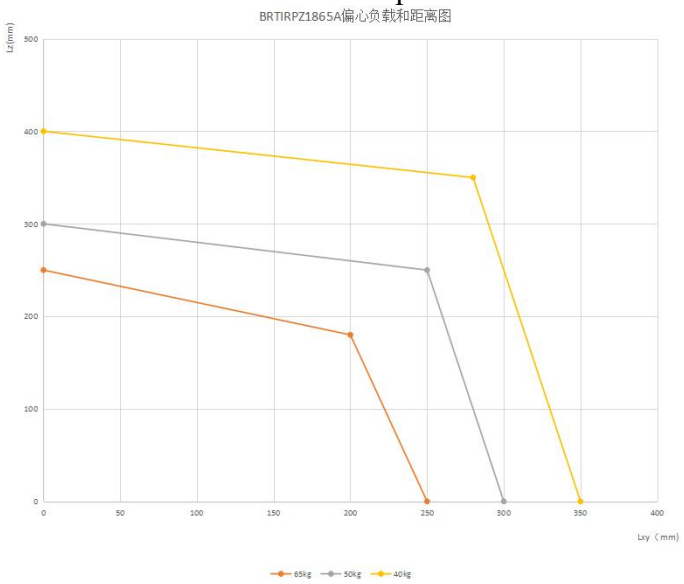
BRTIRPZ1865A robot parameters

<table>
<tr><td>Model</td><td colspan="9">BRTIRPZ1865A</td></tr>
<tr><td>Axes</td><td colspan="9">4 axis</td></tr>
<tr><td>Payload</td><td colspan="9">65kg</td></tr>
<tr><td>Repeat position accuracy</td><td colspan="9">±0.15mm</td></tr>
<tr><td>Arm length</td><td colspan="9">2000mm</td></tr>
<tr><td>Drive method</td><td colspan="9">servo</td></tr>
<tr><td>Weight</td><td colspan="9">618kg</td></tr>
<tr><td rowspan="2">Max speed</td><td>J1</td><td colspan="3">600mm/s</td><td>J2</td><td colspan="3">117°/s</td></tr>
<tr><td>J3</td><td colspan="3">171°/s</td><td>J4</td><td colspan="3">296°/s</td></tr>
<tr><td rowspan="2">Motion range</td><td>J1</td><td colspan="3">1800mm</td><td>J2</td><td colspan="3">±170°</td></tr>
<tr><td>J3</td><td colspan="3">±145°</td><td>J4</td><td colspan="3">±360°</td></tr>
<tr><td rowspan="2">Installation environment</td><td colspan="4" rowspan="2">Use temperature： 0℃~40℃
Best temperature： 15℃~25℃
Relative humidity： 20~80%RH
（No condensation）</td><td>Air pressure</td><td colspan="4">0.5~0.7MPa</td></tr>
<tr><td>Power source</td><td colspan="4">220V±10%
50Hz±1%</td></tr>
<tr><td rowspan="5">Core component</td><td rowspan="5">Name</td><td colspan="3">Operating system</td><td rowspan="5">Brand</td><td colspan="4">BORUNTE</td></tr>
<tr><td colspan="3">Casting body</td><td colspan="4">BORUNTE</td></tr>
<tr><td colspan="3">Servo motor</td><td colspan="4">BORUNTE</td></tr>
<tr><td colspan="3">Reducer</td><td colspan="4">BORUNTE</td></tr>
<tr><td colspan="3">Electrical component</td><td colspan="4">BORUNTE</td></tr>
<tr><td>Oil content</td><td>J1</td><td>/</td><td>J2</td><td>/</td><td>J3</td><td>/</td><td>J4</td><td>/</td></tr>
<tr><td>Vulnerable parts</td><td colspan="9">None</td></tr>
<tr><td>Data</td><td colspan="9">USB</td></tr>
</table>

2.3.34.3 Robot Load Capacity Diagram

BRTIRPZ1865A End load and eccentricity diagram (load capacity, unit: mm)

XY direction: robot end plane direction Z direction: perpendicular to the end plane direction



Attention: BRTIRPZ1865A is designed for a rated load capacity of 65kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.114 Load Capacity Diagram of BRTIRPZ1865A

2.3.34.4 Robot origin calibration diagram/oil injection hole position

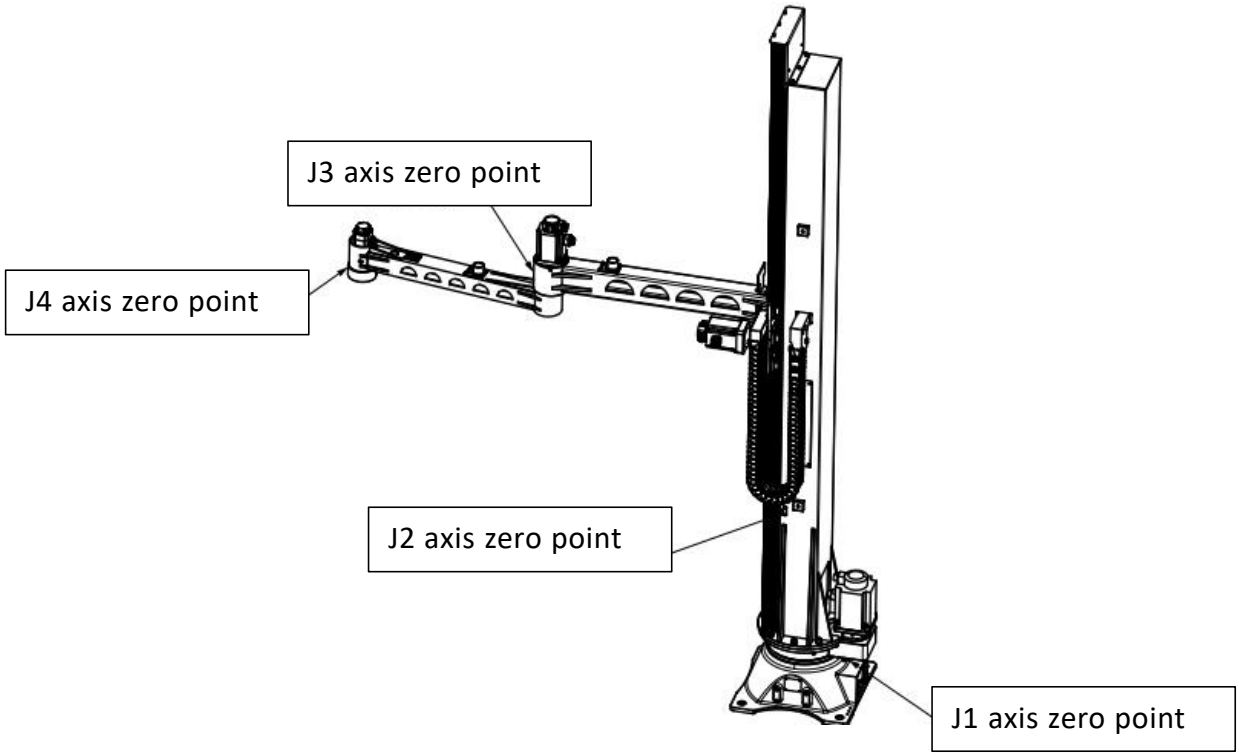


Fig.2.3.115 BRTIRPZ1865A Origin verification diagram

Oil injection and drainage view: None

2.3.34.5 Robot handling and lifting diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.116. First, set the robot posture according to the standard angle of the receiver posture. Then, thread the lifting belt through the lifting ring screw. It is recommended to use two lifting belts with a length of 1.3M. If there is a plastic bag, the lifting belt should be pierced through the plastic bag.

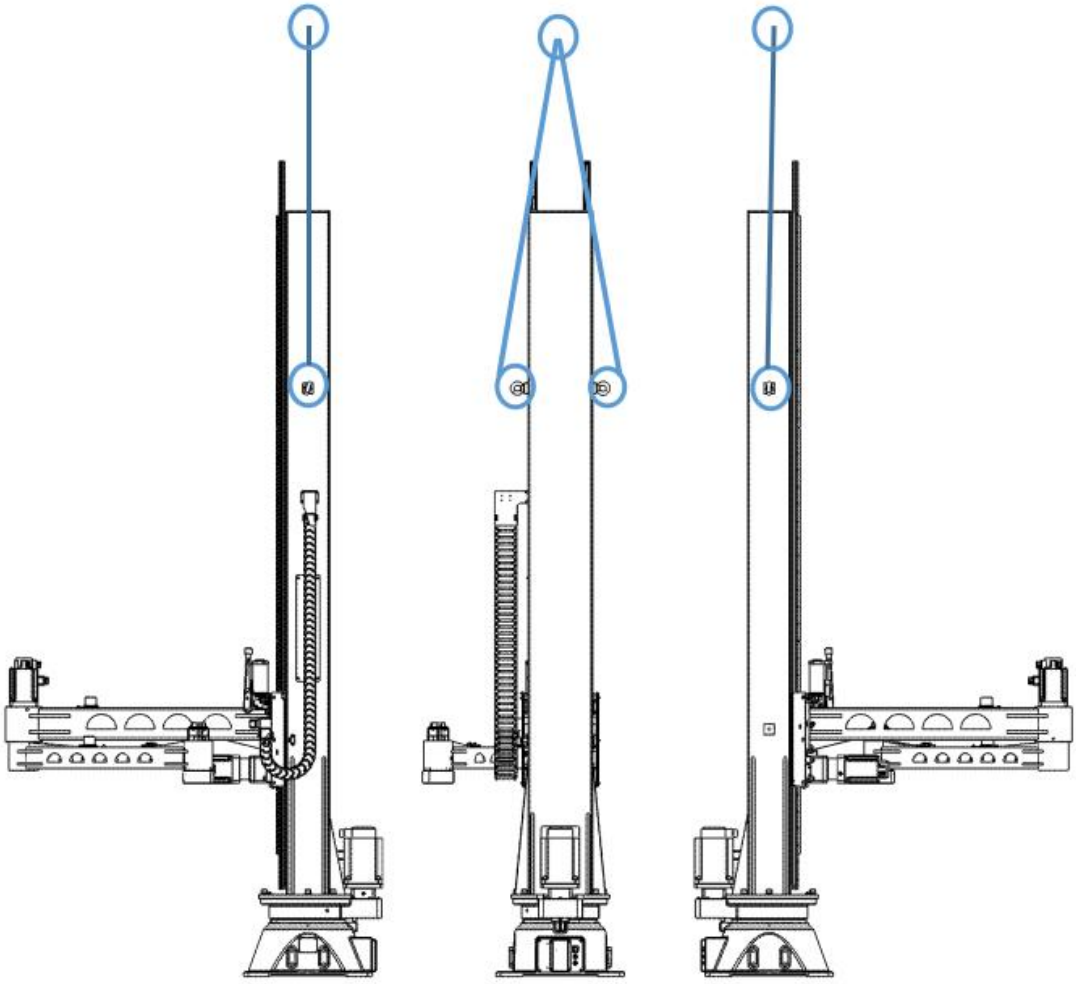


Fig.2.3.116 BRTIRPZ1865A Robot handling and lifting diagram

2.3.35 Palletizing workstation BRTMD193501A(10 version)

2.3.35.1 BRTMD193501A profile

2.3.35.1.1 BRTMD193501A picture



2.3.35.1.2 Introduction to BRTMD193501A

BRTMD193501A is a workstation developed by BORUNTE for the palletizing industry, with a working radius of 1895MM and a load of 35KG. It is composed of a lifting platform and a specialized palletizing large screen system, supporting bilingual operation. It can be widely used in multiple industries such as cardboard boxes, pharmaceuticals, and food, improving the intelligence level of the production line.

1. Flexible deployment: Integrated design, lightweight and flexible, plug and play.
2. Easy programming: graphical display, simple and efficient programming operation, can be easily completed within 10 minutes
3. Standard lifting platform with a lifting height of 0-500MM.
4. The Palletizing speed 9-10 boxes per minute, making it easy to complete both left and right palletizing.
5. Reserve connection holes for the conveyor belt, and customers need to configure the conveyor belt according to the hole positions themselves.

2.3.35.1.3 BRTMD193501A Application cases

(1) palletizing, etc.

2.3.35.2 Parameters

BRTMD193501A parameters

Model	BRTMD193501A				
Axes	6 axis				
Loading ability	35kg				
Repeated positioning accuracy	± 0.1mm				
Palletizing height	2350MM(including pallet height)				
Palletizing speed	9-10 pcs/min				
Floor space	1620*1350MM				
Total height of equip ment	3M				
Maximum arm span	1895mm				
Weight	About 487kg				
Max speed	J1	140° /s	J2	140° /s	
	J3	122° /s	J4	145° /s	
Motion range	J5	225° /s	Elevating Axis	250mm/s	
	J1	± 180°	J2	± 180°	
	J3	-60° ~+160°	J4	± 120°	
Allowable torque	J5	± 360°	Elevating Axis	0-500MM	
Maximum rotational t orque	J4	33.6Nm	J5	42Nm	
Maximum moment of inertia	J4	0.096Kg.m2	J5	0.096Kg.m2	
Mounting environment	Temperature: 0~40 ℃ Humidity: 20 -80% RH (no condensation) Relative humidity：20-80%RH（No condensation）		Mpa	0.5~0.7MPa	
			Power supply	220V±10％ 50Hz±1％	
Core components	Name	Operating system	Brand	BORUNTE	
		Casting body		BORUNTE	
		Servo motor		BORUNTE	
		Reducer		BORUNTE	
		Electrical component		BORUNTE	
RV Oil content	J1	1700ML	J2	860ML	J3 660ML
	J4	/			
Vulnerable parts	None				
Robot accompanying materials	USB				

2.3.35.3 Load Capacity Diagram

None

2.3.35.4 Origin calibration diagram/oil injection hole position

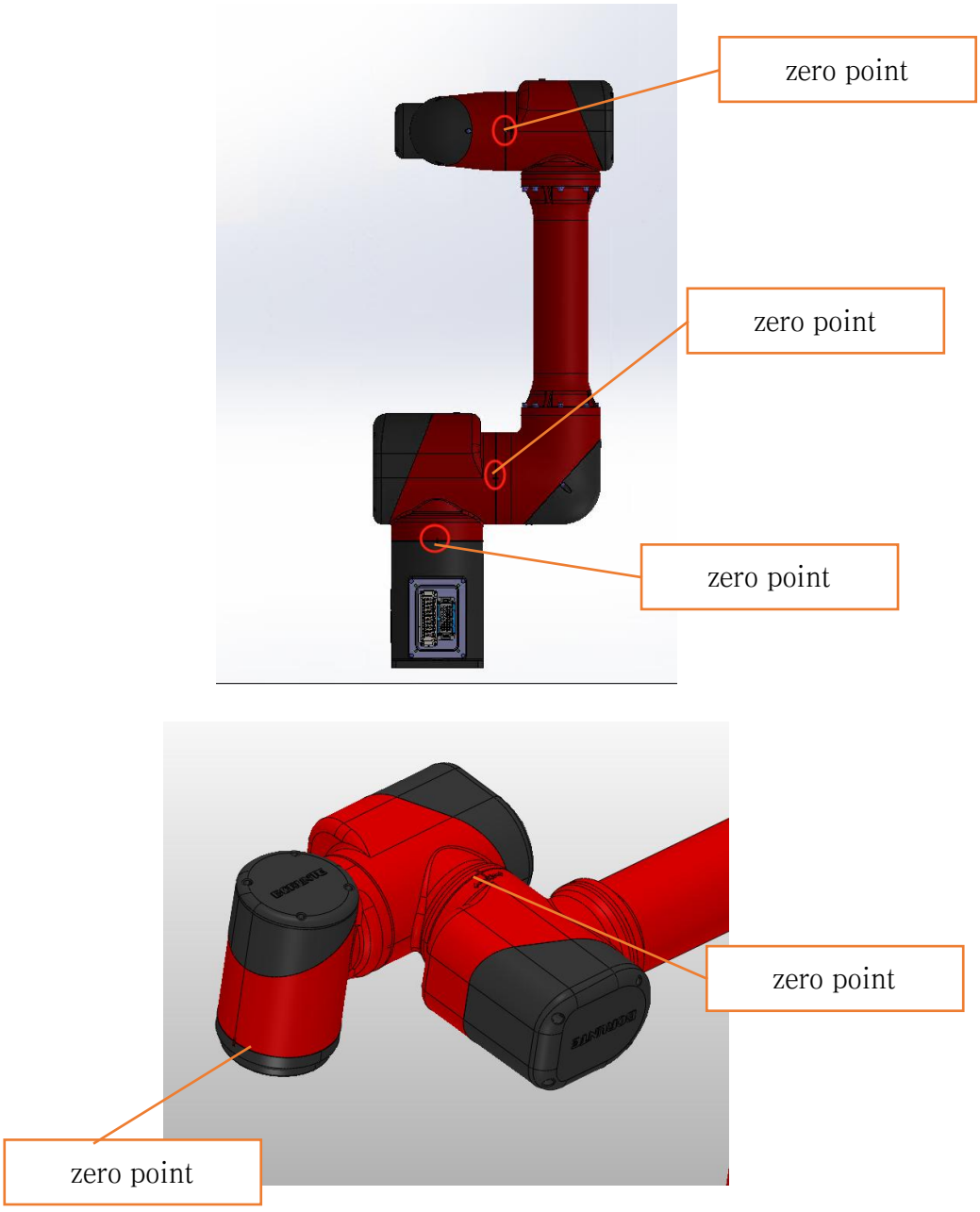


Fig.2.3.117 BRTMD193501A Zero point positions

2.3.35.5 Robot handling and lifting diagram

A crane should be used while handling the robot. Please refer to Fig. 2.3.118 for the handling method. First, set the robot gesture according to the gesture and angle of retracted machine. It is recommended to use a forklift. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

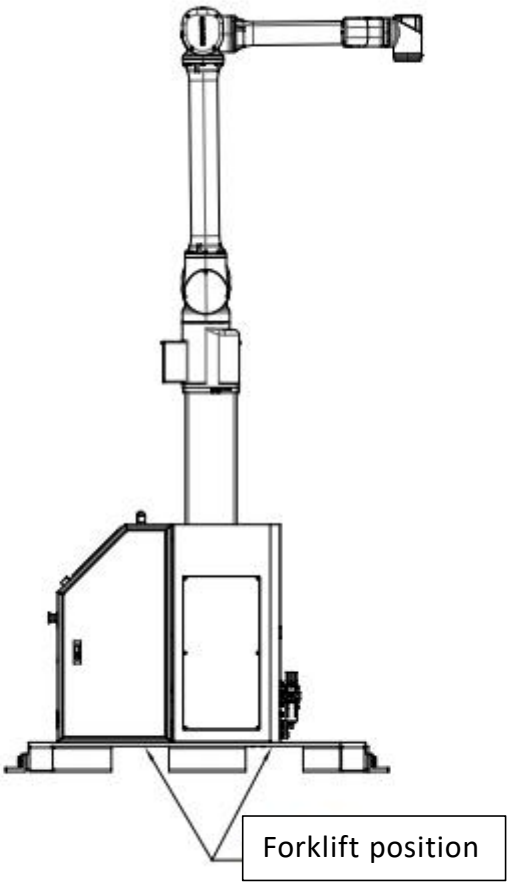


Fig.2.3.118 BRTMD193501A Handling and lifting diagram

2.3.36 Palletizing workstation BRTMD195001A(10 version)

2.3.36.1 BRTMD195001A profile

2.3.36.1.1 BRTMD195001A picture



2.3.36.1.2 Introduction to BRTMD195001A

BRTMD195001A is a workstation developed by BORUNTE for the palletizing industry, with a working radius of 1895MM and a load of 50KG. It is composed of a lifting platform and a specialized palletizing large screen system, supporting bilingual operation. It can be widely used in multiple industries such as cardboard boxes, pharmaceuticals, and food, improving the intelligence level of the production line.

1. Flexible deployment: Integrated design, lightweight and flexible, plug and play.
2. Easy programming: graphical display, simple and efficient programming operation, can be easily completed within 10 minutes
3. Standard lifting platform with a lifting height of 0-500MM.
4. The Palletizing speed 7-8 boxes per minute, making it easy to complete both left and right palletizing.
5. Reserve connection holes for the conveyor belt, and customers need to configure the conveyor belt according to the hole positions themselves.

2.3.36.1.3 BRTMD195001A Application cases

(1) palletizing, etc.

2.3.36.2 Parameters

BRTMD195001A parameters

Model	BRTMD195001A					
Axes	6 axis					
Loading ability	50kg					
Repeated positioning accuracy	± 0.1mm					
Palletizing height	2350MM(including pallet height)					
Palletizing speed	7-8 pcs/min					
Floor space	1620*1350MM					
Total height of equip ment	3M					
Maximum arm span	1895mm					
Weight	About 487kg					
Max speed	J1	140° /s		J2	135° /s	
	J3	122° /s		J4	145° /s	
Motion range	J5	225° /s		Elevating Axis	250mm/s	
	J1	± 180°		J2	± 180°	
	J3	-60° ~+160°		J4	± 120°	
Allowable torque	J5	± 360°		Elevating Axis	0-500MM	
Maximum rotational t orque	J4	33.6Nm		J5	42Nm	
Maximum moment of inertia	J4	0.096Kg.m2		J5	0.096Kg.m2	
Mounting environment	Temperature: 0~40 ℃ Humidity: 20 -80% RH (no condensation) Relative humidity：20-80%RH（No condensation）			Mpa	0.5~0.7MPa	
				Power supply	220V±10％ 50Hz±1％	
Core components	Name	Operating system		Brand	BORUNTE	
		Casting body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical component			BORUNTE	
RV Oil content	J1	1700ML	J2	860ML	J3	660ML
	J4	/				
Vulnerable parts	None					
Robot accompanying materials	USB					

2.3.36.3 Load Capacity Diagram

None

2.3.36.4 Origin calibration diagram/oil injection hole position

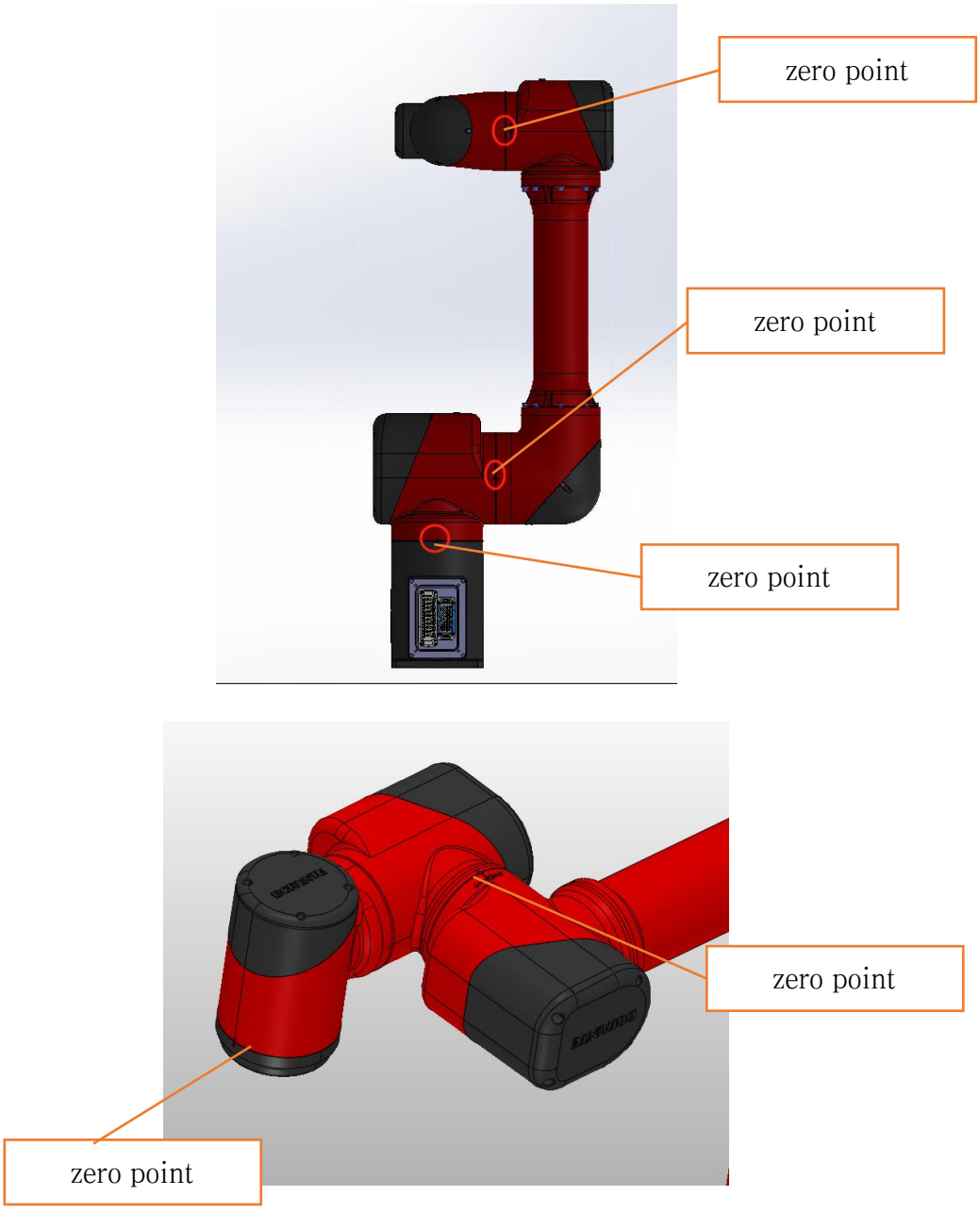


Fig.2.3.119 BRTMD195001A Zero point positions

2.3.36.5 Robot handling and lifting diagram

A crane should be used while handling the robot. Please refer to Fig. 2.3.120 for the handling method. First, set the robot gesture according to the gesture and angle of retracted machine. It is recommended to use a forklift. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

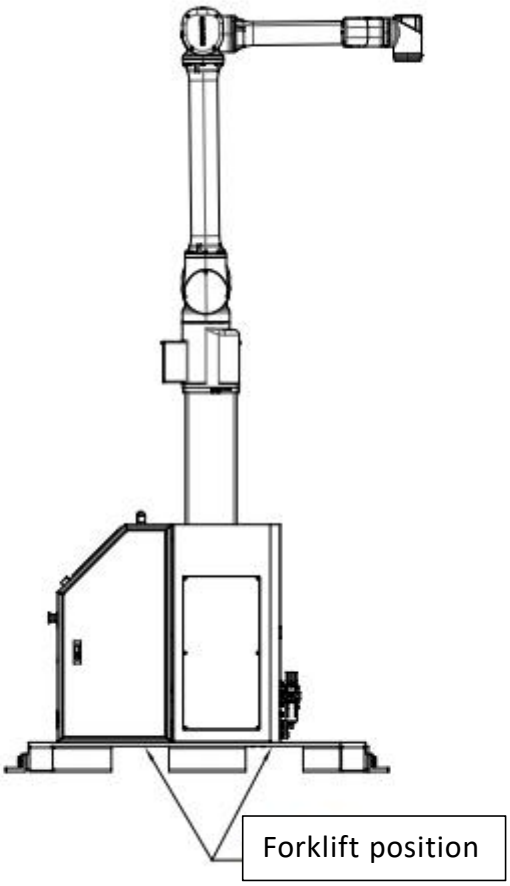


Fig.2.3.120 BRTMD195001A Handling and lifting diagram

2.3.37 Palletizing workstation BRTMD163001A(10 version)

2.3.37.1 BRTMD163001A profile

2.3.37.1.1 BRTMD163001A picture



2.3.37.1.2 Introduction to BRTMD163001A

BRTMD163001A is a workstation developed by BORUNTE for the palletizing industry, with a working radius of 1600MM and a load of 30KG. It is composed of a lifting platform and a specialized palletizing large screen system, supporting bilingual operation. It can be widely used in multiple industries such as cardboard boxes, pharmaceuticals, and food, improving the intelligence level of the production line.

1. Flexible deployment: Integrated design, lightweight and flexible, plug and play.
2. Easy programming: graphical display, simple and efficient programming operation, can be easily completed within 10 minutes
3. Standard lifting platform with a lifting height of 0-500MM.
4. The Palletizing speed ≤7 boxes per minute, making it easy to complete both left and right palletizing.
5. Reserve connection holes for the conveyor belt, and customers need to configure the conveyor belt according to the hole positions themselves.

2.3.37.1.3 BRTMD163001A Application cases

(1) palletizing, etc.

2.3.37.2 Parameters

BRTMD163001A parameters

Model	BRTMD163001A				
Axes	6 axis				
Loading ability	30kg				
Repeated positioning accuracy	± 0.1mm				
Palletizing height	2150MM(including pallet height)				
Palletizing speed	⩽7 pcs/min				
Floor space	1620*1350MM				
Total height of equip ment	3M				
Maximum arm span	1600mm				
Weight	About 440kg				
Max speed	J1	121° /s	J2	112° /s	
	J3	107° /s	J4	182° /s	
Motion range	J5	150° /s	Elevating Axis	250mm/s	
	J1	± 180°	J2	± 180°	
	J3	-65° ~+250°	J4	± 180°	
Allowable torque	J5	± 360°	Elevating Axis	0-500MM	
Maximum rotational t orque	J4	33.6Nm	J5	42Nm	
Maximum moment of inertia	J4	0.096Kg.m2	J5	0.096Kg.m2	
Mounting environment	Temperature: 0~40 ℃ Humidity: 20 -80% RH (no condensation) Relative humidity：20-80%RH（No condensation）		Mpa	0.5~0.7MPa	
			Power supply	220V±10％ 50Hz±1％	
Core components	Name	Operating system	Brand	BORUNTE	
		Casting body		BORUNTE	
		Servo motor		BORUNTE	
		Reducer		BORUNTE	
		Electrical component		BORUNTE	
RV Oil content	J1	1700ML	J2	860ML	J3 660ML
	J4	/			
Vulnerable parts	None				
Robot accompanying materials	USB				

2.3.37.3 Load Capacity Diagram

None

2.3.37.4 Origin calibration diagram/oil injection hole position

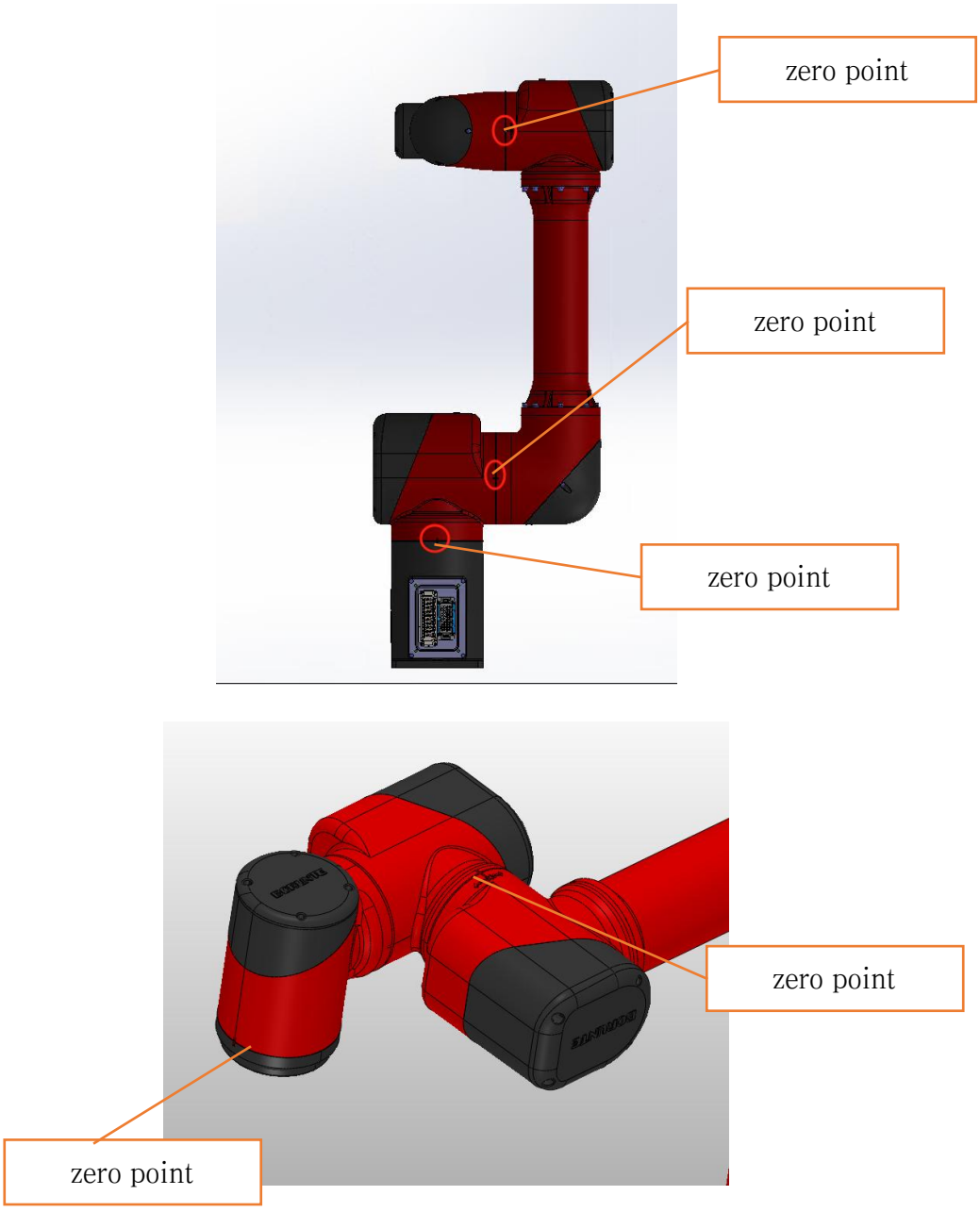


Fig.2.3.121 BRTMD163001A Zero point positions

2.3.37.5 Robot handling and lifting diagram

A crane should be used while handling the robot. Please refer to Fig. 2.3.122 for the handling method. First, set the robot gesture according to the gesture and angle of retracted machine. It is recommended to use a forklift. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

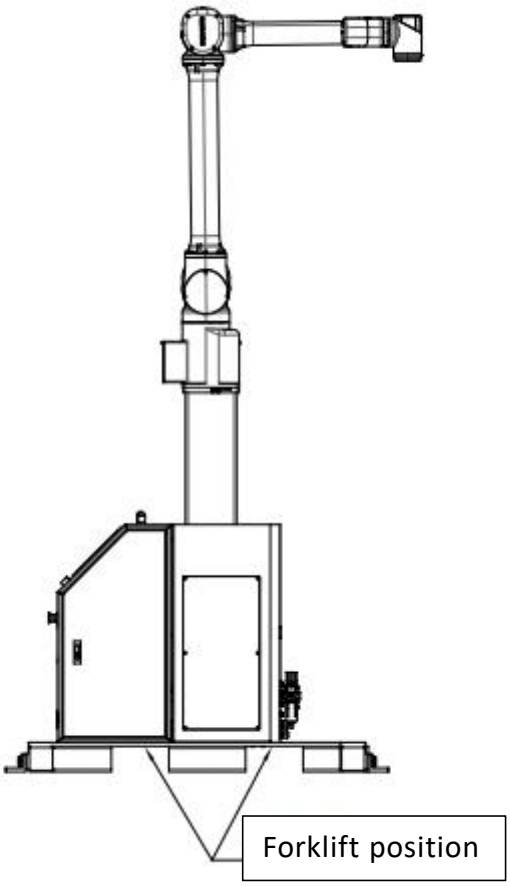


Fig.2.3.122 BRTMD163001A Handling and lifting diagram

2.3.38 Six axis robot BRTIRUS3012C(10 version)

2.3.38.1 BRTIRUS3012C Robot profile

2.3.38.1.1 BRTIRUS3012C Robot picture



2.3.38.1.2 BRTIRUS3012C Introduction to Six Axis Robots

BRTIRUS3012C is a six axis robot developed by BORUNTE for applications such as heavy material handling, loading and unloading. Its maximum load can reach 1000kg and it has a 3313mm arm span. Easily handle various heavy-duty applications.

High precision: repeated positioning accuracy ±0.1mm。

2.3.38.1.3 BRTIRUS3012C application cases

(1) palletizing (2) transporting (3) loading and unloading, etc

2.3.38.2 Robot Performance Parameter Table

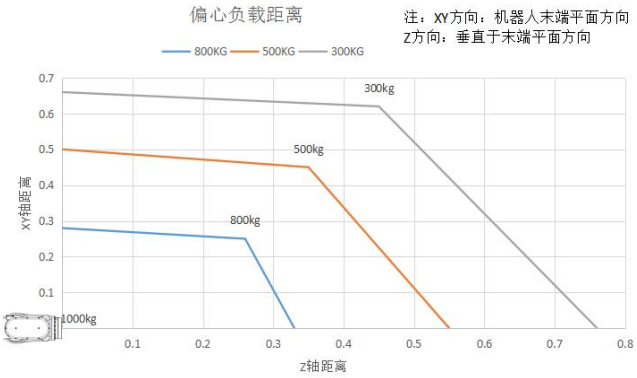
BRTIRUS3012C Robot parameters

Model	BRTIRUS3012C					
Axes	6					
Payload	1000KG					
Repeated position accuracy	±0.1					
Maximum arm span radius	3313mm					
Weight	About 5200kg					
Max speed	J1	50° /s			J2	35° /s
	J3	50° /s			J4	90° /s
	J5	53.4° /s			J6	105° /s
Motion range	J1	± 160°			J2	-90° ~+50°
	J3	-60° ~+20°			J4	± 180°
	J5	± 110°			J6	± 360°
Allowable torque	J4	2058N*m	J5	3000N*m	J6	2000N*m
Allowable moment of inertia	J4	1133kg*m^2	J5	1133kg*m^2	J6	201kg*m^2
Installation environments	Operating temperature: 0℃~40℃ Best temperature: 15℃~25℃ Relative humidity: 20~80%RH (No condensation)				Air pressure	0.5-0.7MPa
					Power supply	Pending
Core components	Name	Operation system		Brand	BORUNTE	
		Casting body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical component			BORUNTE	
Oil content	J1	5600ML	J2	/	J3	/
	J4	40000ML	J5	5600ML	J6	5500ML
Vulnerable parts	One axis transposition	PRG01130095A skeleton oil seal 130_95_14				
	Four axis reducer transition plate	PRG01200160A skeleton oil seal 200-160-15				
Data	USB					

2.3.38.3 Robot Load Capacity Diagram

BRTIRUS3012C End load and eccentricity diagram (load capacity, unit: mm)

XY direction：Robot end plane direction　　Z direction：Vertical to the end plane direction



Attention: BRTIRUS3012C is designed for a rated load capacity of 1000kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE Robot R&D Center.

Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.123 BRTIRUS3012C Eccentric load and distance diagram

2.3.38.4 Robot origin calibration diagram / oil injection hole position

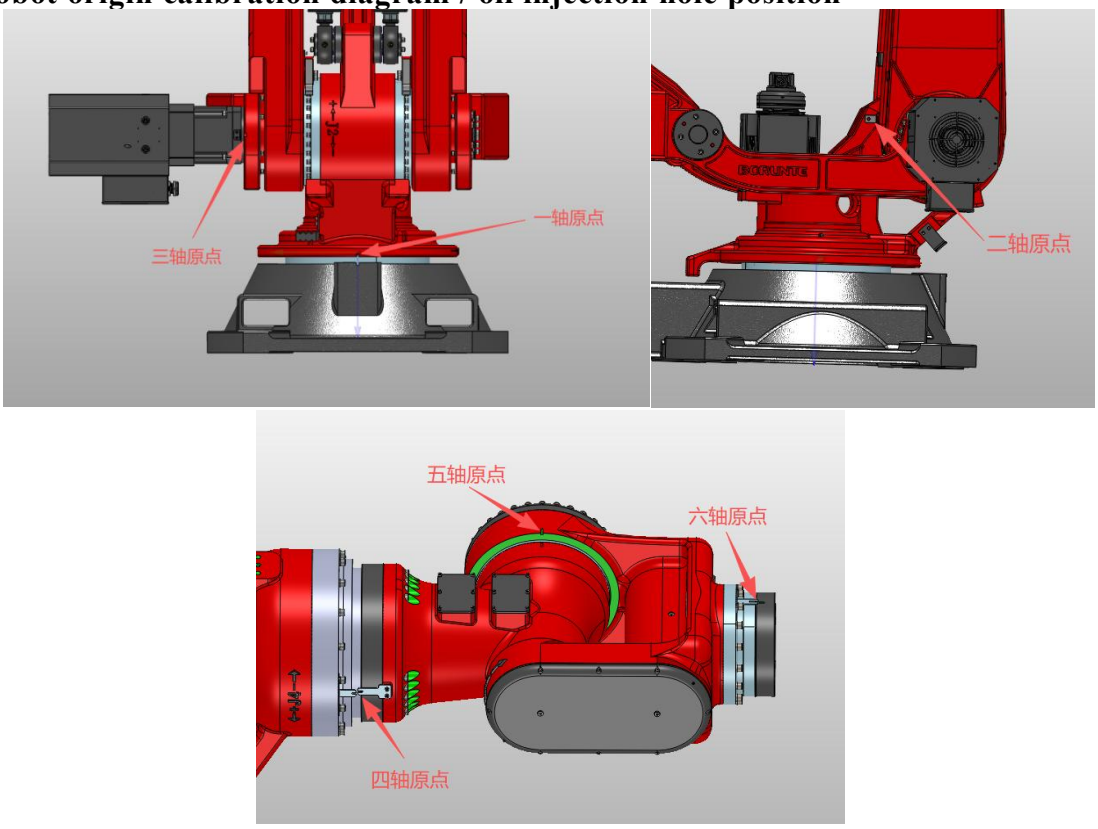


Fig.2.3.124 BRTIRUS3012C Zero point positions

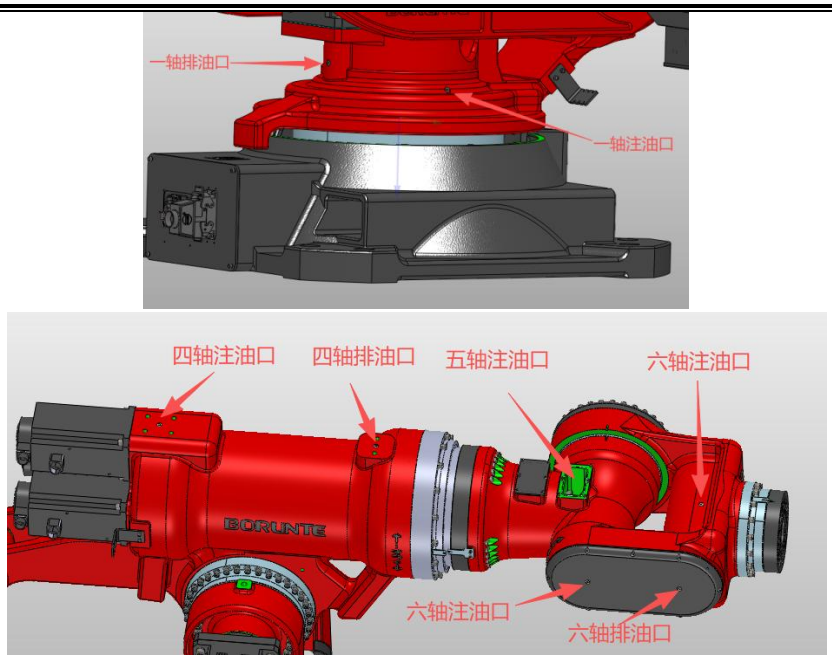


Fig.2.3.125 BRTIRUS3012C Boil injection hole position

2.3.38.5 Robot lifting and handling diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.129. First, set the robot posture according to the standard angle of the receiver posture. Then, thread the lifting belt through the three-axis body and avoid the corrugated pipe. It is recommended that the length of the lifting belt be 8M. If there is a plastic bag, the lifting belt should be perforated on the plastic bag.

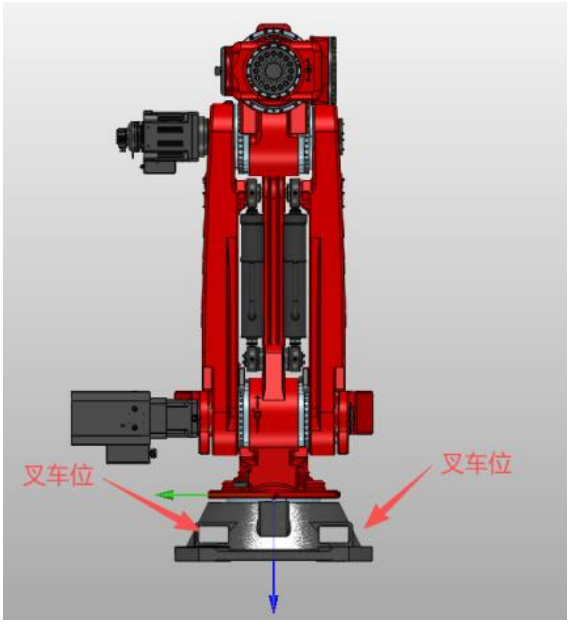


Fig.2.3.126 BRTIRUS3012C Robot lifting and handling diagram

2.3.39 Cooperative Robot BRTIRXZ1005A (20 version)

2.3.39.1 BRTIRXZ1005A Robot Profile

2.3.39.1.1 BRTIRXZ1005A Robot Picture



2.3.39.1.2 Introduction of BRTIRXZ1005A

BRTIRXZ1005A is a six axis collaborative robot with drag and teach function developed by BORUNTE. Its maximum load is 5kg and the maximum arm span can reach 1000mm. It has functions such as collision detection and trajectory reproduction. At the same time, it has the characteristics of safety, efficiency, intelligence, ease of use, flexibility, lightness, economic reliability, and low power consumption, greatly meeting customers' needs for human-machine collaboration. Its high sensitivity and fast response can be applied to high-density flexible production lines, meeting the needs of welding, loading and unloading, assembly and other operations, especially for the application requirements of human-machine collaboration.

High accuracy：repeated positioning accuracy: ±0.05mm.

2.3.39.1.3 Application cases of BRTIRPL1005A

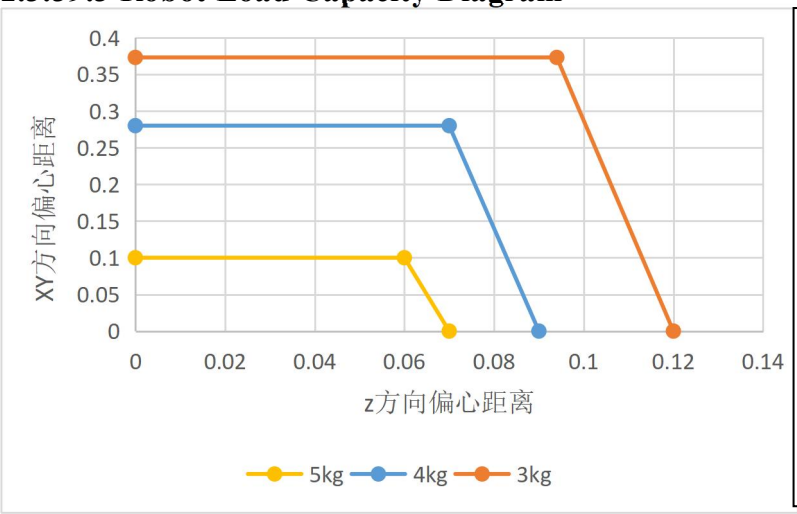
(1) transporting (2) loading and unloading, etc.

2.3.39.2 robot specifications

BRTIRPL1005A robot parameters

Model	BRTIRXZ1005A					
Axes	6 axis					
Loading ability	5kg					
Repeated positioning accuracy	±0.05mm					
Maximum arm span	1000mm					
Weight	About 22kg					
Max speed	J1	178° /s			J2	178° /s
	J3	178° /s			J4	178° /s
	J5	178° /s			J6	178° /s
Motion range	J1	± 180°			J2	± 90°
	J3	-70° ~+250°			J4	± 180°
	J5	± 180°			J6	± 360°
Maximum rotational torque	J4	9.57N*m	J5	5.56N*m	J6	11.38N*m
Maximum moment of inertia	J4	$0.23*10^{-4}kg*m^2$	J5	$0.08*10^{-4}kg*m^2$	J6	$0.33*10^{-4}kg*m^2$
Mounting environment	Operating temperature: -10℃~45℃ Best temperature: 15℃~25℃ Relative humidity: 20~80%RH（No condensation）			Air pressure		0.5~0.7MPa
				Power source		Control cabinet AC: 220V±10% 50/60Hz Body DC: 48V±10%
Core component	Name	Operating system		Brand		BORUNTE
		Casting body				BORUNTE
		Servo motor				BORUNTE
		Reducer				BORUNTE
		Electrical component				BORUNTE
Oil content	None					
Vulnerable parts	None					
Robot accompanying materials	USB					

2.3.39.3 Robot Load Capacity Diagram



Attention: BRTIRXZ1005A is designed for a rated load capacity of 1000kg to optimize the performance and dynamic capabilities of the robot. By reducing the load spacing, higher loads up to maximum load capacity can also be used. Special load situations must be accounted for and checked. If you need detailed consultation, please contact the BORUNTE Robot R&D Center.
Operating beyond the load limit can cause the gearbox and motor to work under overload, resulting in increased wear, temperature rise, and reduced lifespan of the gearbox and motor. Severe overload may lead to damage to the gearbox and safety accidents.

Fig.2.3.127 BRTIRXZ1005A Eccentric load and distance diagram

2.3.39.4 Robot origin calibration diagram/oil injection hole position

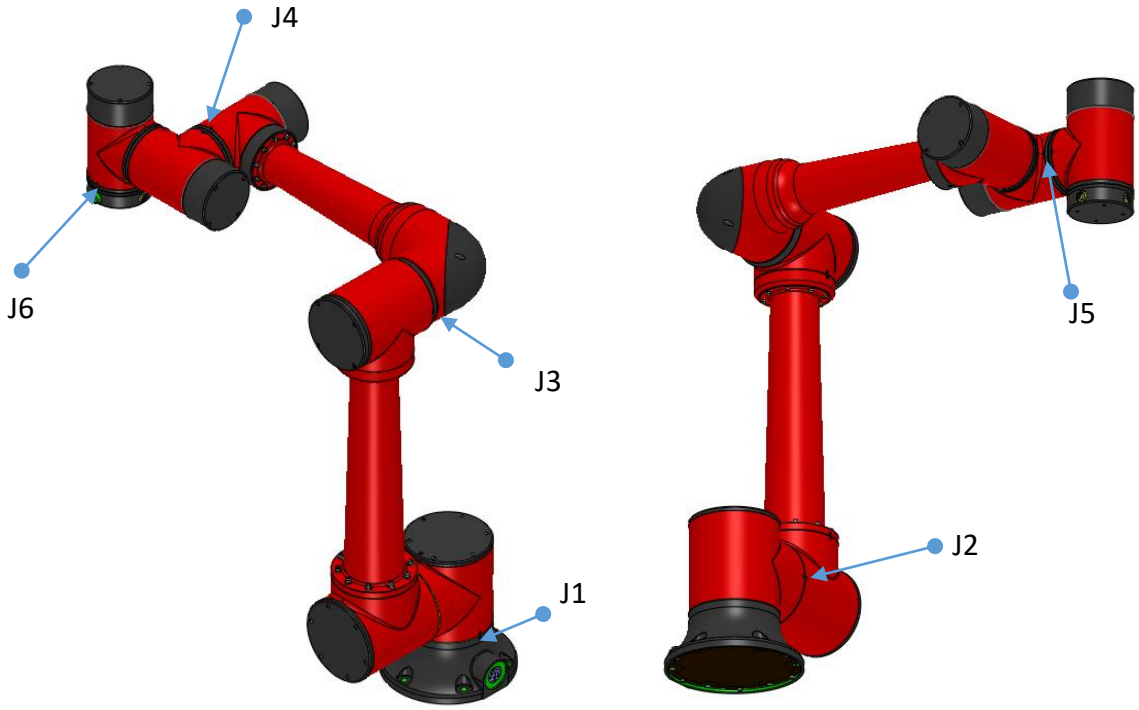


Fig.2.3.128 BRTIRXZ1005A Robot Load Capacity Diagram

None Oil injection and drainage view

2.3.39.5 Robot lifting and handling diagram

When transporting robots, a crane should be used. Regarding the handling method, please refer to Figure 2.3.132. First, set the robot posture according to the standard angle of the receiver posture, and then thread the lifting belt through the three-axis body. It is recommended that the length of the lifting belt be 1M. If there is a plastic bag, the lifting belt should be pierced through the plastic bag.

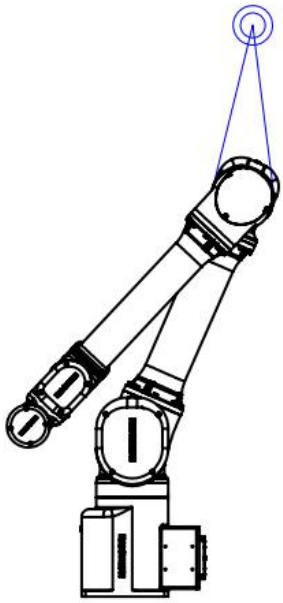


Fig.2.3.129 BRTIRXZ1005A Robot lifting and handling diagram

2.3.40 Six-axis Robot BRTIRUS2650A (Version 10)

2.3.40.1 Introduction to BRTIRUS2650A Robot

2.3.40.1.1 Picture of BRTIRUS2650A Robot



2.3.40.1.2 Introduction to BRTIRUS2650A Robot

BRTIRUS2650A type robot is a six-axis robot developed by BORUNTE, the robot has a compact shape and structure, each joint is installed with a high precision reducer, high speed joint speed can be flexible operation, can carry out handling, palletizing, assembly, injection molding and other operations, has a flexible installation mode.

The repeat positioning accuracy is ±0.1mm.

2.3.40.1.3 Application Scenarios of BRTIRUS2650A

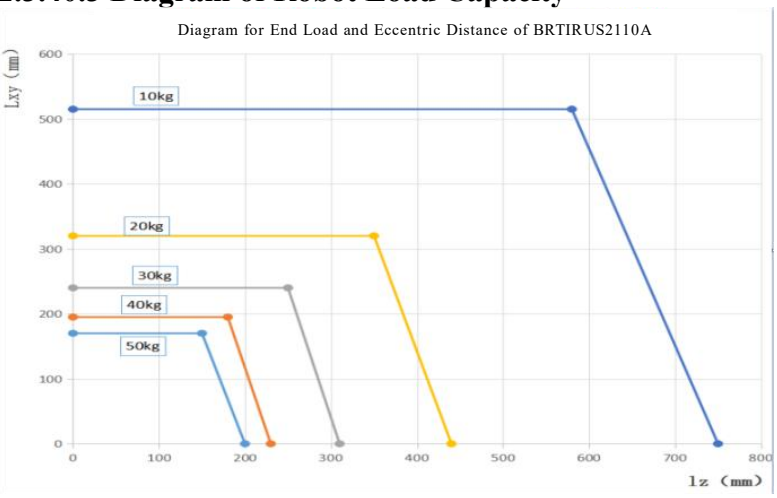
(1) welding (2) injection molding (3) stamping (4) loading and unloading, etc.

2.3.40.2 Performance Parameter Table of Robot

Performance Parameter Table of BRTIRUS2650A

Model	BRTIRUS2650A					
Number of axes	6 axis					
Payload	50kg					
Repeated positioning accuracy	±0.1mm					
Max. radius of arm span	2600mm					
Body weight	470kg					
Max. speed	J1	100°/s			J2	92°/s
	J3	125°/s			J4	240°/s
	J5	257°/s			J6	254°/s
Motion range	J1	±163°			J2	-90°(-160°）~+68°
	J3	-73°~+103°			J4	±180°
	J5	±120°			J6	±360°
Allowable torque	J4	268N*M	J5	153N*M	J6	100N*M
Allowable inertia moment	J4	28KG*M^2	J5	28KG*M^2	J6	11KG*M^2
Installation environment	Operating temperature: 0℃~40℃ Optimal temperature: 15℃~25℃ Relative humidity: 20~80%RH (no condensation)				Air source pressure	0.5~0.7MPa
					Power	380V±10％ 50Hz/60Hz
Core Parts	Name	Operating system		Brand	BORUNTE	
		Casting main body			BORUNTE	
		Servo motor			BORUNTE	
		Reducer			BORUNTE	
		Electrical components			BORUNTE	
RV grease amount	J1	3520ML	J2	/	J3	/
	J4	256ML	J5	75ML	J6	100ML
Wearing parts	J5 synchronous belt	MBT233150523 HTD-5M-15 bandwidth -110 teeth - black (high-strength)				
	Four axis skeleton oil seal	PRG01040028A skeleton oil seal 28-40-6				
	One axis skeleton oil seal	PRG01110085A skeleton oil seal 85-110-10				
Attached documents	USB					

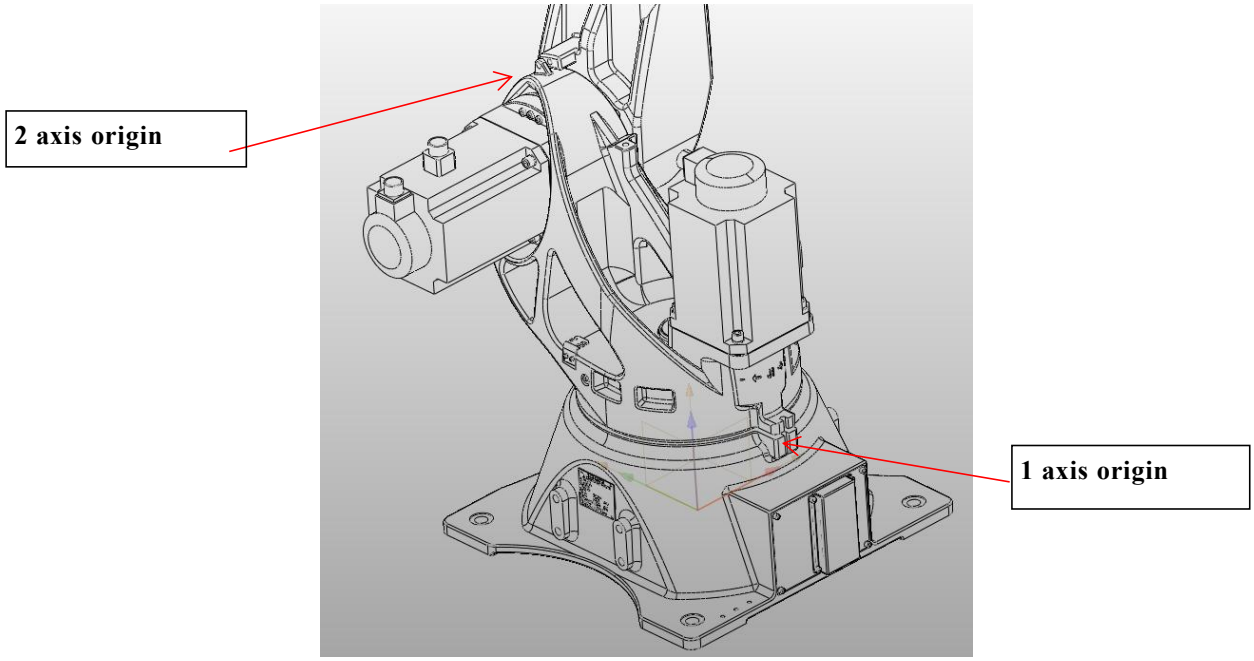
2.3.40.3 Diagram of Robot Load Capacity



Note: BRTIRUS2650A is designed with the rated load capacity up to 50kg, in order to maximize its performance and dynamic performance. The higher load that reaches the max. load capacity can also be used by reducing the spacing between loads. In special cases, the loads must be verified and inspected. For details, please consult Borunte Robot R&D Center.
Operation above the specified load may lead to reducer and motor overload, thus leading to increased wear, temperature rise and lower life of reducer and motor. The reducer can have damage and safety accident in severe cases.

2.3.130 Diagram for Eccentric Load and Distance of BRTIRUS2650A

2.3.40.4 Origin Calibration/Oil Injection Hole Position of Robot



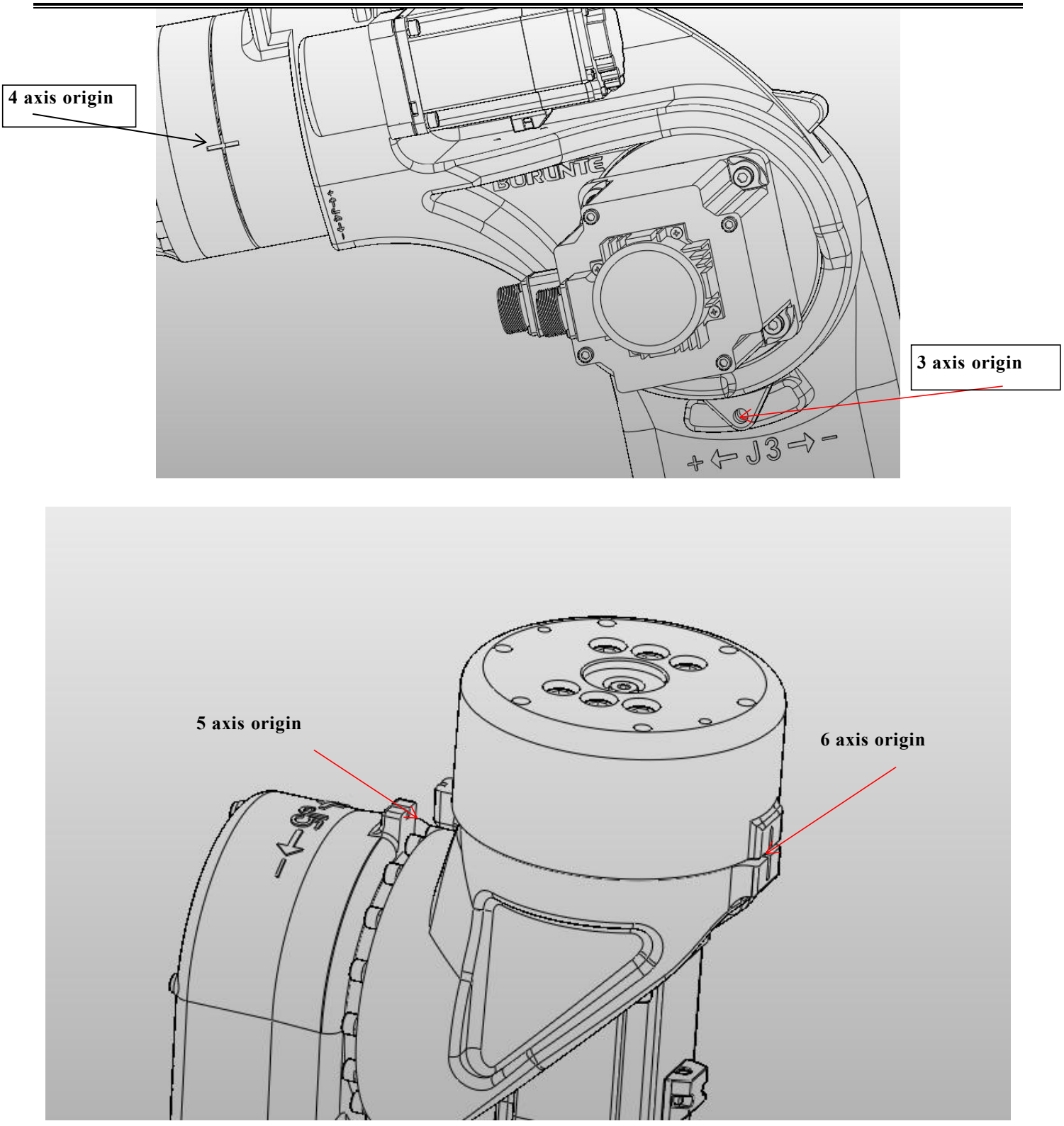
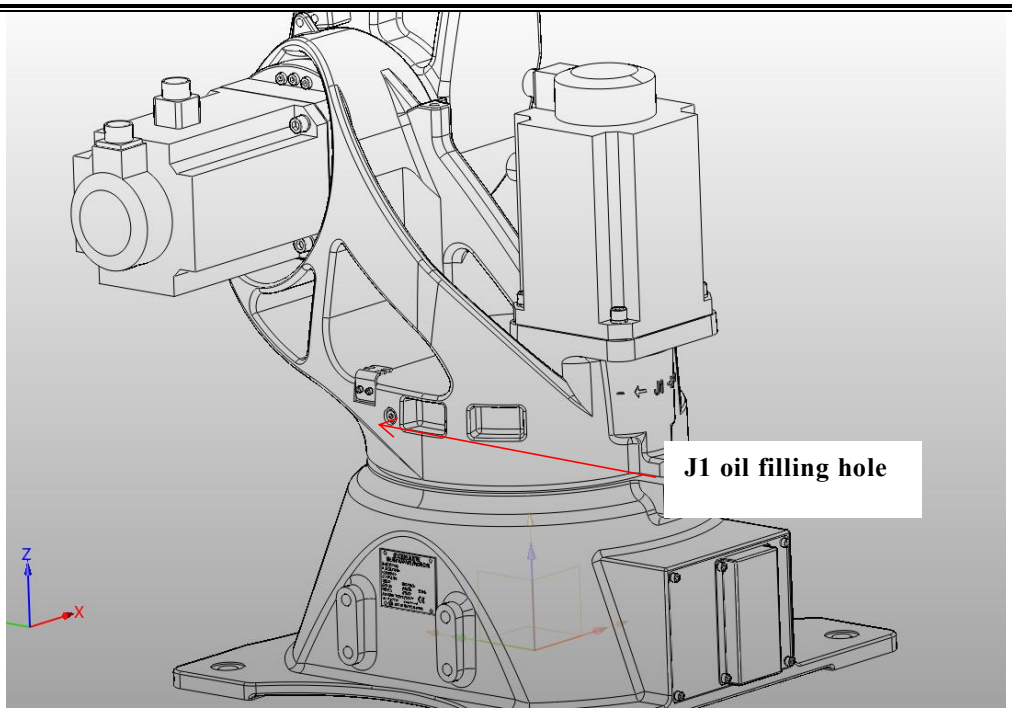
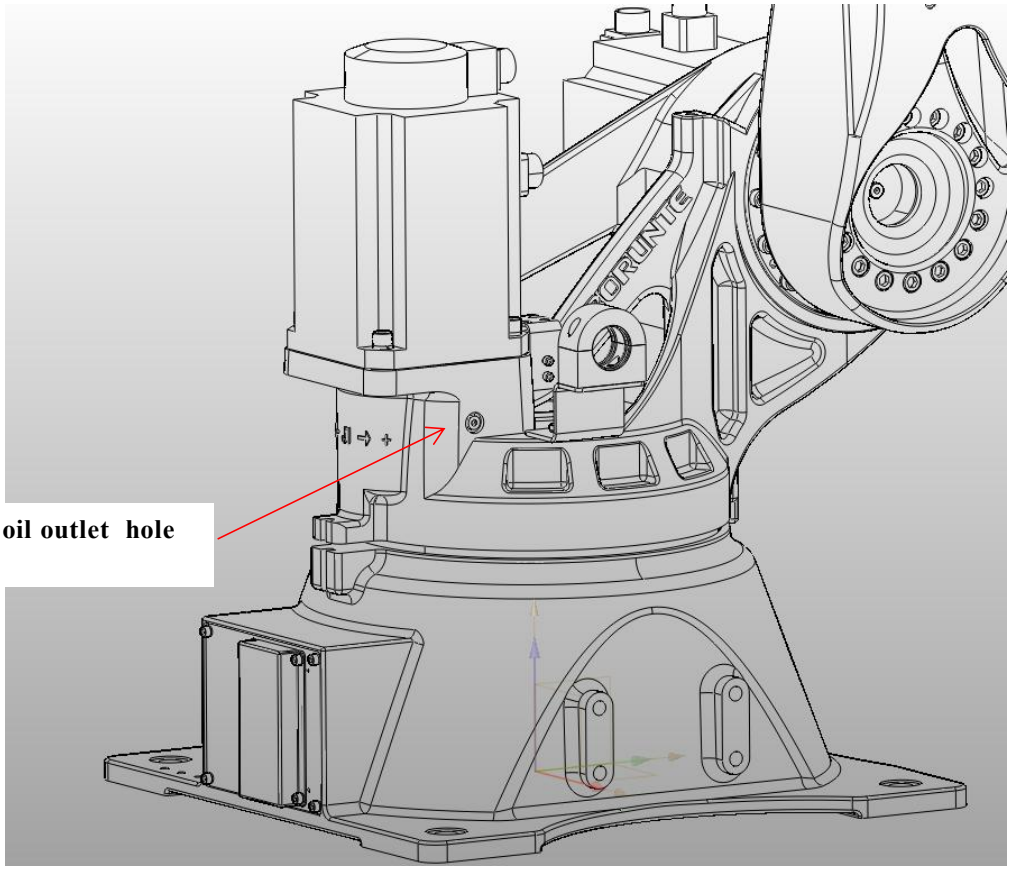
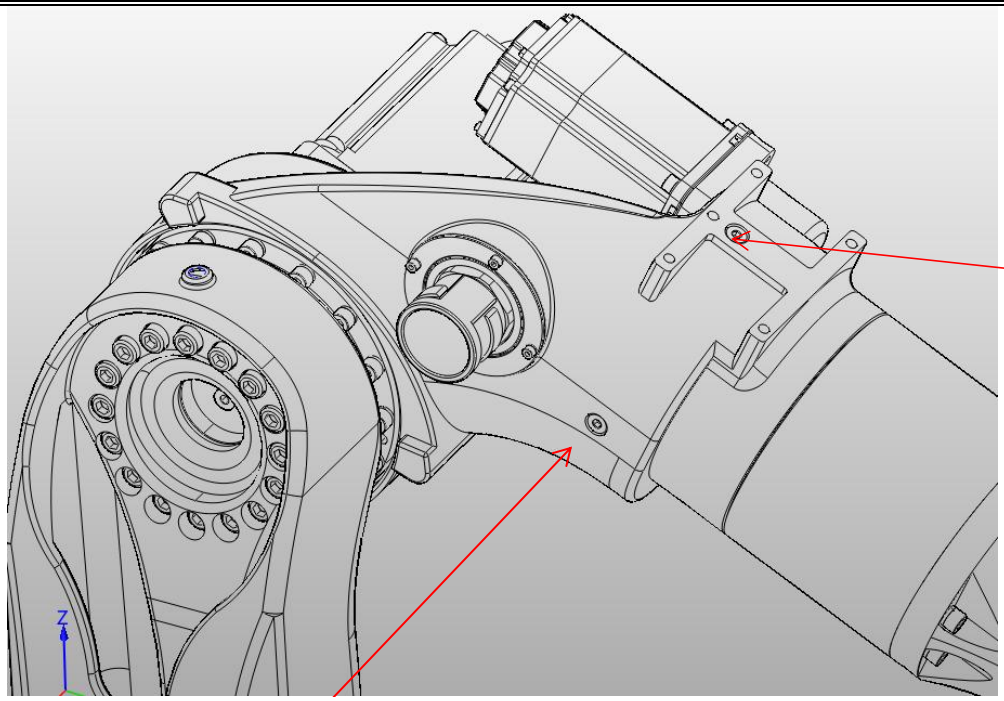
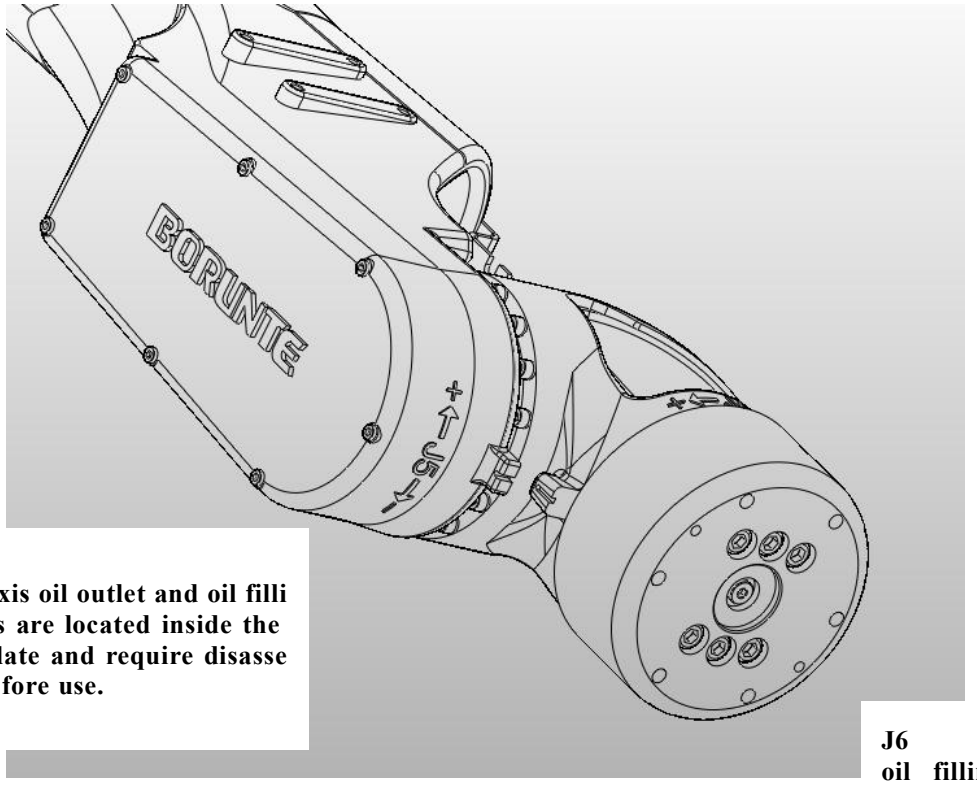


Fig. 2.3.131 Diagram for Origin Calibration of BRTIRUS2650A


J1 oil filling hole
Z
X


J1 oil outlet hole





The 5-axis oil outlet and oil filli ng holes are located inside the cover plate and require disasse mbly before use.

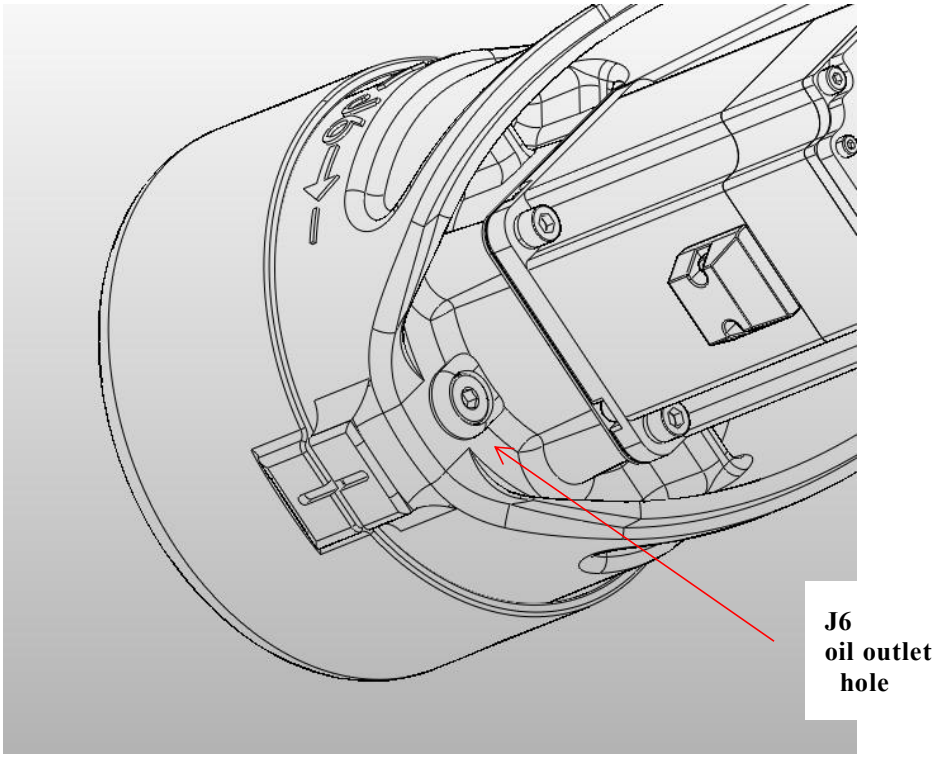


Fig. 2.3.132 Diagram for Oil Injection/discharge of BRTIRUS2650A

2.3.40.5 Diagram of Machine Handling and Hoisting

A crane should be used while handling the robot. Please refer to the figure below for the handling method. Firstly, set the robot gesture according to the gesture and angle of machine received, then cross the hoisting belt through the body of three axles and evade the corrugated pipe. The suggested length of hoisting belt is 1.5-1.8M. When machine is covered with plastic bag, punch a hole on the bag and cross the hoisting belt.

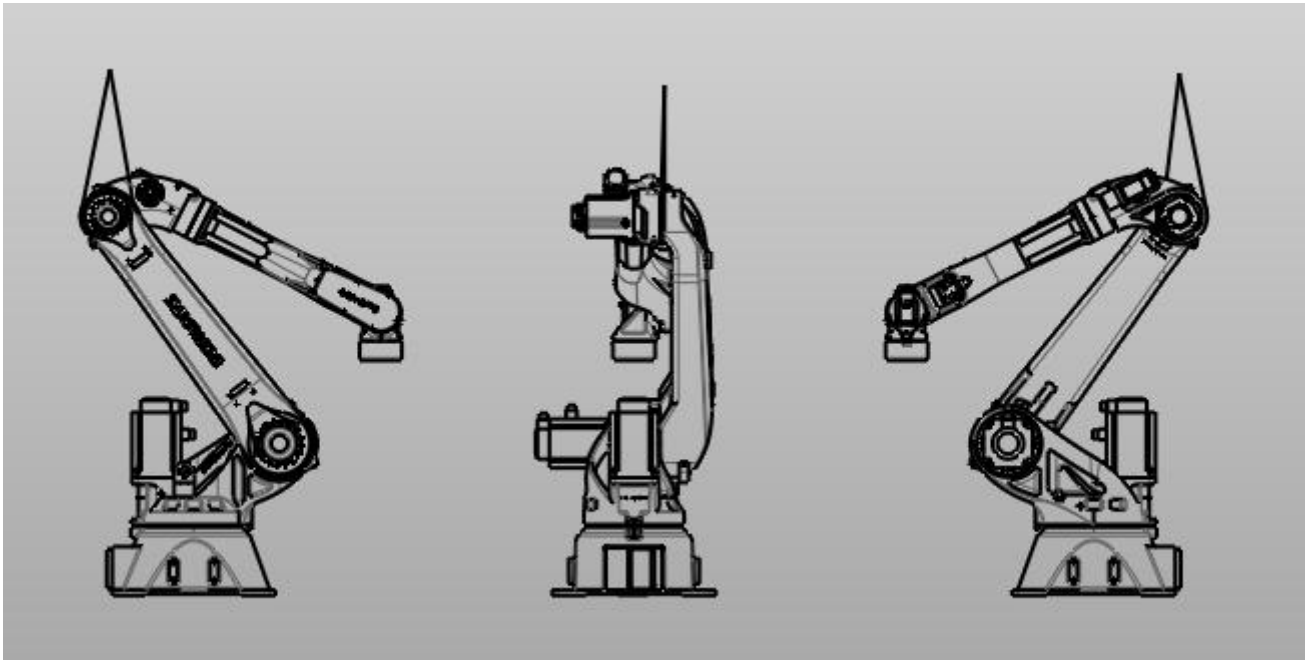


Fig. 2.3.133 Diagram for Handling and Hoisting of RTIRUS2650A Robot

2.3.41 5KG Collaborative Robot BRTHC100501A(11 version)

2.3.41.1 BRTHC100501A profile

2.3.41.1.1 BRTHC100501A picture



2.3.41.1.2 Introduction to BRTHC100501A

BRTHC100501A is a workstation developed by Borunte for the welding industry. It features a 1000mm working radius and 5kg payload. Equipped with a collaborative robot and welding handle, it comes with a standard-configured welding machine and welding gun.

1.Flexible Deployment: Easy to move with handles and universal casters; fixed stably with floor supports. The gas cylinder and welding machine are integrated as a whole—only a power supply is required for operation.

2.Magnetic Positioning & Ready-to-Weld: The robot is fitted with a magnetic base and a 3-meter cable for flexible operation range.

3.Simple Programming: Smooth drag-and-drop teaching for the robot; the welding handle is equipped with a display screen & keys for point recording, plus fine-tuning knobs for precise calibration. One-click wire feeding enables fast debugging; easy for novice operators to master.

4.Stable Parameter Adjustment: Intelligent matching of welding parameters; isolated power supply for anti-interference performance. Matched with a 500A welding machine and a 500A water-cooled welding gun. It handles complex application scenarios such as steel structures and mechanical parts with ease.

2.3.41.1.3 BRTHC100501A Application cases

(1) welding, etc.

2.3.41.2 Parameters

BRTHC100501A parameters

Model	BRTHC100501A			
Axes	6 axis			
Loading ability	5kg			
Repeated positioning accuracy	±0.05mm			
Arm Span	2350MM			
Welding gun	500A water-cooled			
Welding machine	500A			
Floor area	1542×803mm			
Welding handle	Standard configuration			
Weight	About 125kg			
Max speed	J1	178°/s	J2	178°/s
	J3	178°/s	J4	178°/s
Motion range	J5	178°/s	J6	178°/s
	J1	±180°	J2	±90°
	J3	-70°~+250°	J4	±180°
Allowable torque	J5	±360°	J6	±360°
Mounting environment	Temperature: 0~40 ℃ Humidity: 20-80% RH (no condensation) Relative humidity：20-80%RH（No condensation）			
			Power supply	380V±10％ 50Hz±1％
Core components	Name	Operating system	Brand	BORUNTE
		Casting body		BORUNTE
		Servo motor		BORUNTE
		Reducer		BORUNTE
		Electrical component		BORUNTE
Vulnerable parts	None			
Robot accompanying materials	USB			

2.3.41.3 Load Capacity Diagram

None

2.3.41.4 Origin calibration diagram/oil injection hole position

None

2.3.41.5 Robot handling and lifting diagram

None

2.3.42 5KG Collaborative Robot BRTHC100501A(11 version)

2.3.42.1 BRTHC100501A profile

2.3.42.1.1 BRTHC100501A picture



2.3.42.1.2 Introduction to BRTHC100501A

BRTHC100502A is a workstation developed by Borunte for the welding industry. It features a 1000mm working radius and 5kg payload. Equipped with a collaborative robot and welding handle, it comes with a standard-configured welding machine and welding gun.

1. Flexible Deployment: Easy to move with handles and universal casters; fixed stably with floor supports. The gas cylinder and welding machine are integrated as a whole—only a power supply is required for operation.

2. Magnetic Positioning & Ready-to-Weld: The robot is fitted with a magnetic base and a 3-meter cable for flexible operation range.

3. Simple Programming: Smooth drag-and-drop teaching for the robot; the welding handle is equipped with a display screen & keys for point recording, plus fine-tuning knobs for precise calibration. One-click wire feeding enables fast debugging; easy for novice operators to master.

4. Stable Parameter Adjustment: Intelligent matching of welding parameters; isolated power supply for anti-interference performance. Matched with a 350A welding machine and a 500A air-cooled welding gun. It handles complex application scenarios such as steel structures and mechanical parts with ease.

2.3.42.1.3 BRTHC100501A Application cases

(1) welding, etc.

2.3.42.2 Parameters

BRTHC100501A parameters

Model	BRTHC100502A			
Axes	6 axis			
Loading ability	5kg			
Repeated positioning accuracy	±0.05mm			
Arm Span	1000MM			
Welding gun	500A air-cooled			
Welding machine	350A			
Floor area	1542*803MM			
Welding handle	standard configuration			
Weight	About 487kg			
Max speed	J1	178°/s	J2	178°/s
	J3	178°/s	J4	178°/s
Motion range	J5	178°/s	J6	178°/s
	J1	±180°	J2	±90°
	J3	-70°~+250°	J4	±180°
Allowable torque	J5	±360°	J6	±360°
Mounting environment	Temperature: 0~40 ℃ Humidity: 20-80% RH (no condensation) Relative humidity：20-80%RH（No condensation）			
			Power supply	380V±10％ 50Hz±1％
Core components	Name	Operating system	Brand	BORUNTE
		Casting body		BORUNTE
		Servo motor		BORUNTE
		Reducer		BORUNTE
		Electrical component		BORUNTE
Vulnerable parts	None			
Robot accompanying materials	USB			

2.3.42.3 Load Capacity Diagram

None

2.3.42.4 Origin calibration diagram/oil injection hole position

None

2.3.42.5 Robot handling and lifting diagram

None

III. Calibration of Robot Zero Points

3.1 Overview of Zero Point Calibration

Zero point calibration is an operation that associates the angle of each robot axis with the count value of encoder. The zero point calibration is used for acquiring the encoder count value that corresponds to zero position.

"Zero point calibration" is completed before leaving factory. In general, zero position calibration is not required in daily operation. However, zero position calibration should be executed in the following cases:

①Motor replacement

②Encoder replacement or battery failure

③Reducer replacement

④Cable replacement

3.2 Zero Point Calibration Method

Zero point calibration is a complex process. According to the real conditions and objective conditions, the zero point calibration tools, methods, common problems and solutions are introduced as follows:

①Software zero point calibration:

The laser tracker is required for establishing the coordinate systems of robot joints and resetting the system encoder reading. Software calibration is complex and should be conducted by the Company's professional technicians.

②Mechanical zero point calibration:

Rotate any two axles of robot to the preset origin of machine body, then insert the origin pin and make sure it can be inserted easily into the origin position of robot.

It should be subject to the laser calibrator, which can increase the accuracy of machine. Laser calibration should be repeated at high-accuracy application scenarios; the mechanical origin positioning applies to the low-accuracy scenarios only.

IV. Inspection and Maintenance

The robot must undergo maintenance overhaul to ensure high performance for long period.

The maintenance overhaul is divided into daily and regular maintenance overhaul, of which, the basic cycle is as shown in picture below. The inspection personnel must prepare maintenance overhaul plan and conduct maintenance overhaul as required. Please refer to the following table for the maintenance overhaul items.

Besides, overall disassembly and maintenance should be conducted in every 20,000 working hours or every 4 years, whichever is shorter. For high-frequent operation, such as assembly and disassembly, it is recommended to implement maintenance overhaul and overall disassembly and maintenance according to 1/2 of period.

Besides, please contact our service department when maintenance overhaul and adjustment methods are unclear.

4.1 Preventive Maintenance

Execute regular maintenance steps as introduced in this chapter, to maintain the optical performance of robot.

4.1.1 Daily Inspection

Serial number	Item	Checkpoints
1	Cleaning and overhauling of all parts	Check if the parts have problems and handle them
2	Fastening of external main screws	Fasten the screws of end actuators and main external screws

Table 4.1 Daily Checklist

4.1.2 Quarterly Inspection

Serial number	Item	Checkpoints
1	Inspection of abnormal sound	Check if all transmission mechanisms have abnormal sound
2	Inspection of interference	Check if all transmission mechanisms have stable running and abnormal jitter
3	Inspection of air cooling	Check if the fans behind control cabinet have smooth ventilation
4	Inspection of pipe accessories	Check if they are complete and have wear or rust
5	Inspection of peripheral electrical accessories	Check if the external circuits and buttons of robot are normal
6	Leakage inspection	Check if the supply and drainage port of lubricating oil has leakage

Table 4.2 Quarterly Checklist

4.1.3 Annual Inspection

Serial number	Item	Checkpoints
1	Control unit cable	Check if demonstrator cable has improper twisting
2	Ventilator of control unit	When ventilator is dirty, cut off the power supply and clean the ventilator
3	Mechanical unit cable	Check if mechanical unit socket has damage and abnormal bending, and check the motor Check if connector and aviation plug are connected reliably
4	Cleaning and overhauling of all parts	Check if the parts have problems and handle them
5	Fastening of external main screws	Fasten the screws of end actuators and main external screws

Table 4.3 Annual Checklist

4.2 Inspection of Main Bolts

Table 4.4 Inspection Position of Main Screws

Serial number	Check part	Serial number	Check part
1	Mounting bolts of robot	7	Mounting bolts of Axis J5 motor
2	Mounting bolts of Axis J1 motor	8	Mounting bolts of Axis J6 motor
3	Mounting bolts of Axis J2 motor	9	Mounting bolts of end loads
4	Mounting bolts of Axis J3 motor		
6	Mounting bolts of Axis J4 motor		

4.3 Inspection of Lubricating Oil

注意

Please measure the iron powder concentration (iron content is ≤0.015%) of lubricating oil in reducer in every 5,000h working hours or every 1 year (<or in every 2,500h working hours or every half a year when being used for loading/unloading purpose). The lubricating oil or reducer should be replaced when the standard value is exceeded. Please contact the Company's Service Center.

注意

When the lubricating oil overflows the machine body and is below the necessary level during inspection, and supplement the lubricating oil by using a lubricating oil gun. The nozzle diameter of lubricating oil gun should be lower than φ 8mm. The lubricating oil may have leakage or robot action may have poor track when the supplemented lubricating oil exceeds the flow-out amount.

注意

After finishing inspection or filling of lubricating oil, wrap the sealing tape at the joint of lubricating oil pipe and the plug with hole, in order to prevent oil leakage.

Where necessary, please use the lubricating oil gun that indicates the injection quantity. If failing to prepare a lubricating oil gun that indicates the injection quantity, confirm the injection capacity of lubricating oil based on the changes of lubricating oil weight before and after filling.

注意

Due to internal pressure rise, the lubricating oil may spray out while disassembling the plugs of access hole immediately after robot shutdown.

4.4 Installation & Maintenance Precautions of Harmonic Reducer

①According to the reducer service life provided by its manufacturer, the design life of harmonic reducer on each axis is: 15,000h.

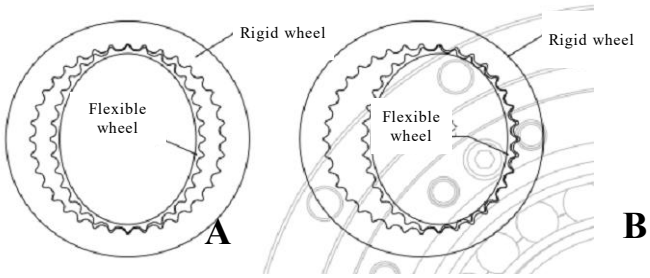
②As a high-precision part, the harmonic reducer can have internal structure damages due to overload, pulling/dragging by force and unreasonable collision, thus reducing its accuracy or causing abnormal sound; it may result in crack of reducer flexible wheel and scrapping of reducer in severe cases.

③Make sure to install the harmonic reducer in a clean place, prevent foreign matters from entering the reducer during installation, to avoid damaging the reducer in use.

④Confirm that the reducer tooth surface and flexible bearing are fully lubricated. The tooth surface is not recommended to face upwards in use, to avoid affecting the lubricating effects.

⑤After cam is installed, make sure the engagement between flexible wheel is symmetric to the rigid gear for 180° (Fig. A); when flexible wheel is deviated to one side (Fig. B), it may result in vibration and damage of flexible wheel quickly.

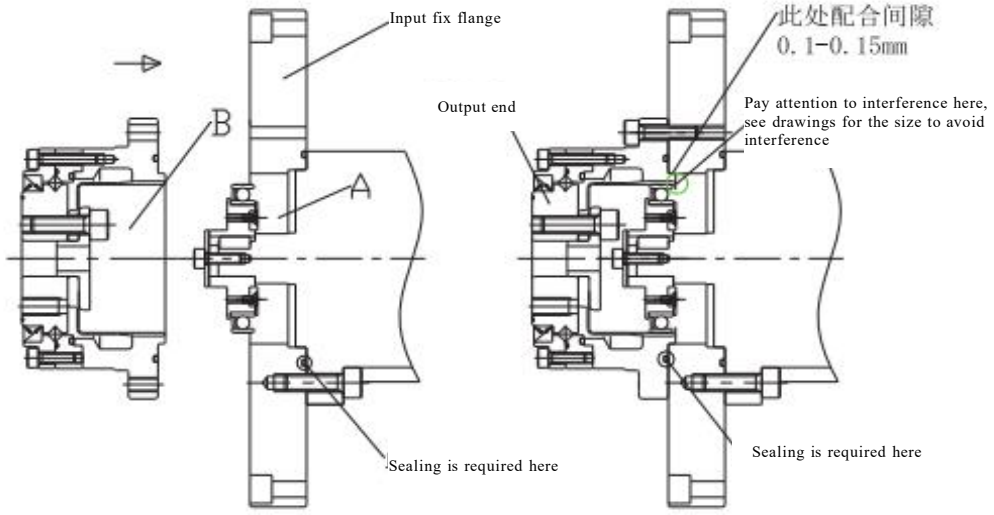
⑥After installation is finished, please start running at low speed (1000rpm). For any abnormal vibration or sound, please stop running it immediately and contact us, to avoid reducer damage due to improper installation.



4.5 Installation Mode of Harmonic Reducer

4.5.1 LCD/LCS Series (rigid wheel fixing, soft wheel output, reduction ratio is marked reduction ratio)

The fit clearance here is 0.1-0.15mm



①Apply lubricating grease on the flexible bearing evenly, inject 80% lubricating grease into cavity at Position A (please use the specified lubricating grease. Do not change the lubricating grease randomly for fear of reducer damage), install the wave generator onto the motor shaft or connecting shaft at input end, connect and fix it by using screws and flat gasket.

②Apply one layer of lubricating grease evenly onto the inner wall of flexible wheel, inject lubricating grease to Position B in rear flexible wheel and the injection amount is about 80% of flexible wheel cavity; install the reducer according to the direction in diagram, meanwhile, align the long shaft of wave generator with the long shaft of reducer flexible wheel; after reducer is in place, fix it with the corresponding screws, then fasten the pins slightly.

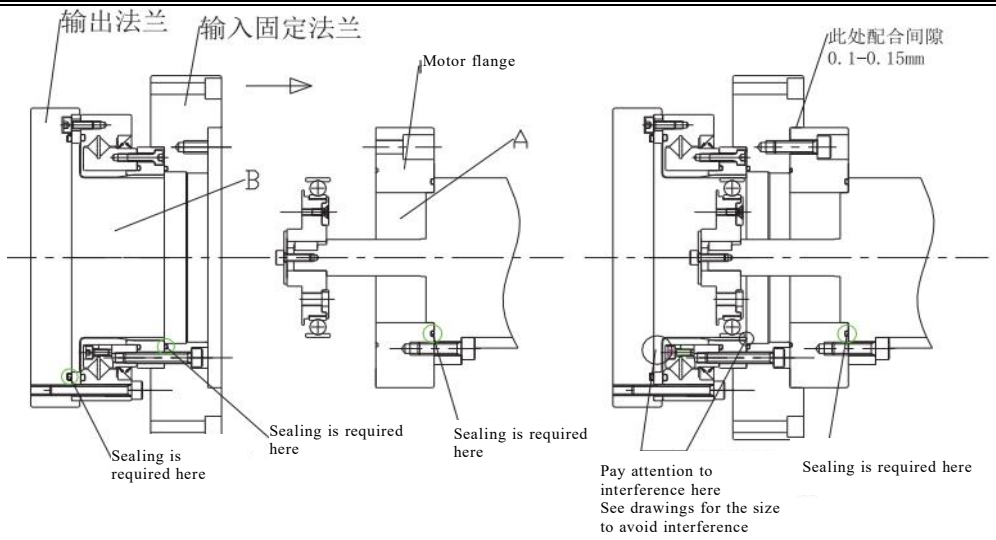
③Set the revolving speed of motor around 100rpm, start the motor, fasten the screws in a criss-cross manner, fasten the screws for 4-5 times until they reach the corresponding tightening force progressively. All connected and fixed screws should be Grade 12.9 and be applied with thread adhesive, to avoid failure or looseness of screws in use.

④Processing requirements for mounting surface that connects and fixes reducer: Planeness 0.01mm and axis verticality 0.01mm; concentricity between thread hole, thorough hole and axis is 0.1mm.

⑤Attention: When output end (output end in picture above) always faces downwards (which is not recommended) while using the reducer, the lubricating grease injected to the inner wall of flexible wheel should exceed the surface of engaging tooth (which means, space of A and B must be fully filled with grease) or contact us. Please use the specified lubricating grease. Do not change the grease randomly for fear of reducer damage. Static seal should be installed between the mounting surface of reducer rigid wheel and input end, to avoid leakage of lubricating grease while using the reducer, or reducer damage due to little or no grease.

4.5.2 LHD/LHS Series (rigid wheel fixing, soft wheel output, reduction ratio is marked reduction ratio)





①Fix the reducer on the output flange, then fix the input fix flange and connect it to rigid wheel.

②Apply lubricating grease on the flexible bearing evenly, inject 80% lubricating grease into cavity at Position A (please use the specified lubricating grease. Do not change the lubricating grease randomly for fear of reducer damage), install the wave generator onto the motor shaft or connecting shaft at input end, connect and fix it by using screws and flat gasket.

③Install the reducer according to the direction in diagram, meanwhile, align the long shaft of wave generator with the long shaft of reducer flexible wheel; after reducer is in place, fix it with the corresponding screws, then fasten the pins slightly.

④Set the revolving speed of motor around 100rpm, start the motor, fasten the screws in a criss-cross manner, fasten the screws for 4-5 times until they reach the corresponding tightening force progressively. All connected and fixed screws should be Grade 12.9 and be applied with thread adhesive, to avoid failure or looseness of screws in use.

⑤Apply one layer of lubricating grease evenly onto the inner wall of flexible wheel, inject lubricating grease to Position B in rear flexible wheel and the injection amount is about 80% of flexible wheel cavity (Please use the specified lubricating grease. Do not change the grease randomly for fear of reducer damage.)

⑥Processing requirements for mounting surface that connects and fixes reducer: Planeness 0.01mm and axis verticality 0.01mm; concentricity between thread hole, thorough hole and axis is 0.1mm.

Note:

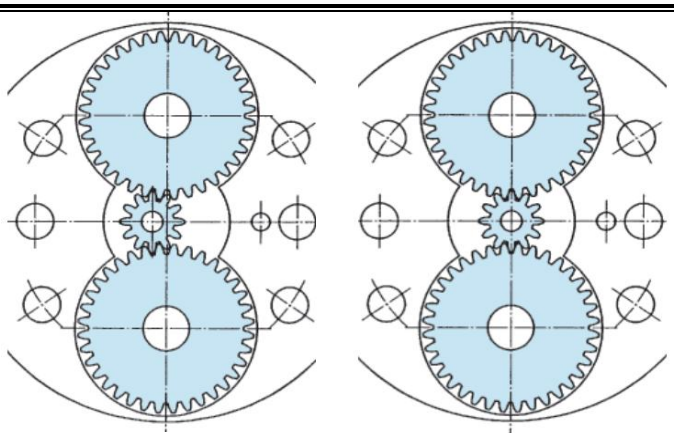
⑤When output end (output end in picture above) always faces downwards (which is not recommended) while using the reducer, the lubricating grease injected to the inner wall of flexible wheel should exceed the surface of engaging tooth (which means, space of A and B must be fully filled with grease) or contact us. Please use the specified lubricating grease. Do not change the grease randomly for fear of reducer damage.

Static seal should be installed between the mounting surface of reducer rigid wheel and input end, to avoid leakage of lubricating grease while using the reducer, or reducer damage due to little or no grease.

4.6 Installation Mode of RV Reducer

Pay special attention while installing E series input gear. The input gear should be inserted radially.

When it is unmatched with phase position of straight gear, please change the angle slightly along with the peripheral direction, and confirm that motor flange has close contact and no tilting. Now, it is forbidden to fasten the reducer with bolts. The status shown in picture below may occur when flange surface is tilted.



Wrong assembly position　　Correct assembly position

4.7 Surface Rust Prevention of RV Reducer

As the core part of robot, the RV reducer should be provided with regular maintenance, for its surface can have corrosion such as yellowing and rusting after long-term exposure or use in severely corroded environment, to avoid affecting the reducer's appearance, service life and robot safety.

①Use white gas and clean shred to wipe and clean the outer surface of reducer, make sure no corrosive liquid or solid is attached on the outer surface. Take down the iron rust (if any) with fine sandpaper.

②After wiping the outer surface with white gas, spray the dry rust remover on the outer surface of reducer, and avoid skipped or insufficient spraying; otherwise, it may fail to realize the rust protection effects.

Maintenance cycle: Not above 3 months.

Antirust agent: HIRI dry antirust agent (HIRI 725 antirust agent)



Picture of antirust agent

V. Replacement of Lubricating Grease

5.1 Steps of Replacing Lubricating Grease of RV Reducer

1) Reset the robot to zero position.

2) Cut off power supply.

3) Use a 5mm Allen wrench to take down the plug of lubricating grease injection/discharge port.

4) Use an air gun to blow off the grease from the oil discharge hole, and receive grease from the other oil discharge hole.

4) After the previous lubricating oil flows out from the oil discharge port, inject the new lubricating grease into the oil cavity, until new lubricating oil is discharged.

5) Install the plug on the lubricating oil injection/discharge port.

6) After oil is injected, release the residual pressure of lubricating oil groove according to the steps of 5.4.

5.2 Steps of Replacing Lubricating Oil of Wrist Components

1) Reset the machine to zero point.

2) Cut off power supply.

3) Take down the plug of lubricating oil supply port at wrist.

4) Take down the wrist end, drain the oil completely.

5) Inject new lubricating grease through the lubricating oil supply port of wrist, until the lubricating oil can't be injected.

6) Install the plug on the lubricating oil supply port of wrist.

7) Install the plug on the lubricating oil discharge port of wrist.

If lubricating is improper, the internal pressure of lubricated cavity may increase suddenly and damage the sealing, thus leading to leakage of lubricating oil and abnormal operation. Therefore, please abide by the followings prior to lubricating: Open (remove) the oil discharge port prior to lubricating.

1) Provide lubricating oil slowly, control the oil supply speed below 40cc/10s and do not supply oil by force. Make sure to use a lubricating oil gun that can clearly indicate the injection amount. If failing to prepare a lubricating oil gun that indicates the injection quantity, confirm the injection amount of lubricating oil based on the changes of lubricating oil weight before and after filling.

2) When supplied oil fails to reach the specified amount, use a precision regulator to squeeze out the air in cavity and then inject oil. Use regulator to adjust the air pressure below 0.025MPa.

3) Only the specified lubricating oil can be used. Using of unspecified lubricating oil may damage the reducer or lead to other problems.

4) While installing the plug after oil injection, wrap it with raw tape and apply sealing glue, to avoid oil leakage at the oil inlet/outlet.

5) Clean the excessive lubricating oil on floor and robot, to avoid accidents due to slip.

6) After oil is injected, release the residual pressure of lubricating oil groove according to the steps of 3.4.4 and then install the plug, wrap the tape and apply thread sealing glue to prevent leakage of grease from the oil supply/discharge port.

5.3 Release of Residual Pressure in Lubricating Oil Groove

After oil is injected, operate the robot properly to release the residual pressure of lubricating oil groove. Now, install the recycle bag below the lubricating oil inlet/outlet to avoid scattering of lubricating oil that flows out.

To release the residual pressure, keep the oil discharge port opened, adjust Axis J1 within ±30° and Axis J2/J3 within ±5°, repeat the action for over 20min in the scope and control the motion at low speed.

If failing to execute the actions above due to the surrounding conditions, run the robot for the same times (when axis angle is half only, the running period of robot should be twice that of previous running). After finishing the action above, release the plug of vent hole for discharging gas, then install it back (apply thread sealing glue).

VI. Common Problems and Troubleshooting

Please read the safety precautions of Chapter 1 carefully prior to any maintenance.

Do not start maintenance before the robot is powered off.

	Cause	Analysis	Processing
Vibration noise	Loose connection between base and floor	Loose connection between base and ground due to frequent vibration while robot is running	Refasten the connection between robot and bottom
	Loose connection between joints of robot	Connecting bolts between joints fail to reach the specified pre-tightening force and the bolts have no anti-looseness measures (thread fastening agent and spring washer)	Reinstall and tighten all the bolts
	Vibration is obvious after exceeding certain speed	The robot has difficult execution of its procedure	Adjust the robot's procedure
	The vibration is obvious at certain position	The robot has overload	Reduce the robot's load
	Vibration occurs after collision or long-term overload	The joint structure or reducer is damaged after collision or overload	Replace the reducer at vibration position or repair the structure
	It may be related to the functioning of other machines around the robot	The robot has resonance with other machines around it	Change the distance between the robot and other machines
	Reducer is damaged	The joint reducer is not replaced for long period	Replace the reducer
Cracking sound	The robot has shaking when pulling the robot with hands during shutdown	The bolts on robot joints are loose due to overload and collision	Check if the joint bolts are loose, including the bolts of motor, reducer and connecting bolts; if yes, tighten them
Motor overheat	The robot's ambient temperature has rise or the servo motor is covered by objects	Temperature rise due to increase of ambient temperature or poor cooling of motor	Adjust the procedure and reduce the load
	The robot's control procedure or load is changed	The procedure or load exceeds the robot's range	Adjust the procedure and reduce the load
	Motor has overheat when parameters imported in controller are changed	Imported parameters do not match the robot model	Import the parameters correctly
Gearbox has oil penetration or leakage	Joints have oil leakage	The sealing rubber parts are aged after long-term use of robot	Replace the oil seal and O-ring
		The sealing surface has gap	Reinstall it and ensure close combination of joint surface
		The oil injection nozzle or plug screw has failure	Replace the oil injection nozzle or plug screw
Joints can't be locked	The robot fails to stop at certain position, or the joint has rotation under the action of gravity after robot is stopped for certain period	Servo motor brake has failure	Replace the servo motor

6.1 Necessary Tools

Forklift, Allen wrench, monkey wrench, specific tools for assembly/disassembly of bearing, etc.

6.2 Common Problems and Troubleshooting

Omitted

6.3 Replacement of Servo Motor Parts

Please timely contact our technical service personnel before replacing the servo motor.



If removing some parts of robot, other parts of robot can become supportless, have unexpected motions, and lead to personal injury and equipment damage; so, the robot should be dismantled by professional technicians.



While replacing the parts, keep the dismantled parts properly and clean them before reassembly.The damaged parts should be replaced in time.

VII. Reducer Disassembly Process

7.1 Disassembly Diagram of Harmonic Reducer

7.1.1 Replacement & Disassembly Diagram of Type 20-100 Harmonic Reducer

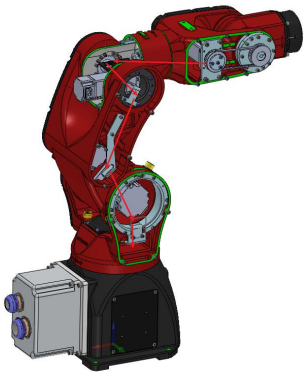


Fig. 1

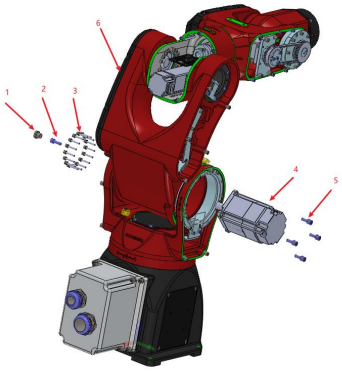


Fig. 2

1. As shown in Fig. 1:

Firstly, withdraw the needle of power line and coding line on Axis 5 and 6 of robot, then withdraw the robot cable to the Axis 2 rotation base position according to the arrow direction.

2. As shown in Fig. 2:

(1) Use 6# Allen wrench to take down one plug screw at No. 1 position.

(2) Use 4# Allen wrench to take down M5 screw at No. 2 position.

(3) Use 4# Allen wrench to take down the 4 M5 screws at No. 5 position. (Fix component 6 prior to disassembly)

(4) Unplug motor 4, then use 2.5# Allen wrench to take down the 16 M3 screws at No. 3 position;

(5) Take out component 6 from the rotation base;

Note: After the above steps are completed, the actual effects are shown in Fig. 3.

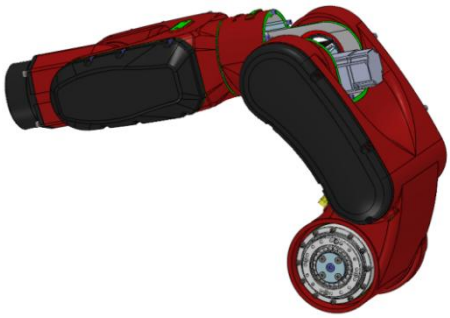


Fig. 3

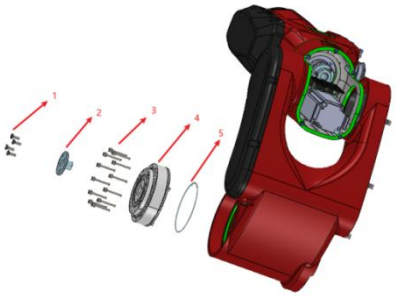


Fig. 4

3. As shown in Fig. 4:

(1) Use 2.5# Allen wrench to take down the 4 M4 countersunk screws on motor axis fixing board at No. 2 position, then take out the motor axis fixing board.

(2) Use 2.5# Allen Wrench to take down the 16 M3 screws on the Type 20-100 thin reducer in No.4, then take out the reducer.

(3) Take out O-ring at No. 5 position, make sure it is not damaged or lost.

7.1.2 Replacement & Disassembly Diagram of 17-80 Harmonic Reducer with Belt

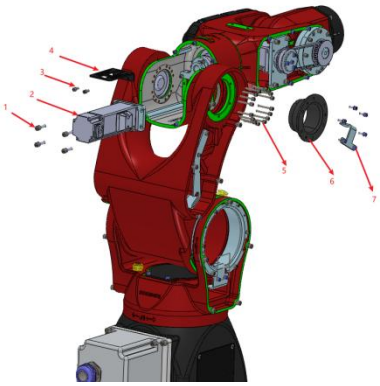


Fig. 1

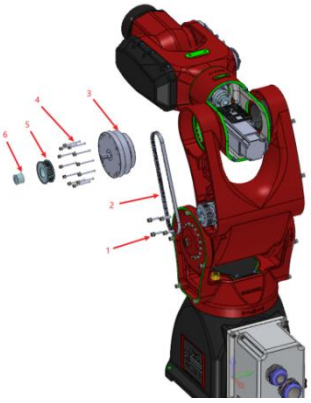


Fig. 2

1. As shown in Fig. 1:

Firstly, withdraw the needle of power line and coding line on Axis 5 and 6 of robot, then withdraw the robot cable to the Axis 2 rotation base position according to the arrow direction.

(1) Use 3# Allen wrench to take down the 4 M4 screws at No. 1 position , take out the motor at No. 2 position;

(2) Use 2.5# Allen wrench to take down the 2 M3 screws at No. 3 position, take out the metal plate of Axis 4 fixing line;

(3) Use 2.5# Allen wrench to take down the 6 M3 screws at No. 7 position, take out metal plate of Axis 3 fixing line and three-axis bearing base 6.

(4) Use 2.5# Allen wrench to take down the 16 M3 screws at No. 5 position; (fix the end prior to disassembly)

2. As shown in Fig. 2:

(1) Use 3# Allen wrench to loosen the 4 M4 screws at No. 1 position (it may be not removed), take out the timing belt at No. 2 position.

(2) Use 2.5# Allen Wrench to take down the 16 M3 screws at No. 4 position, then take out the reducer 3;

(3) Loosen screws of expansion sleeve at No. 6 position, take out expansion sleeve from synchronous wheel 5, then take out synchronous wheel 5;

7.1.3 Replacement & Disassembly Diagram of Type 14-50 Hollow Harmonic Reducer

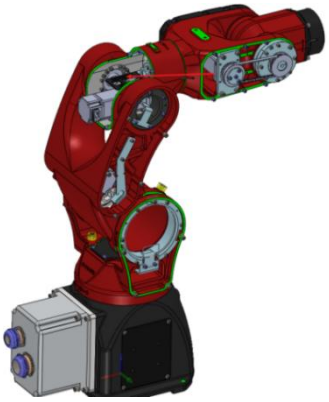
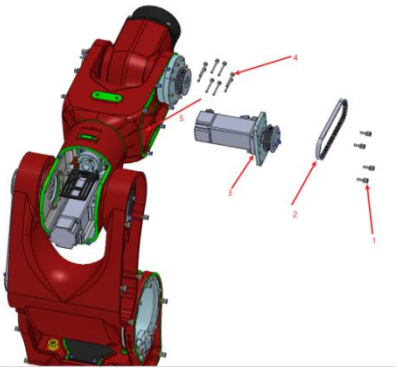


Fig.



1 Fig. 2

1. As shown in Fig. 1:

Firstly, withdraw the needle of power line and coding line on Axis 5 and 6 of robot, then withdraw the robot cable to the Axis 4 rotation motor position according to the arrow direction.

2. As shown in Fig. 2:

(1) Use 3# Allen wrench to take down the 4 M4 screws at No. 1 position, take out the timing belt at No. 2 position and 5-axis motor component at No. 3 position;

(2) Use 2.5# Allen wrench to take down the 8 M3 screws at No. 4 position according to the direction of No. 5, then take down component of Axis 5 and 6; (fix the end prior to disassembly)

Note: After the above steps are completed, the actual effects are shown in Fig. 3.



Fig. 3

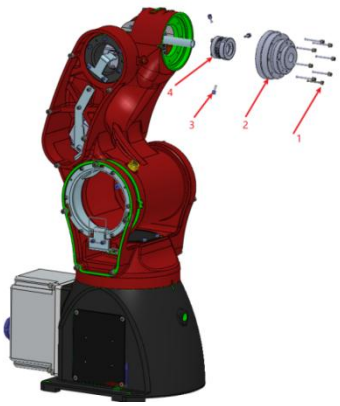


Fig. 4

3. As shown in Fig. 4:

(1) Use 2.5# Allen wrench to take down the 8 M3 screws at No. 1 position, take out the reducer at No. 2 position.

(2) Use 2.5# Allen wrench to take down 3 M3 screws at No. 3 position, take out the synchronous wheel at No. 4 position from reducer;

7.1.4 Replacement & Disassembly Diagram of 14-50 Harmonic Reducer with Belt

Fig. 1 Fig. 2

1. As shown in Fig. 1:

(1) Use 3# Allen wrench to take down the 4 M4 screws at No. 1 position, unplug the terminal block of six-axis motor component, then take out the six-axis motor component at No. 2 position;

(2) Use 4# Allen wrench to take down 3 M5 screws at No. 3 position, take out conductive slip ring at No. 4 position;

(3) Use 2.5# Allen wrench to take down 4 M3 screws at No. 5 position, take out base of conductive slip ring at No. 6 position;

(4) Use 2.5# Allen wrench to take down the 8 M3 screws at No. 7 position; (fix the end prior to disassembly)

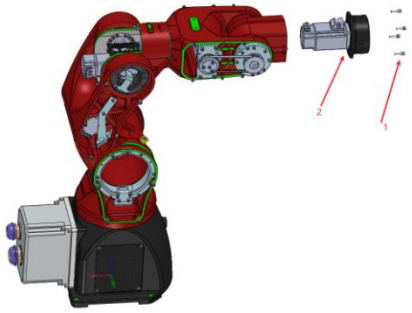
2. As shown in Fig. 2:

(1) Use 3# Allen wrench to loosen the 4 M4 screws at No. 1 position (it may be not removed), take out the timing belt at No. 2 position.

(2) Use 2.5# Allen Wrench to take down the 8 M3 screws at No. 3 position, then take out the reducer at No. 6 position;

(3) Loosen screws in expansion sleeve at No. 5 position, take out expansion sleeve from synchronous wheel 4, then take out synchronous wheel 4;

7.1.5 Replacement & Disassembly Diagram of Type 14-50 Thin Harmonic Reducer



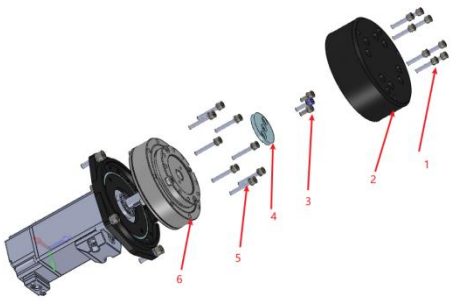


Fig. 1 Fig. 2

1. As shown in Fig. 1:

(1) Use 3# Allen wrench to take down the 4 M4 screws at No. 1 position, unplug the terminal block of six-axis motor component, then take out the six-axis motor component at No. 2 position;

2. As shown in Fig. 2:

(1) Use 2.5# Allen wrench to take down the 8 M3 screws at No. 1 position, take out the six-axis mounting head at No. 2 position;

(2) Use 2.5# Allen wrench to take down the 3 M3 screws at No. 3 position, take out the axis press plate of six-axis motor at No. 4 position;

(3) Use 2.5# Allen wrench to take down the 8 M3 screws at No. 5 position, take out reducer at No. 6 position.

7.2 Disassembly Diagram of RV Reducer

7.2.1 Replacement & Disassembly Diagram of 40E Series RV

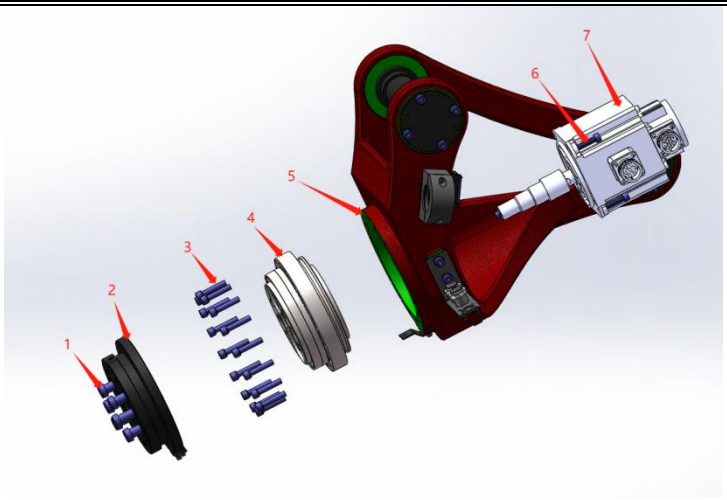


Fig. 1

1. As shown in Fig. 1:

Take down the 4 M8 screws of four-axis motor at No. 7 position, lock the ejection motor diagonally using 2 M10 screws.

Take down the 6 M14 screws of four-axis end flange at No. 2 position, then take down part at No. 1 and 3 position.

Take down the 16 M8 screws of four-axis reducer at No. 4 position, then take out four-axis reducer.

7.2.2 Replacement & Disassembly Diagram 1 of 320E Series RV

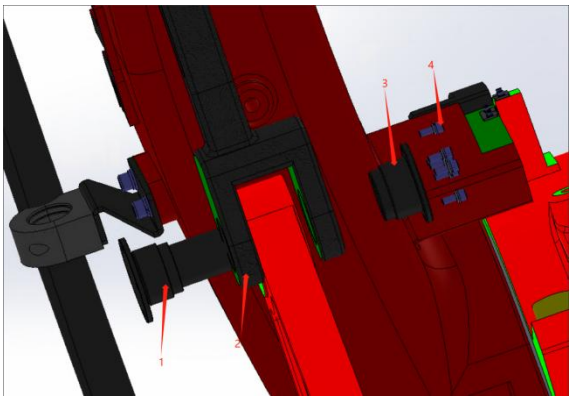


Fig. 1

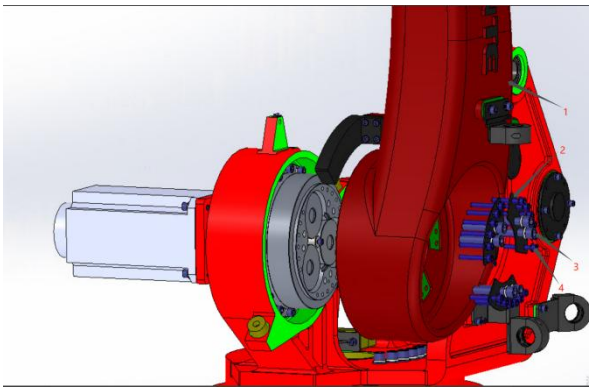


Fig. 2

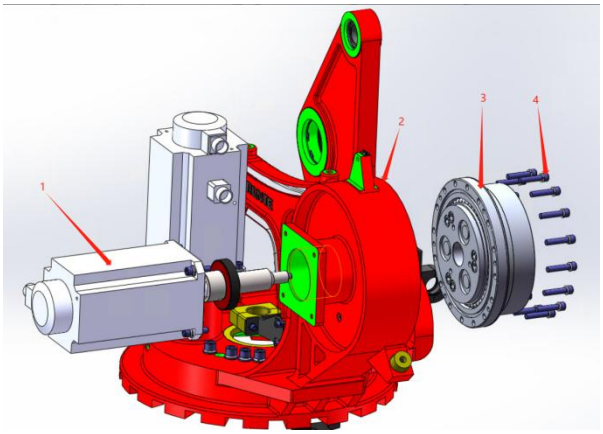


Fig. 3

1. As shown in Fig. 1:

Take down the 7 M6 screws of joint sleeve at No. 1 position, then take down part at No. 1 and No. 3 position.

2. As shown in Fig. 2:

Take down the 16 M10 and 6 M16 screws on three big arm gaskets at No. 2 position, hoist the upper part of big arm with mobile crane.

3. As shown in Fig. 3:

Take down the 4 M12 screws at No. 1 position, use two M14 screws to fasten the ejection motor diagonally.

Take down the 16 M12 screws at No. 4 position, take out two-axis reducer 3.

7.2.3 Replacement & Disassembly Diagram 2 of 320E Series RV

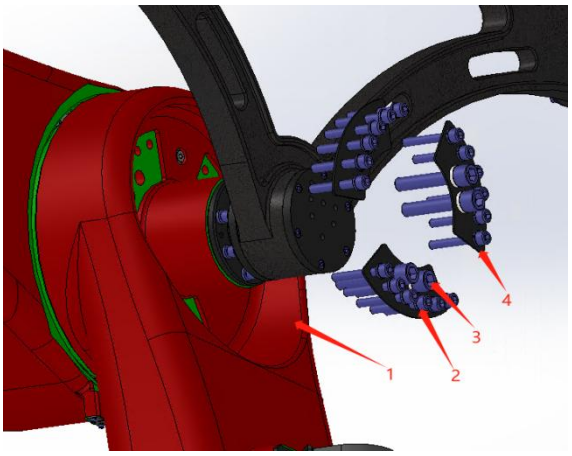


Fig. 1

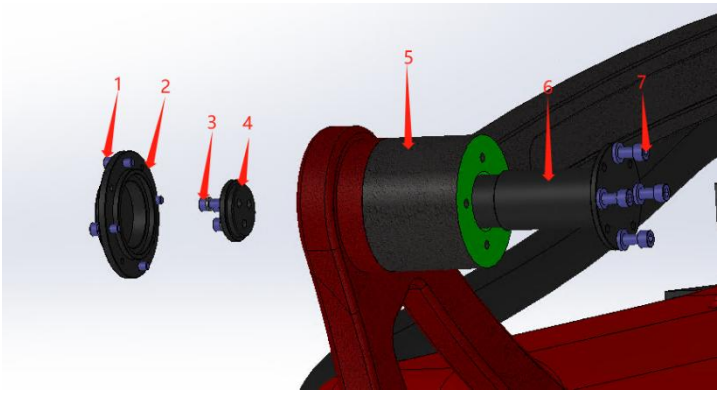


Fig. 2

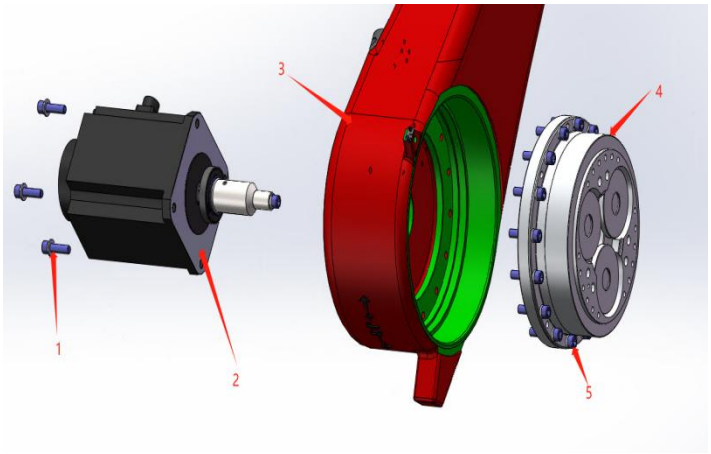


Fig. 3

1. As shown in Fig. 1:

Take down the M10 screws of large arm gasket at No. 4 position and the 7 M6 screws in joint sleeve 1, then take down part at No. 1 and No. 3 position.

Take down the 16 M10 and 6 M16 screws on three big arm gaskets at No. 2 position, hoist the upper part of small arm with mobile crane.

2. As shown in Fig. 3:

Take down the 4 M12 screws at No. 2 position, use two M14 screws to fasten the ejection motor diagonally.

Take down the 16 M12 screws at No. 4 position, take out three-axis reducer at No. 5 position.

7.2.4 Replacement & Disassembly Diagram of 320C Series RV

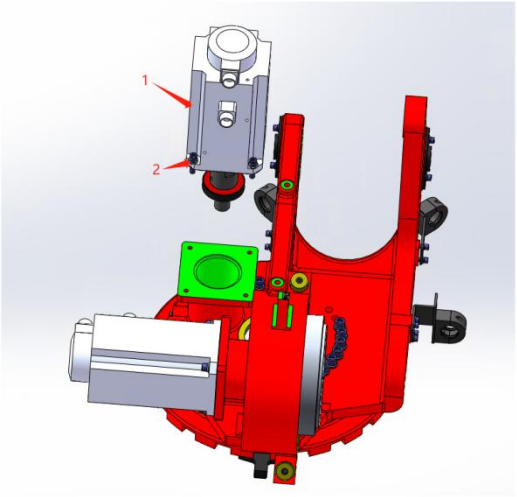


Fig. 1

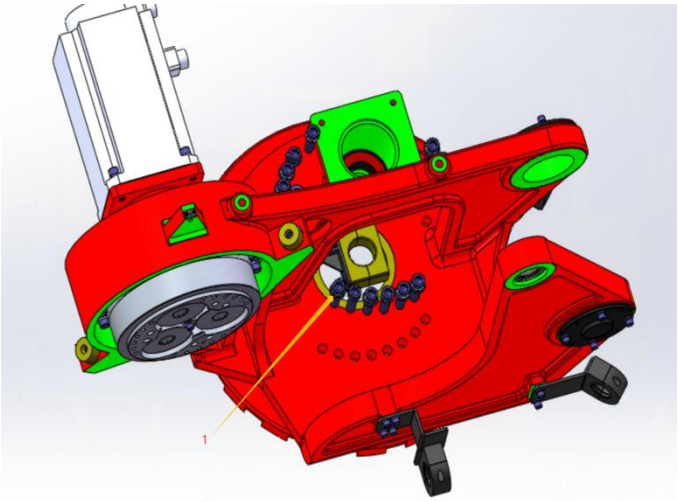


Fig. 2

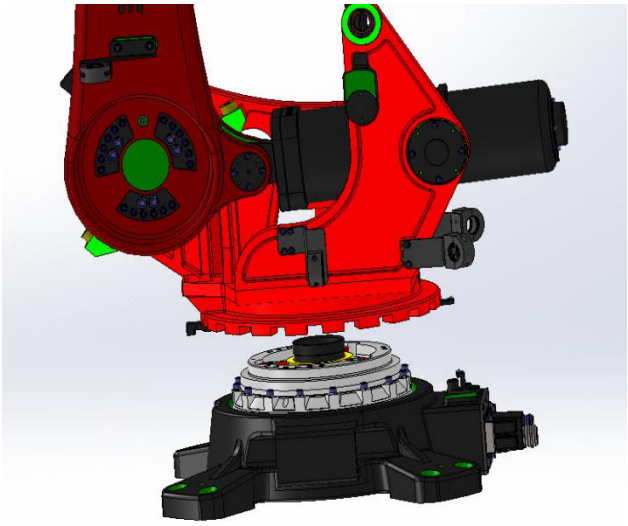


Fig. 3

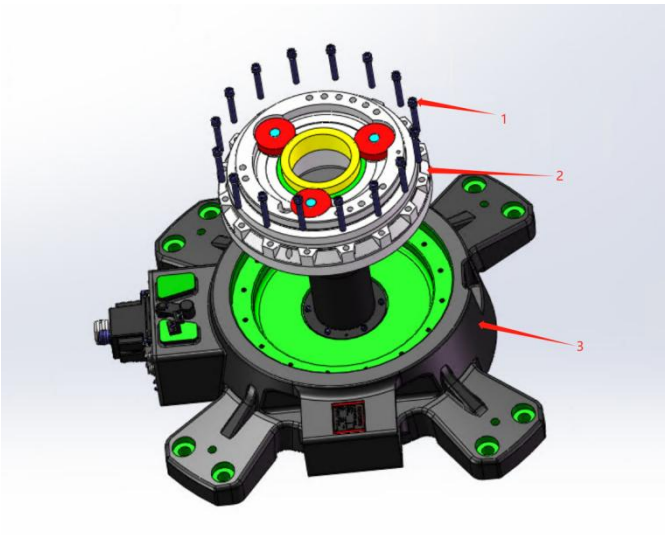


Fig. 4

1. As shown in Fig. 1:

Take down the 4 M12 screws at No. 2 position, use two M14 screws to fasten the ejection motor diagonally

2. As shown in Fig. 2:

Take down the 14 M16 screws at No. 1 position, hoist the upper part of rotation base with mobile crane, as shown in Fig. 3.

3. As shown in Fig. 4:

Take down the 16 M12 screws at No. 1 position, take out one-axis reducer at No. 1 position.

7.2.5 Replacement & Disassembly Diagram of 200C Series RV

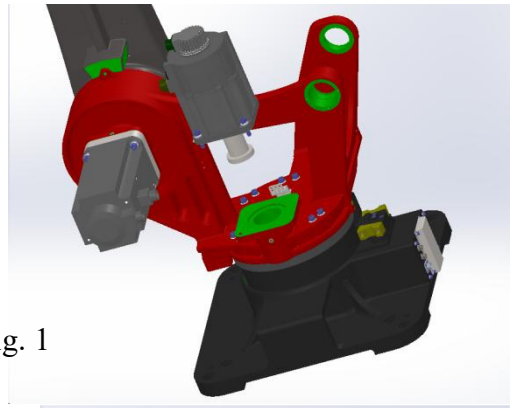


Fig. 1

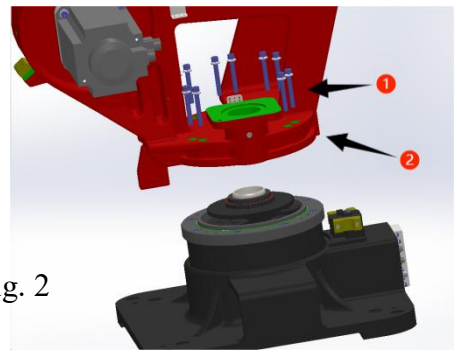


Fig. 2

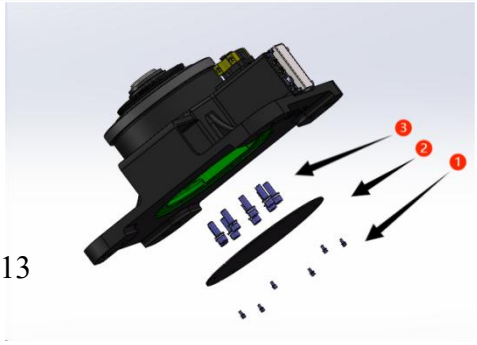


Fig. 13

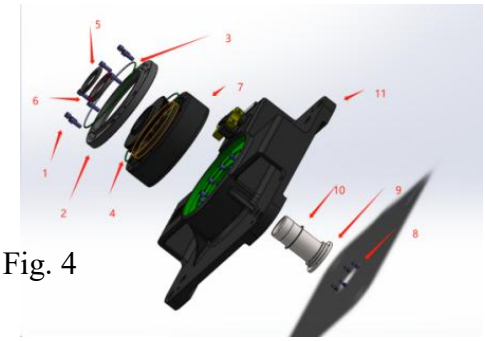


Fig. 4

1. As shown in Fig. 1:

Take down the assembly body of 4.4kW (380v) motor.

2. As shown in Fig. 2:

Use 9# Allen wrench to loosen the M12 screws on Axis 1 and 2 rotation base, then hoist the assembly body above Axis 1 and 2 rotation base using the hoisting belt.

3. As shown in Fig. 3:

Use 6# Allen wrench to loosen the M6 screws on bottom plate and take out bottom plate, use 11# Allen wrench to loosen the M16 screws that fix the reducer.

4. As shown in Fig. 4:

Loosen the bottom mounting screws, then use one pair of lifting rings to take out the assembly body of reducer.

7.2.6 Replacement & Disassembly of 500N Series RV

Fig. 1

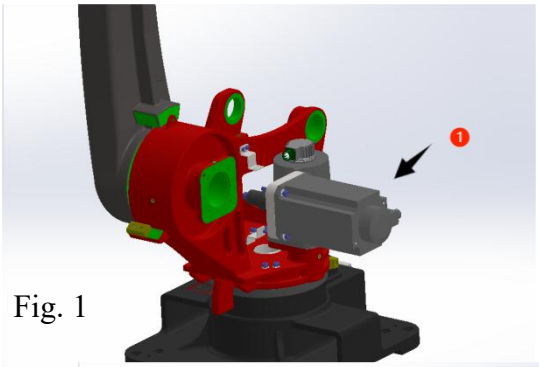


Fig. 2

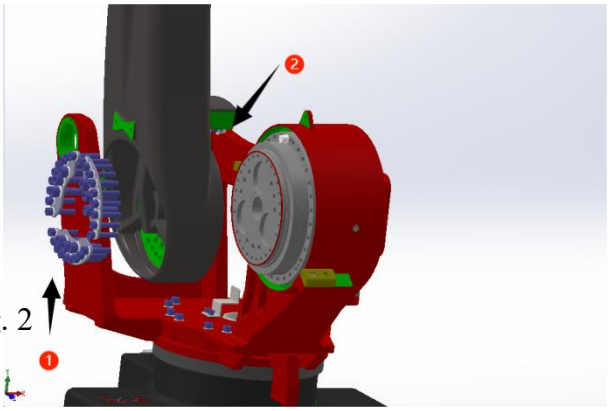
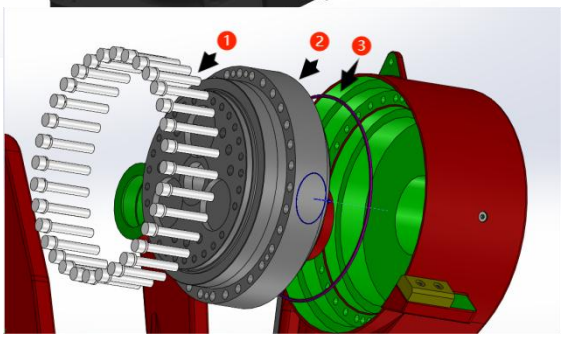


Fig. 3



1. As shown in Fig. 1:

Take down the assembly body of 7.5kW (380v) motor at the position of Axis 2.

2. As shown in Fig. 2:

Fix the hoisting belt at the joint of Axis 3 and 4 to prevent falling during disassembly, use 9# and 11# Allen wrench respectively to loosen the set screws of big arm and Axis 2 reducer, then use hoisting beam to separate the big arm from Axis 2 reducer (be sure to take out O-ring)

3. As shown in Fig. 3:

Use hoisting beam buckle to connect the threaded hole that is mounted on computer surface with lifting ring, then use 9# Allen wrench to loosen the M12 screws that fix the reducer, fasten the M8 screws in ejection hole to separate the reducer from the body, control the hoisting beam to pull out the reducer. (Be sure to take out O-ring)

7.2.7 Replacement & Disassembly of 125N Series RV

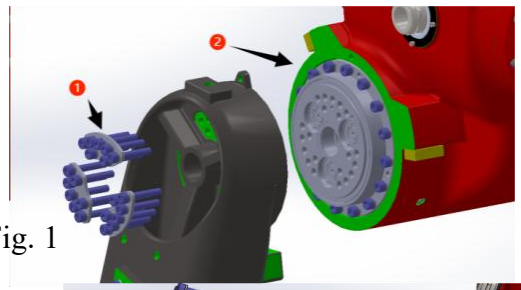


Fig. 1

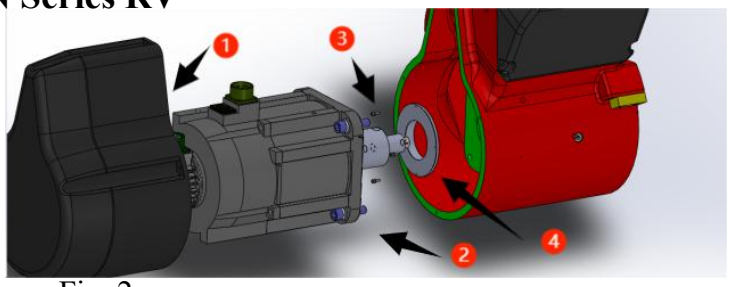


Fig. 2

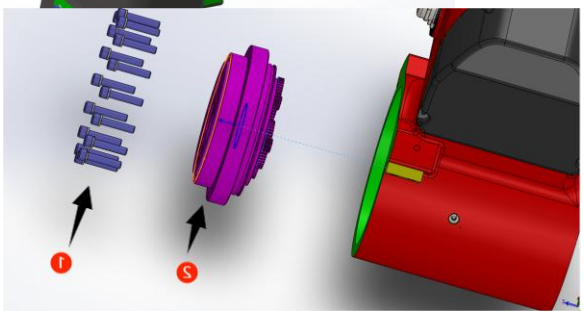


Fig. 3

1. As shown in Fig. 1:

Use the hoisting belt to fix the pull rod and prevent falling during disassembly, use 8# Allen wrench to loosen the set screws between big arm and reducer, adjust the hoisting beam to separate the big arm from the assembly body of Axis 3 and 4. (Be sure to take out O-ring)

2. As shown in Fig. 2:

Loosen the four M5 screws on the rear cover of Axis 3, take down the rear cover, take down the set screws of three-axis motor and take out the motor.

3. As shown in Fig. 3:

Use 8# wrench to loosen the M10 screws that fix reducer, then take out the three-axis reducer through the ejection hole. (take out O-ring)

7.2.8 Replacement & Disassembly of 27C Series RV

Fig. 1

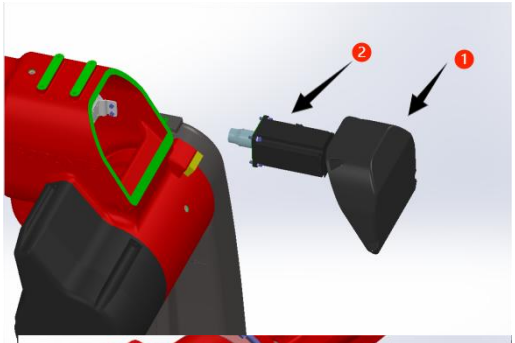


Fig. 2

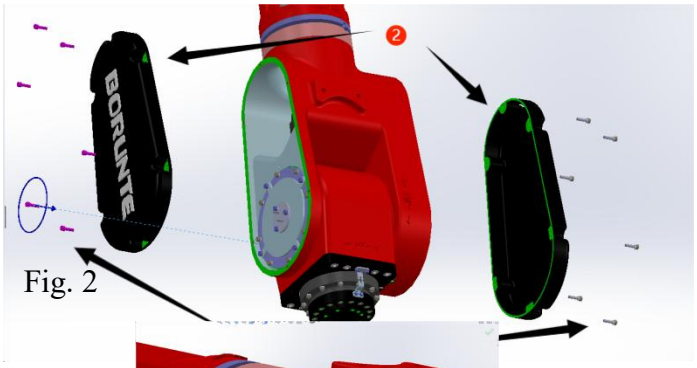


Fig. 3

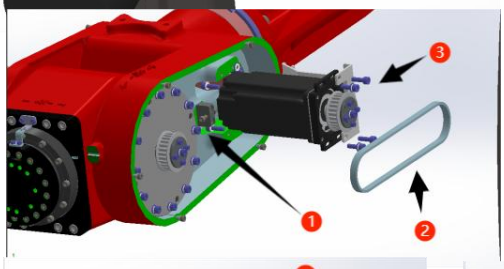


Fig. 4

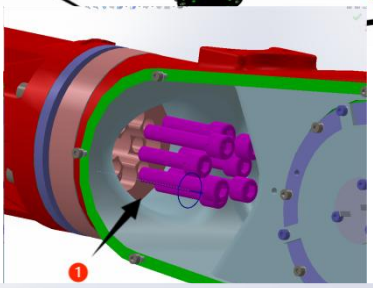


Fig. 5

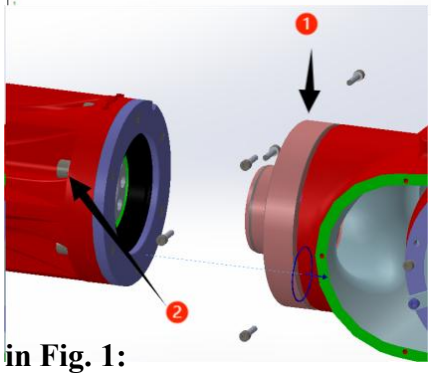
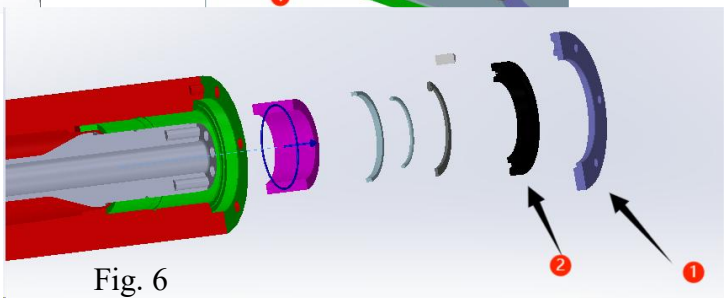


Fig. 6



1. As shown in Fig. 1:

Loosen the screws of motor cover, take down the rear cover of four-axis motor, loosen the set screws of motor and take down the assembly body of four-axis motor.

2. As shown in Fig. 2:

Loosen the screws of lateral cover and take down the five-axis lateral cover.

3. As shown in Fig. 3:

Loosen the limit screws and take down timing belt, loosen the set screws of motor, then take down the assembly body of five-axis motor.

4. As shown in Fig. 4:

Insert the Allen wrench into the installation position of five-axis motor, loosen 8 M8 screws.

5. As shown in Fig. 5:

Take down the assembly body of Axis 5 and 6.

6. As shown in Fig. 6:

Take down the far-end press plate of pull rod and needle roller bearing.

Fig. 9

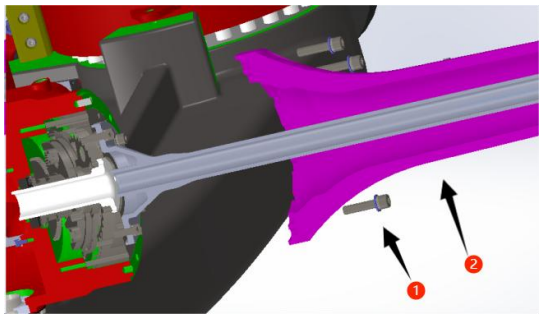


Fig. 8

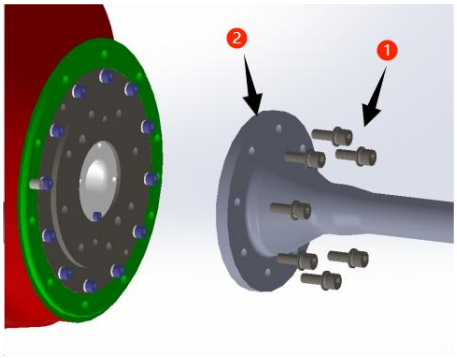
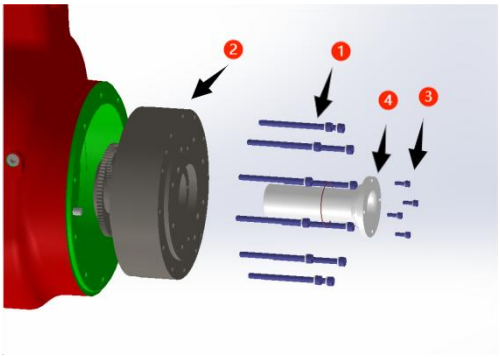


Fig. 9



7. As shown in Fig. 7:

Loosen the M10 set screws between pull rod and body of Axis 3 and 4, then take down the pull rod.

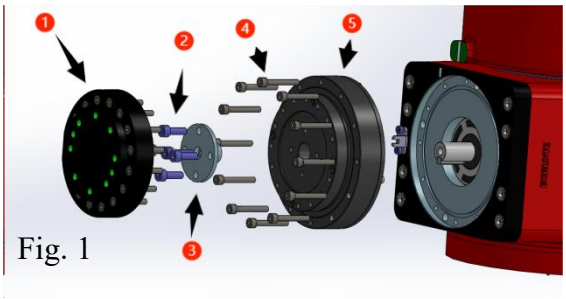
8. As shown in Fig. 8:

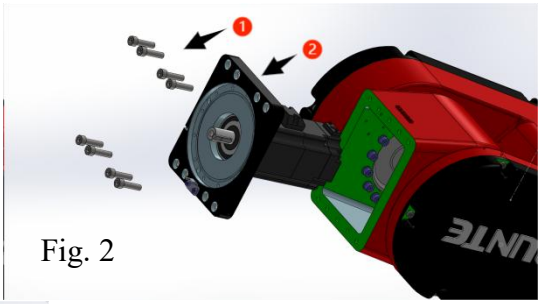
Loosen the 8 M8 screws of transmission rod, then take down the transmission rod.

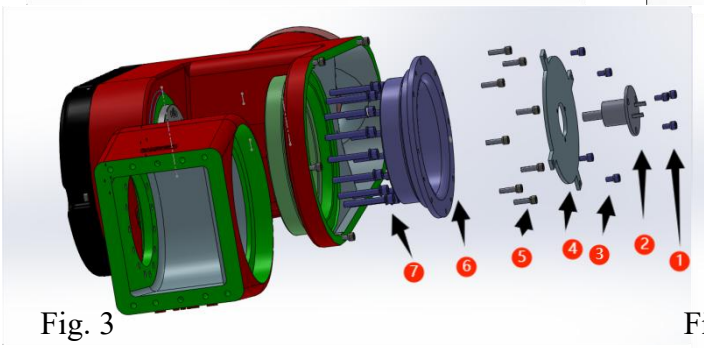
9. As shown in Fig. 9:

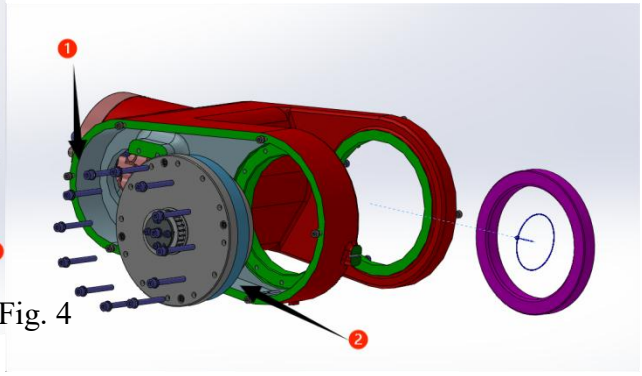
Take down the M6 screws that fix reducer, take down the 27c RV reducer through ejection hole of reducer.

7.2.9 Replacement & Disassembly of Thin Harmonic Reducer with Belt


Fig. 1


Fig. 2


Fig. 3


Fig. 4

1. As shown in Fig. 1:

Take down the six-axis motor and reducer assembly body, loosen the front-end flange, loosen the axis press plate, take down the motor mounting screws, pull out the motor, loosen the set screws of reducer, then use a puller to pull out the 25-80 thin harmonic reducer.

2. As shown in Fig. 3:

Continue the operation, take down the lower line sleeve, adapter of conductive slip ring and cap type conductive slip ring, take down the mounting screws of Axis 6 and reducer, then take down the main body of Axis 6

3. As shown in Fig. 4:

Loosen the set screws of Axis 5 of reducer, take down the harmonic reducer (with axis) 32-100.

7.3 Disassembly Diagram of Planetary Reducer

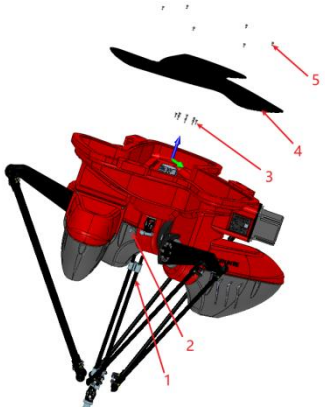


Fig. 1

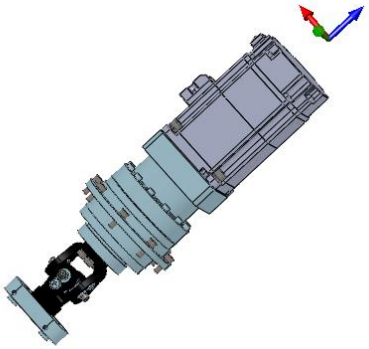


Fig. 2

1. As shown in Fig. 1:

(1) Use 3# Allen wrench to take down the 2 M4 screws at No. 2 position, then take down the middle axis component at No. 1 position.

(2) Use 3# Allen wrench to take down the 6 M4 screws at No. 5 position, then take down the static platform cover 4.

(3) Use 3# Allen wrench to take down the 8 M4 screws at No. 3 position, then take out the assembly body of four-axis reducer;

Note: After the above steps are completed, the actual effects are shown in Fig. 2.

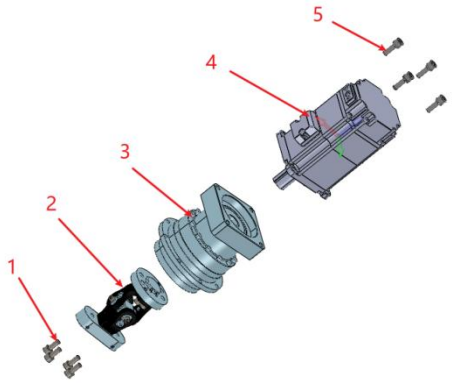


Fig. 3

2. As shown in Fig. 3:

(1) Use 3# Allen wrench to take down the 4 M4 screws at No. 1 position, then take out the middle axis at No. 2 position;

(2) Use 4# Allen wrench to take down the 4 M5 screws at No. 5 position, rotate the motor until the visual hole of planetary reducer is aligned with the lock screws of internal coupling, use the corresponding Allen wrench to loosen the lock screws of coupling of planetary reducer;

(3) Pull out motor 4 from the reducer;

7.4 Disassembly Diagram of Some Models

7.4.1 Four-axis Robot BRTIRPL1003A (Version 10)

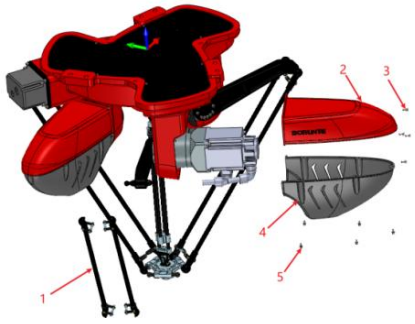


Fig. 1

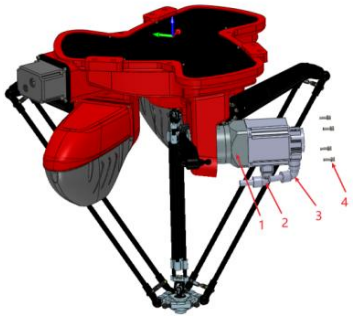


Fig. 2

1. As shown in Fig. 1:

(1) Take down the carbon fiber rod 1 from the master arm and ball pair of dynamic platform. Pull one side of carbon fiber rod with hands to pull it out from ball head;

(2) Use 4# Allen wrench to take down the 4 M5 screws at No. 3 position, use 3# Allen wrench to take down the 5 M4 screws at No. 5 position, then take out motor cover at No. 2 and No. 4 position;

2. As shown in Fig. 2:

(1) Under power-on status, adjust the angle of dismantled axis until the visual hole of planetary reducer is aligned with the lock screws of internal coupling; then, cut off power supply, use the corresponding Allen wrench to loosen the lock screws of coupling of planetary reducer; (do not take it down)

(2) Under power-off status, use 6# Allen wrench to take down the 4 M8 screws at No. 4 position, rotate the motor until the visual hole of planetary reducer is aligned with the lock screws of internal coupling, use the corresponding Allen wrench to loosen the lock screws of coupling of planetary reducer;

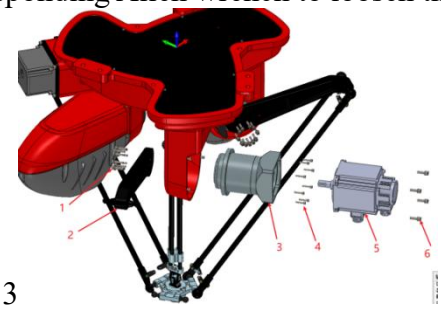


Fig. 3

3. As shown in Fig. 3:

(1) Use 5# Allen wrench to take down the 11 M6 screws on master arm 2, then take out the master arm from the reducer;

(2) Use 6# Allen wrench to take down the 4 M8 screws on servo motor 5, then take down the servo motor from the reducer;

(3) Use 4# Allen wrench to take down the 8 M5 screws on planetary reducer 3, then take out the reducer;

7.4.1.1 Maintenance of Planetary Reducer

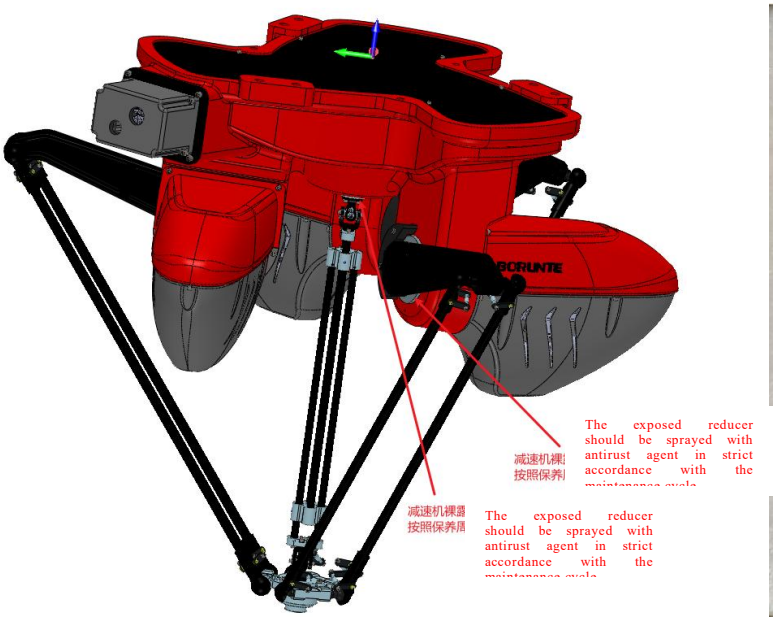
As the core part of robot, the planetary reducer should be provided with regular maintenance, for its surface can have corrosion such as yellowing and rusting after long-term exposure or use in severely corroded environment, to avoid affecting the reducer's appearance, service life and robot safety.

①Use white gas and clean shred to wipe and clean the outer surface of reducer, make sure no corrosive liquid or solid is attached on the outer surface. Take down the iron rust (if any) with fine sandpaper.

②After wiping the outer surface with white gas, spray the dry rust remover on the outer surface of reducer, and avoid skipped or insufficient spraying; otherwise, it may fail to realize the rust protection effects.

Maintenance cycle: Not above 3 months.

Antirust agent: HIRI dry antirust agent (HIRI 725 antirust agent)





7.4.2 Six-axis Robot BRTIRUS0401A (Version 11)

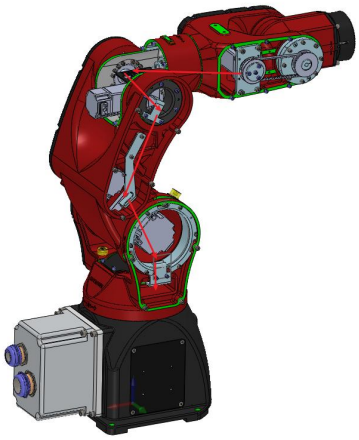


Fig. 1

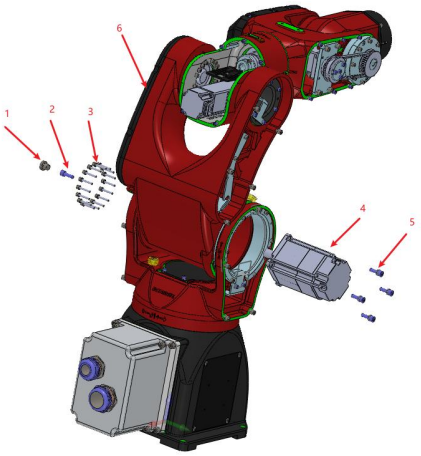


Fig. 2

1. As shown in Fig. 1:

Firstly, withdraw the needle of power line and coding line on Axis 5 and 6 of robot, then withdraw the robot cable to the Axis 2 rotation base position according to the arrow direction.

2. As shown in Fig. 2:

(1) Use 6# Allen wrench to take down one plug screw at No. 1 position.

(2) Use 4# Allen wrench to take down M5 screw at No. 2 position.

(3) Use 4# Allen wrench to take down the 4 M5 screws at No. 5 position. (Fix component 6 prior to disassembly)

(4) Unplug motor 4, then use 2.5# Allen wrench to take down the 16 M3 screws at No. 3 position;

(5) Take out component 6 from the rotation base;

Note: After the above steps are completed, the actual effects are shown in Fig. 3.

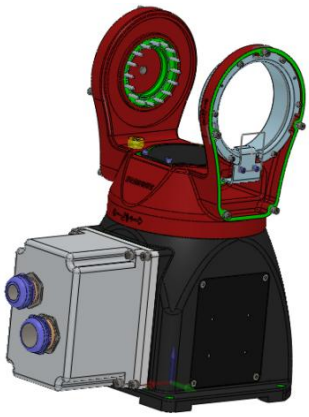


Fig. 3

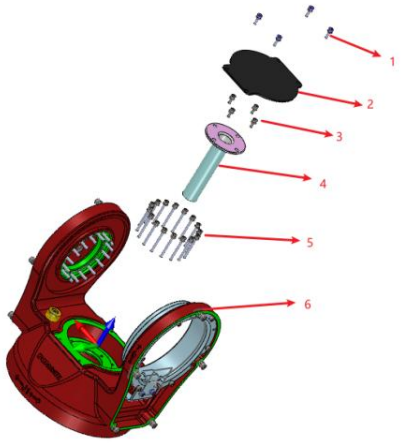


Fig. 4

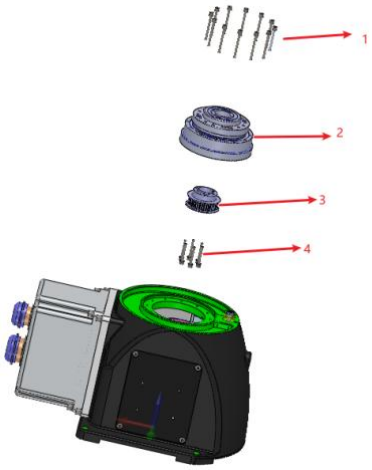


Fig. 5

3. As shown in Fig. 4:

(1) Use 2.5# Allen wrench to take down the 4 M3 screws on press plate of rotation base 2.

(2) Use 2.5# Allen wrench to take down the 4 M3 screws on line pipe 4.

(3) Use 2.5# Allen wrench to take down the 16 M3 screws at No. 5 position, then separate the rotation base 6 from the reducer.

4. As shown in Fig. 5:

(1) Use 2.5# Allen wrench to take down the 16 M3 screws on 20-80 hollow reducer 2.

(2) Take out the reducer from base, use 2.5# Allen wrench to take down the 4 M3 screws from synchronous wheel 3, then take out the synchronous wheel to take down the complete reducer;

7.4.3 Six-axis Robot BRTIRUS0805A (Version 11)

7.4.3.1 Disassembly Diagram of One-axis Reducer

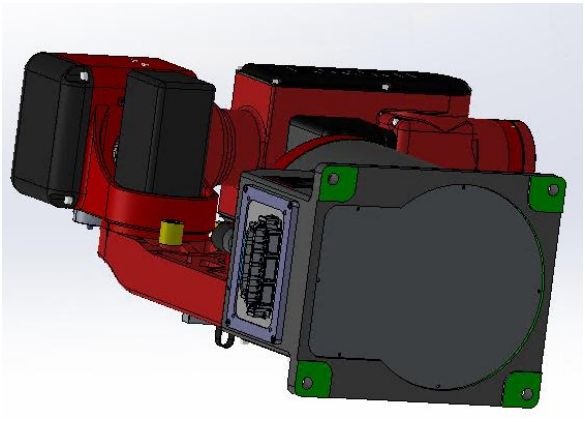


Fig. 1



Fig. 2

1. As shown in Fig. 1:

Firstly, put the robot side upside down, use the power line and coding line on heavy load joint for withdrawing the needle.

2. As shown in Fig. 2:

Take down the 6 M3 screws at No. 1 position, then take out sealing plate 2.

Take down the 2 M4 screws at No. 3 position.

Take down the 4 M6 screws at No. 4 position, then take out the motor and timing belt.

Note: After the above steps are completed, the actual effects are as shown in Fig. 3.



Fig. 3

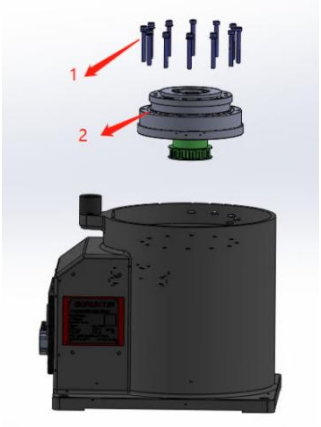


Fig. 4

3. As shown in Fig. 3:

Take down the 3 M4 screws of two-axis motor cover at No. 1 position, then take out the motor cover.

Take down the 16 M5 screws at No. 2 position, then take out the base.

Note: After the above steps are completed, the actual effects are as shown in Fig. 4.

4. As shown in Fig. 4:

Take down the 12 M5 screws on one-axis reducer 1, then take out the one-axis reducer.

7.4.3.2 Disassembly Diagram of Two-axis Reducer

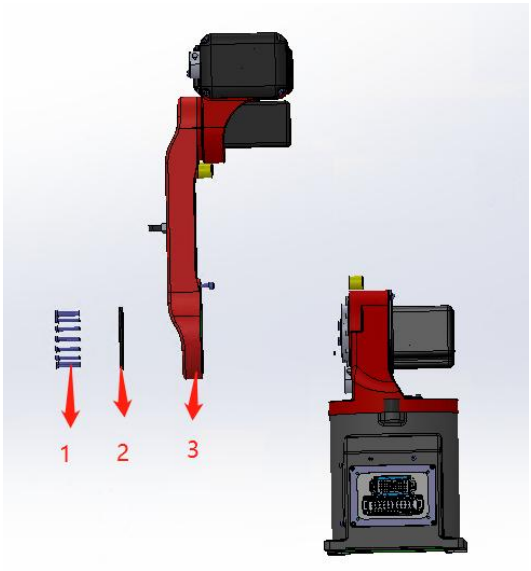


Fig. 1

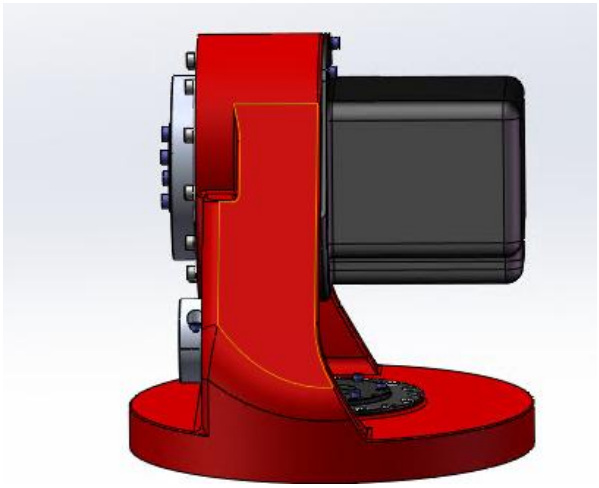


Fig. 2

1. As shown in Fig. 1:

Firstly, fix the robot base, cross the hoisting belt through Axis 4 during disassembly, and use mobile crane to hang the hoisting belt at the same time.

Take down the 16 M5 screws at No. 1 position, then take out part 2 and 3.

Then, separate the big arm from the three-axis reducer.

Not: After the above steps are completed, the actual effects are shown in Fig. 2.

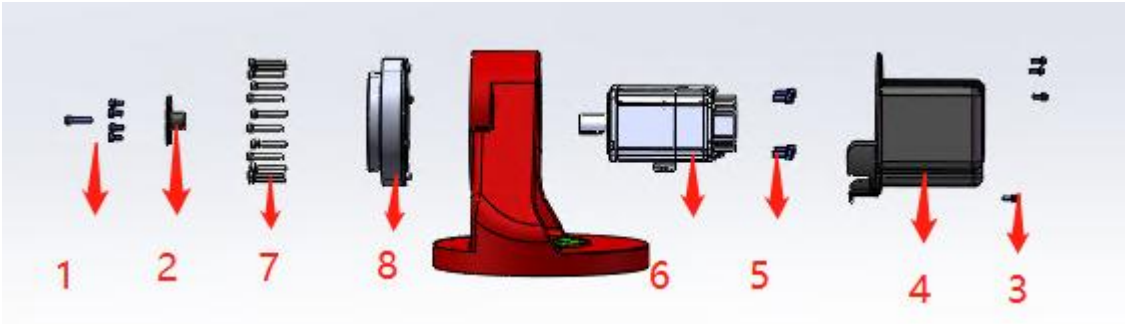


Fig. 3

2. As shown in Fig. 3:

Take down the 5 M5 screws at No. 1 position, then take out part 2

Take down the 3 M4 screws at No. 3 position, then take out part 4

Take down the 4 M6 screws at No. 5 position, then take out part 6

Take down the 12 M5 screws at No. 7 position, then pull out the two-axis reducer

7.4.3.3 Disassembly Diagram of Three-axis Reducer

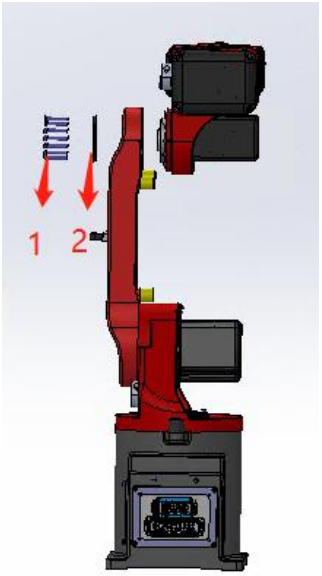


Fig. 1

1. As shown in Fig. 1:

Fix the robot base, cross the hoisting belt through Axis 4 during disassembly, and use mobile crane to hang the hoisting belt at the same time.

Take down the 16 M4 screws at No. 1 position, then take out gasket 2.

Then, separate the big arm from the three-axis reducer.

Not: After the above steps are completed, the actual effects are shown in Fig. 2.

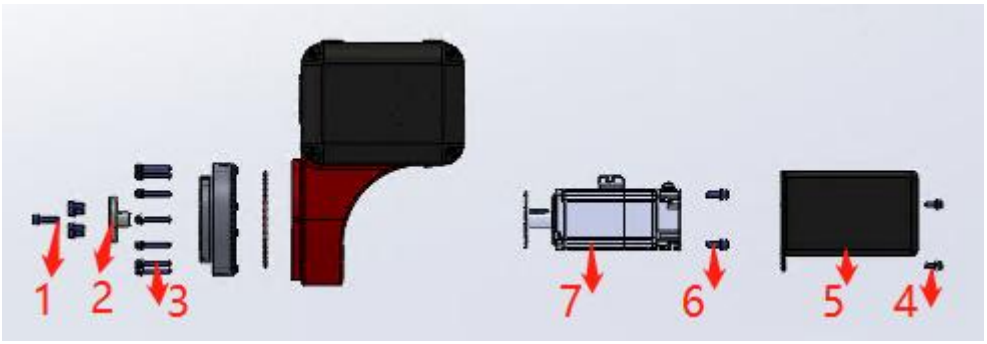


Fig. 2

2. As shown in Fig. 2:

Take down the 5 M5 screws at No. 1 position, then take out part 2

Take down the 3 M4 screws at No. 4 position, then take out part 5

Take down the 4 M5 screws at No. 6 position, then take out part 7

Take down the 12 M4 screws at No. 3 position, then take out three-axis reducer

7.4.3.4 Disassembly Diagram of Four-axis Reducer

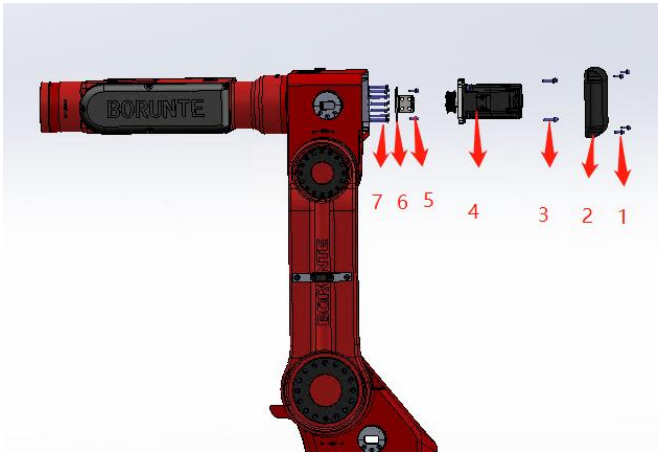


Fig. 1

1. As shown in Fig. 1:

Fix the robot base, cross the hoisting belt through Axis 4 during disassembly, and use mobile crane to hang the hoisting belt at the same time.

Take down the 4 M4 screws at No. 1 position, then take out part 2

Take down the 4 M5 screws at No. 3 position, then take out part 4

Take down the 2 M4 screws at No. 5 position, then take out part 6

Take down the 16 M3 screws at No. 7 position

Not: After the above steps are completed, the actual effects are shown in Fig. 2.

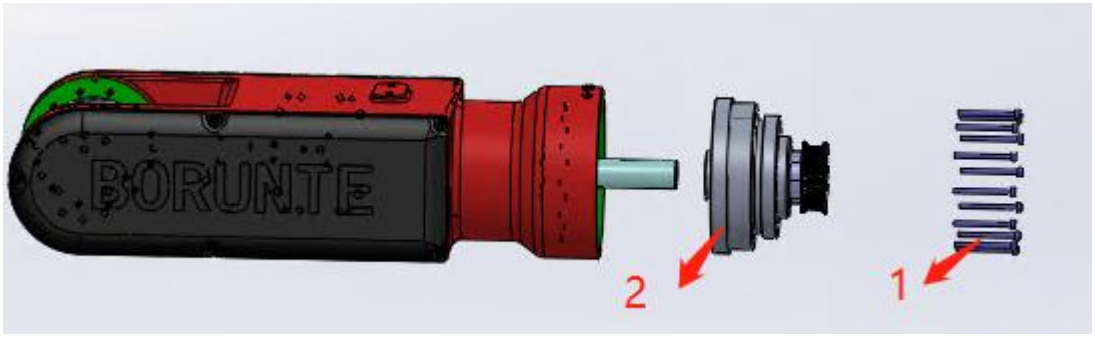


Fig. 2

2. As shown in Fig. 3:

Take down the 12 M3 screws at No. 1 position, then take out the four-axis reducer

7.4.3.5 Disassembly Diagram of Five-axis Reducer

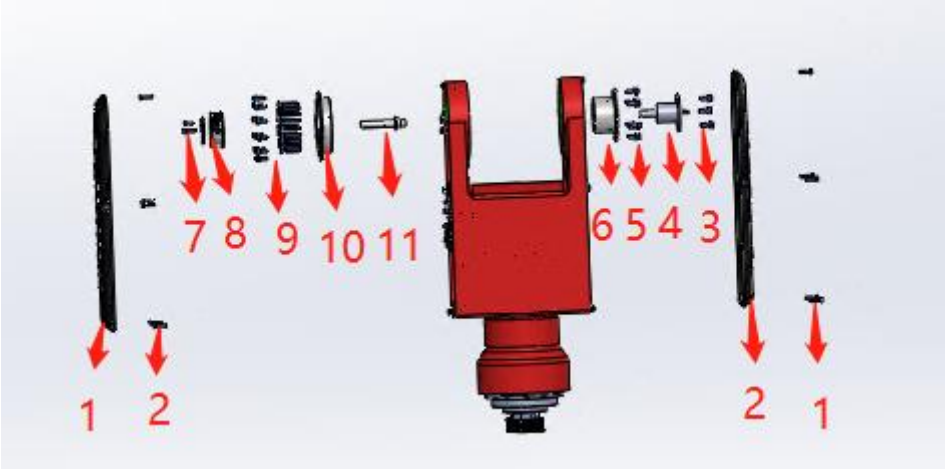


Fig. 1

1. As shown in Fig. 1:

Take down the 10 M3 screws at No. 1 position, then take down part 2
Take down the 9 M4 screws at No. 3 and 5 position, then take down part 4 and 6
Take down the 4 M4 screws at No. 4 position, then take down part 8
Take down the 32 M3 screws at No. 9 position, then take down part 10
Take down the reducer at No. 10 position
Not: After the above steps are completed, the actual effects are shown in Fig. 2.

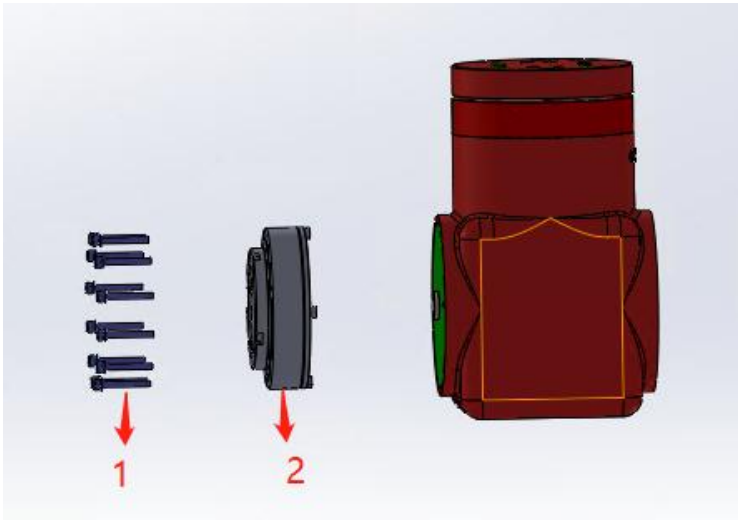


Fig. 2

2. As shown in Fig. 2:

Take down the 12 M3 screws at No. 1 position, then take down the five-axis reducer

7.4.3.6 Disassembly Diagram of Six-axis Reducer

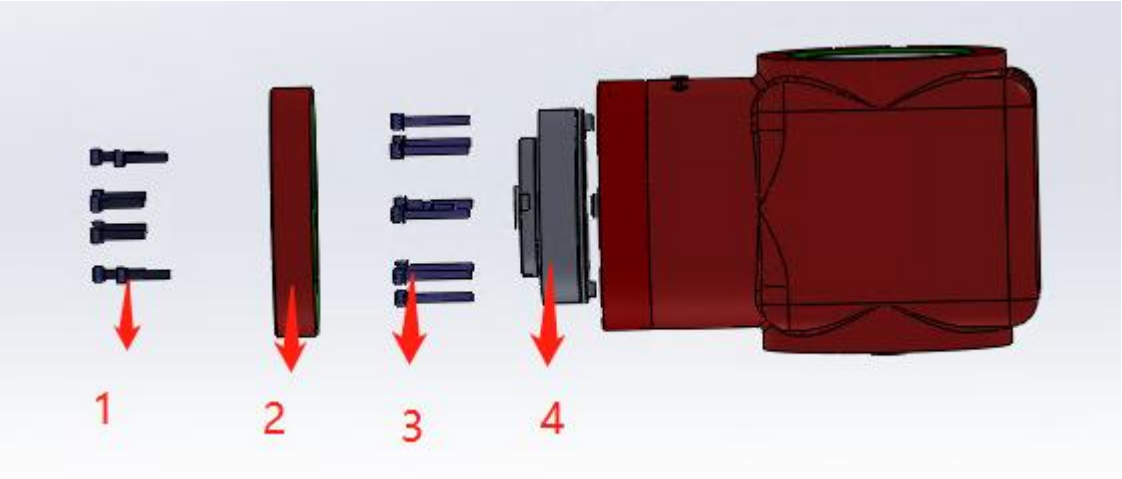


Fig. 1

1. As shown in Fig. 1:

Take down the 8 M3 screws at No. 1 position, then take down part 2

Take down the 8 M3 screws at No. 3 position, then take down six-axis reducer

7.4.4 Six-axis Robot BRTIRUS2110A (Version 11)

7.4.4.1 Disassembly Diagram of One-axis Reducer

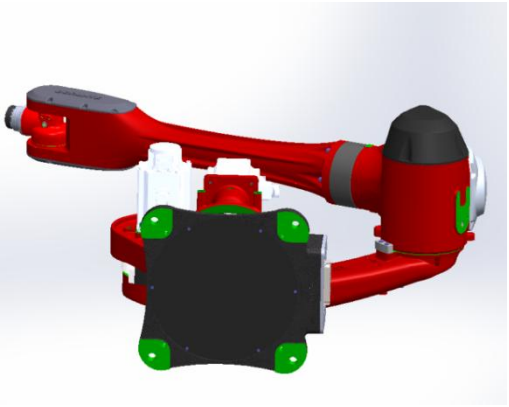


Fig. 1



Fig. 2

1. As shown in Fig. 1:

Firstly, put the robot side upside down, use the power line and coding line on heavy load joint for withdrawing the needle.

2. As shown in Fig. 2:

Use 3# Allen wrench to take down No. 1 (6 M4 screws), then take out No. 2 (sealing plate).

Use 10# Allen wrench to take down No. 3 (9 M12 screws), then take out the base.

Note: After the above steps are completed, the actual effects are shown in Fig. 3.

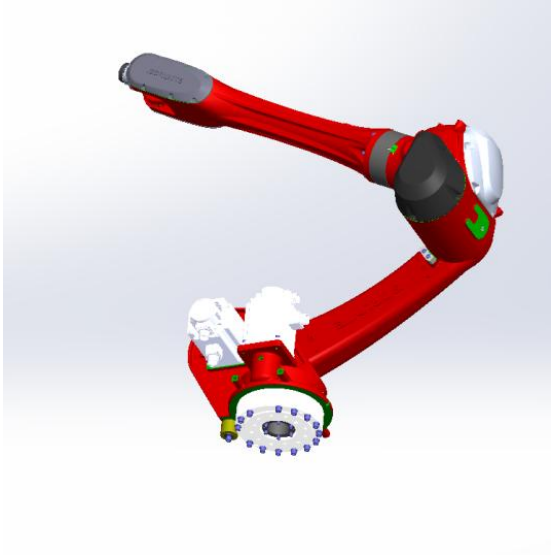


Fig. 3

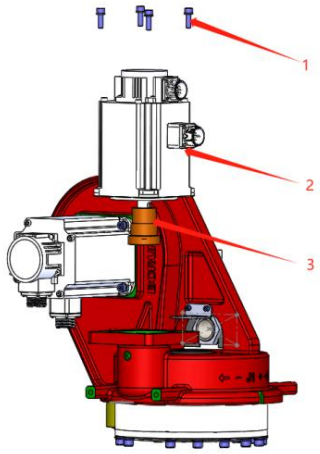


Fig. 4

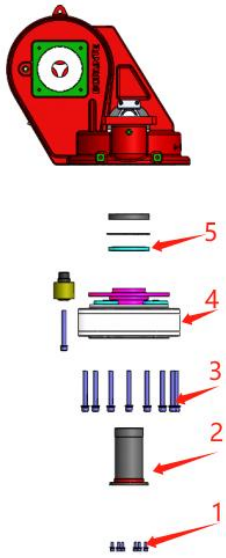


Fig. 5

3. As shown in Fig. 4:

Use 6# Allen wrench to take down No. 1 (4 M8 screws). (As sealing adhesive is applied on end face of motor, the motor should be pushed out through the two diagonal M10 threaded holes on motor)

Use 5# Allen wrench to take down No. 3 (RV axis), then take out No. 3 (RV axis)

4. As shown in Fig. 5:

Use 5# Allen wrench to take down No. 3 (6 M6 screws). (Note: As the end face of reducer has sealing adhesive, the motor should be pushed out through the 2 diagonal M10 threaded holes on reducer)

Use 8# Allen wrench to take down No. 1 (13 M10 screws), then take out No. 2 (line pipe)

Take down No. 5 (bearing) from No. 7 (reducer) (Note: When bearing is tight, use straight screwdriver of large size to rotate the screws with small force, to pry out the bearing)

7.4.4.2 Disassembly Diagram of Four-axis Reducer

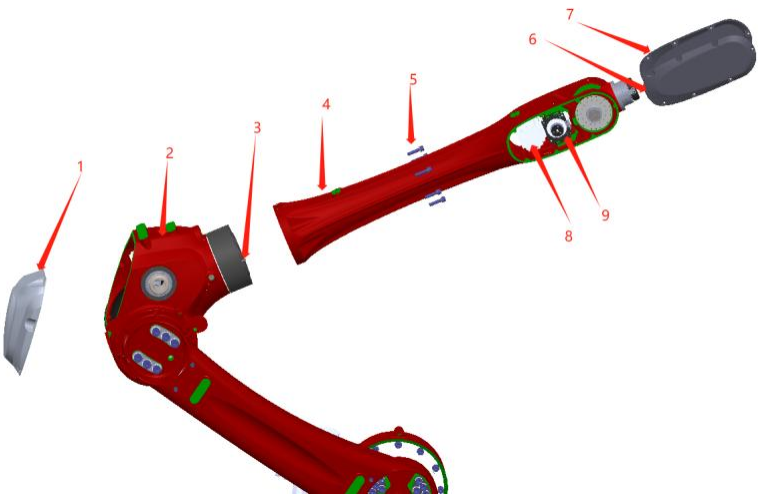


Fig. 1

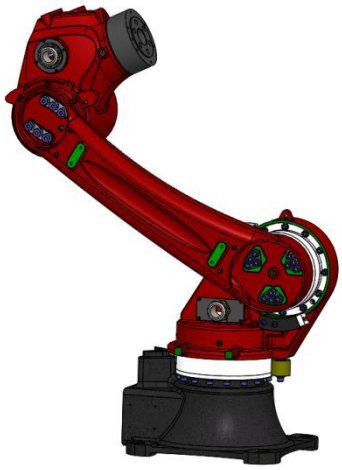


Fig. 2

1. As shown in Fig. 1:

Fix the robot base, use 3# Allen wrench to take down No. 6 (7 M4 screws), then take down No. 6 (right cover of Axis 4).

Likewise, take down the corresponding cover of No. 1 (rear cover of Axis 3 and 4) and No. 7 (left cover of Axis 4)

Use straight screwdriver to loosen and unplug the joint of No. 8 (six-axis motor) and No. 9 (five-axis motor) that connects cable; the joint should be removed completely, in order to take down No. 4 (body of Axis 4) and avoid interference with the main body;

Use 6# Allen wrench to loosen and take down No. 5 (6 M8 screws), then take the remaining assembly body at No. 4 position.

Note: After the above steps are completed, the actual effects are shown in Fig. 2

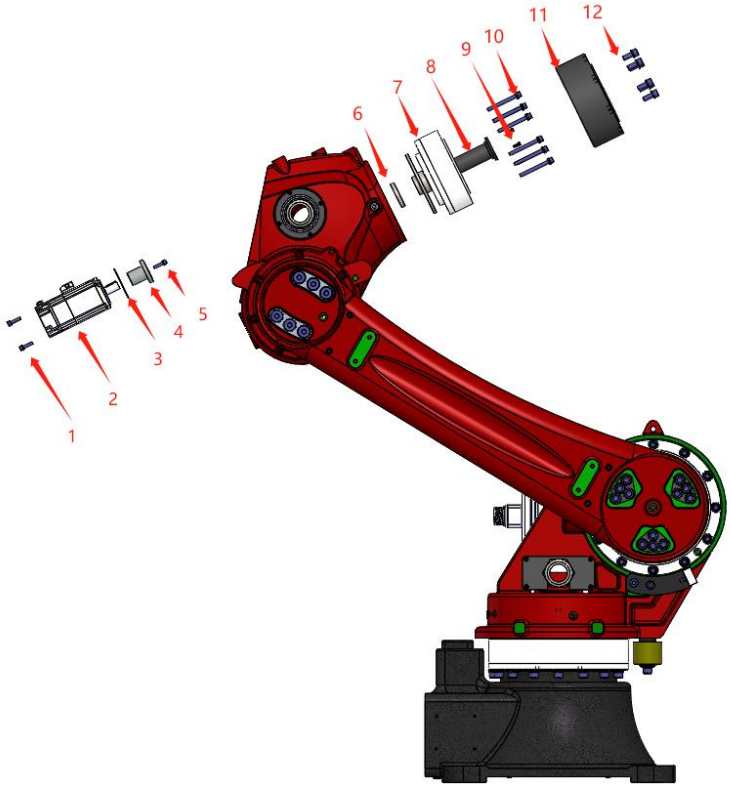


Fig. 3

2. As shown in Fig. 3:

Fix the robot base, use 6# Allen wrench to loosen and take down No. 12 (6 M8 screws), then take down No. 11 (transition plate),

Use 5# Allen wrench to loosen and take down No. 10 (12 M6 screws), take down the assembly component of No. 6, 7, 8 and 9 (Note: As the end face of reducer has sealing adhesive, the motor should be pushed out through the 2 M5 threaded holes on reducer)

Use 2.5# Allen wrench to loosen and take down No. 9 (4 M3 screws, then take down No. 8 (line pipe);

Take down No. 6 (bearing) from No. 7 (reducer) (Note: When bearing is tight, use straight screwdriver of large size to rotate the screws with small force, to pry out the bearing)

Use 4# Allen wrench to loosen and take down No. 1 (4 M5 screws), then take down No. 2 (four-axis motor), (Note: As the end face of motor has sealing adhesive, the motor should be pushed out through the 2 M6 threaded holes on motor)

Use 4# Allen wrench to loosen and take down No. 5 (1 M5 screw), then take down No. 4 (RV axis of reducer) (if RV axis is tight, it can be pushed out through M6 screw)

7.4.4.3 Disassembly Diagram of Three-axis Reducer

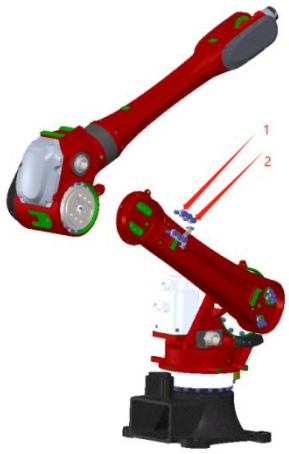


Fig. 1

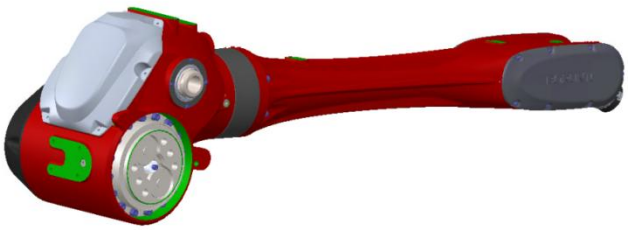


Fig. 2

1. As shown in Fig. 1:

Fix the robot base, use the hoisting belt to wrap and hang the front end during disassembly, and the center of gravity should be partial to Axis 3.

Use 12# Allen wrench to loosen and take down No. 2 (6 M14 screws), then take out No. 1 (gasket).

Then, separate the big arm from the three-axis reducer. (As the reducer surface is applied with sealing adhesive, please shake the reducer fitting surface to the front/back to loosen it before separation) Note: After the above steps are completed, the actual effects are shown in Fig. 2.

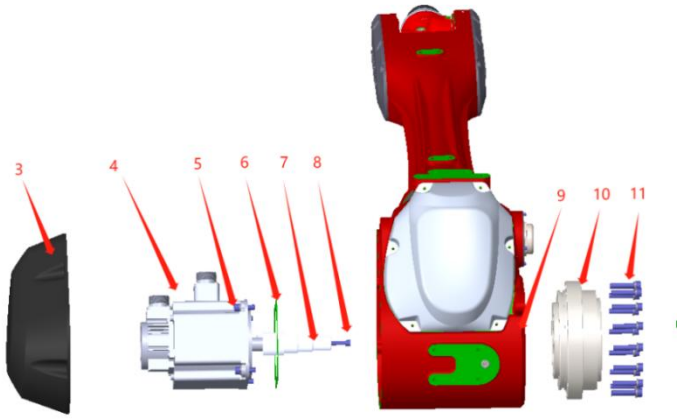


Fig. 3

2. As shown in Fig. 4:

Use 6# Allen wrench to take down No. 3 (4 M8 screws), then take down No. 7 (two-axis motor) and No. 5 (two-axis RV axis). (As sealing adhesive is applied on end face of motor, the motor should be pushed out through the two diagonal M10 threaded holes on motor)

Use 5# Allen wrench to take down No. 5 (axis of two-axis motor) and No. 4 (1 M6 screw)

Use 8# Allen wrench to take down No. 1 (12 M10 screws), then take down No. 2 (RV reducer) from the main body. (As the end face of reducer has sealing adhesive, the reducer should be pushed out through two M10 threaded holes on reducer during disassembly)

7.4.4.4 Disassembly Diagram of Two-axis Reducer

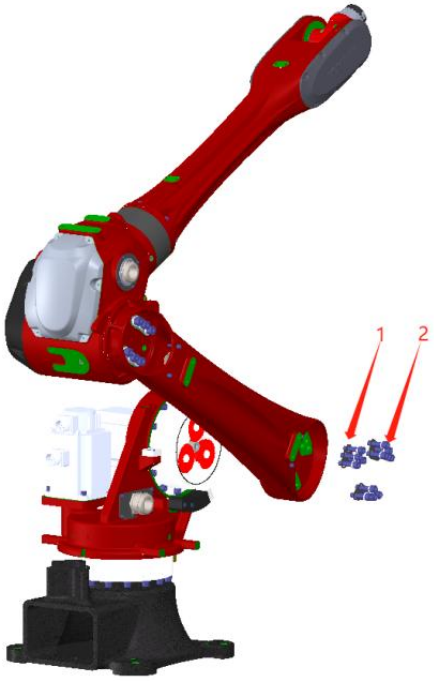


Fig. 1

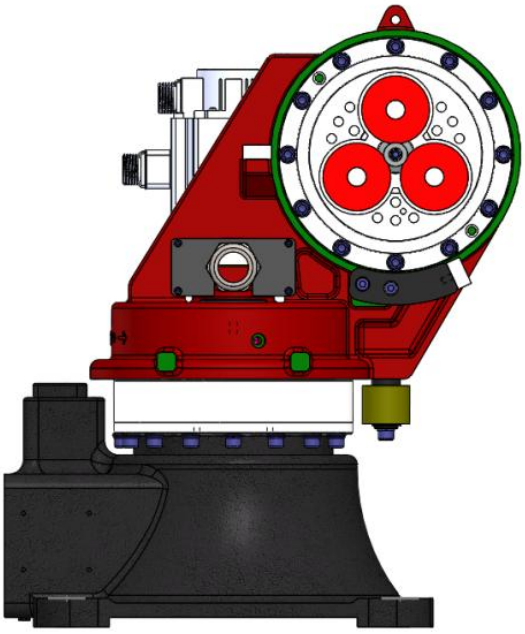


Fig. 2

1. As shown in Fig. 1:

Fix the robot base, cross the hoisting belt through Axis 3 during disassembly, and use mobile crane to hang the hoisting belt at the same time.

Use 10# Allen wrench to loosen and take down No. 2 (12 M12 screws), then take out No. 1 gasket.

Then, separate the big arm from the two-axis reducer. (As the reducer surface is applied with sealing adhesive, please shake the reducer fitting surface to the front/back to loosen it before separation)

Note: After the above steps are completed, the actual effects are shown in Fig. 2

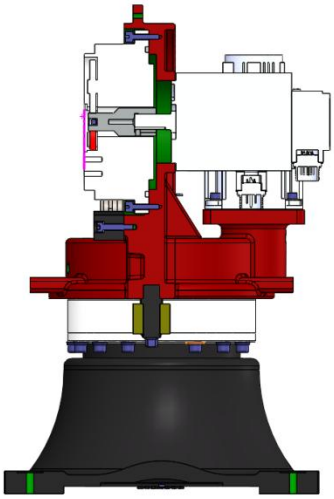


Fig. 3

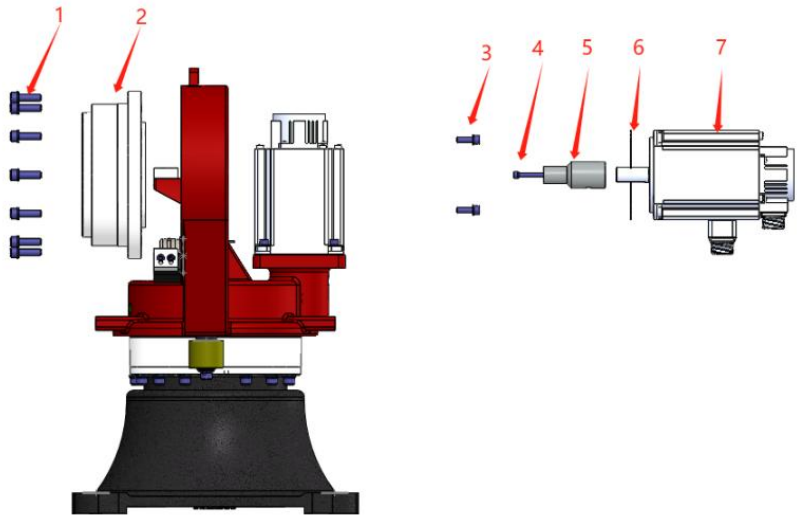


Fig. 4

2. As shown in Fig. 4:

Use 6# Allen wrench to take down No. 3 (4 M8 screws), then take down No. 7 (two-axis motor) and No. 5 (two-axis RV axis). (As sealing adhesive is applied on end face of motor, the motor should be pushed out through the two diagonal M10 threaded holes on motor)

Use 5# Allen wrench to take down No. 5 (axis of two-axis motor) and No. 4 (1 M6 screw)

Use 8# Allen wrench to take down No. 1 (12 M10 screws), then take down No. 2 (RV reducer) from the main body. (As the end face of reducer has sealing adhesive, the reducer should be pushed out through two M10 threaded holes on reducer during disassembly)

7.4.4.5 Disassembly Diagram of Five-axis Reducer

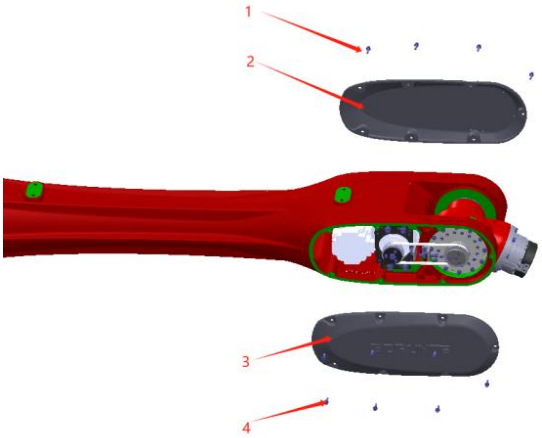


Fig. 1

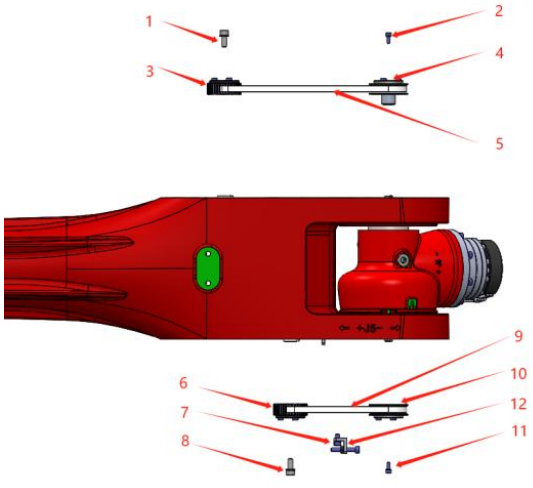


Fig. 2

1. As shown in Fig. 1:

Use 2.5# Allen wrench to loosen and take down No. 1 (7 M3 screws) and No. 4 (7 M3 screws), then take out No. 2 (left cover of Axis 4) and No. 3 (right cover of Axis 4).

2. As shown in Fig. 2:

Firstly, use 4# Allen wrench to loosen and take down No. 1 (1 M5 screw), then use 2.5# Allen wrench

to loosen and take down No. 2 (1 M3 screw); finally, take down No. 3 (drive wheel of Axis 6), No. 4 (driven wheel of Axis 6) and No. 5 (145 teeth of timing belt) synchronously.

Take down the other side in the same way. Firstly, use 4# Allen wrench to loosen and take down No. 8 (1 M5 screw), then use 2.5# Allen wrench to loosen and take down No. 11 (1 M3 screw); finally, take down No. 6 (drive wheel of Axis 5), No. 10 (driven wheel of Axis 5) and No. 9 (100 teeth of synchronous belt) synchronously. (If belt tension is high, loosen No. 7 (2 M4 screws) firstly to take down No. 12 (tensioning mechanism))

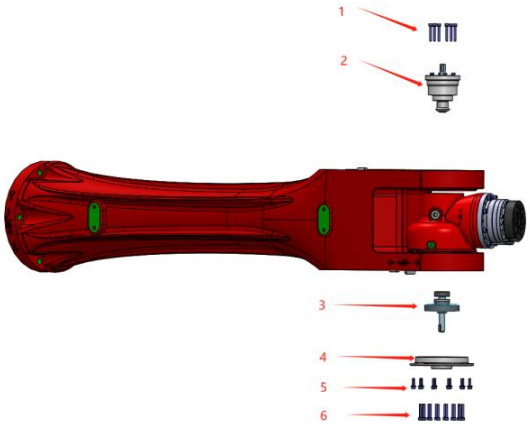


Fig. 3

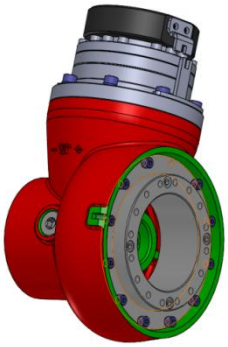


Fig. 4

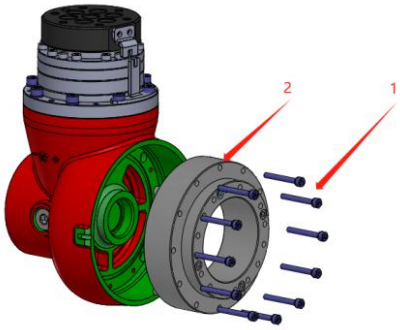


Fig. 5

3. As shown in Fig. 3:

Use 2.5# Allen wrench to loosen and take down No. 1 (6 M3 screws), No. 5 (12 M3 screws) and No. 6 (16 M3 screws).

Then, take out No. 2 (assembly of Axis 6 input axis), No. 3 (20-100 thin wave generator) and No. 4 (mounting base of 5-axis reducer). After the above steps are completed, the actual effects are shown in Fig. 4. (As No. 4 has positioning function, it should be pushed out through the 4 M4 threaded holes on workpiece during disassembly.)

As shown in Fig. 5:

Use 2.5# Allen wrench to loosen and take down No. 1 (11 M3 screws), then take out No. 2 (20-100 thin reducer)

(As No. 2 has positioning dimensions, it can be taken out through the puller during disassembly).

7.4.4.6 Disassembly Diagram of Six-axis Reducer

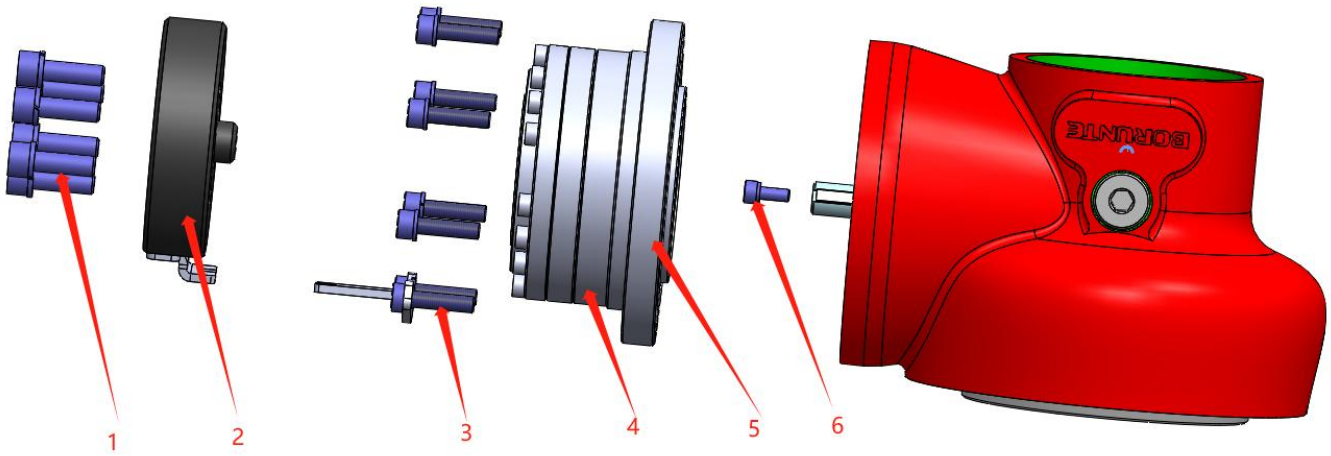


Fig. 1

1. As shown in Fig. 1:

Use 4# Allen wrench to loosen and take down No. 1 (6 M5 screws), then take out No. 2 (end flange)

Use 3# Allen wrench to loosen and take down No. 3 (8 M4 screws), take out No. 4 (main body of 17-50 cup type reducer) (as flexible wheel of reducer is matched with wave generator, it should be pushed out through 2 diagonal M4 threaded holes on reducer during disassembly).

Use 2.5# Allen wrench to loosen and take down No. 3 (1 M3 screw), then take out No. 5 (17-50 cup type reducer and wave generator) (due to fitting error of No. 5, it can be taken out by using puller during disassembly).

7.4.4.7 Maintenance of RV Reducer

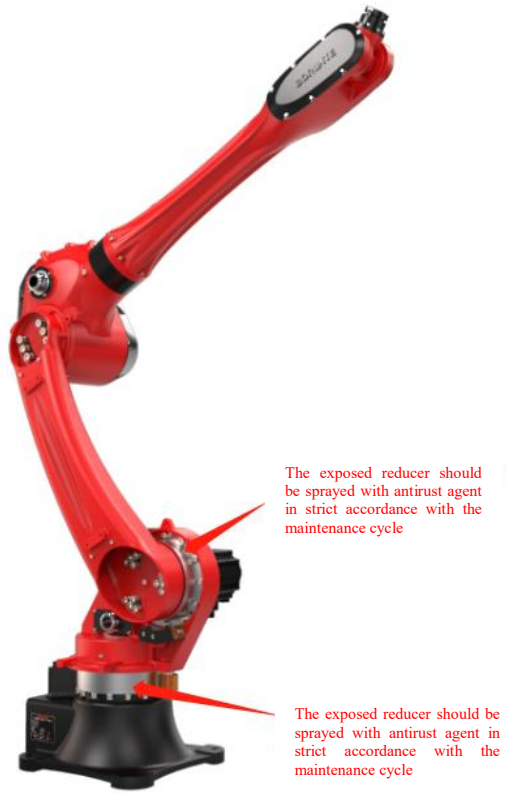
As the core part of robot, the RV reducer should be provided with regular maintenance, for its surface can have corrosion such as yellowing and rusting after long-term exposure or use in severely corroded environment, to avoid affecting the reducer's appearance, service life and robot safety.

①Use white gas and clean shred to wipe and clean the outer surface of reducer, make sure no corrosive liquid or solid is attached on the outer surface. Take down the iron rust (if any) with fine sandpaper.

②After wiping the outer surface with white gas, spray the dry rust remover on the outer surface of reducer, and avoid skipped or insufficient spraying; otherwise, it may fail to realize the rust protection effects.

Maintenance cycle: Not above 3 months.

Antirust agent: HIRI dry antirust agent (HIRI 725 antirust agent)





7.4.5 Six-axis Robot BRTIRUS2030A (Version 10)

7.4.5.1 Disassembly Diagram of One-axis Reducer

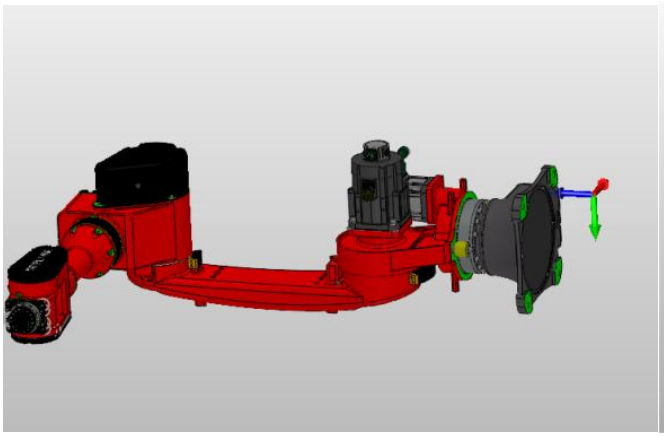


Fig. 1

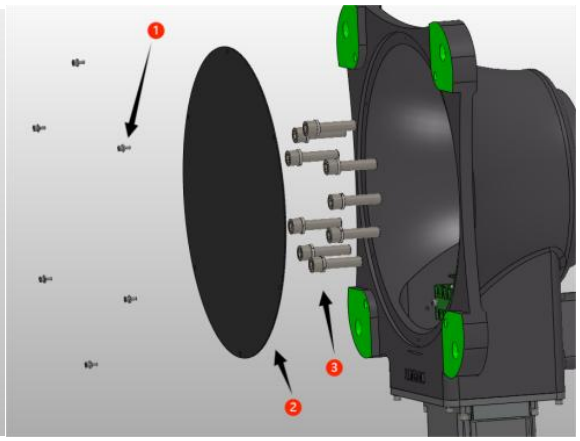


Fig. 2

1. As shown in Fig. 1:

Firstly, put the robot side upside down, use the power line and coding line on heavy load joint for withdrawing the needle.

2. As shown in Fig. 2:

Use 4# Allen wrench to take down 6 M4 screws at No. 1 position, take out sealing plate, then use 9# Allen wrench to take out 9 M12 screws that fix the reducer.

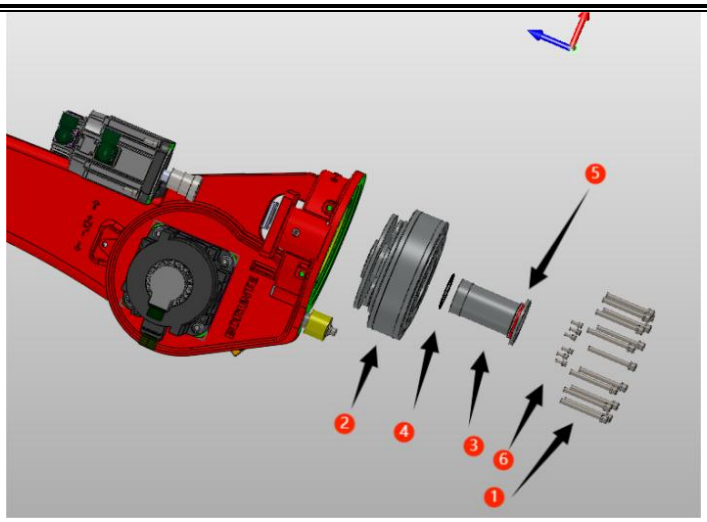


Fig. 3

3. As shown in Fig. 3:

Use hoisting belt to fix the hoisting beam at joint of Axis 3 and 4, separate the rotation base from the bottom base, then put the section above rotation base aside for easy disassembly of reducer.

Use 8# Allen wrench to take down the 14 M10 screws that fix the reducer and bottom base, separate the reducer from rotation base of Axis 1 through the ejection hole on reducer, then take out the reducer. Take down the bearing of line pipe, use 5# Allen wrench to take down the 6 set screws of line pipe, then take out line pipe from the reducer body (remove O-ring)

7.4.5.2 Disassembly Diagram of Two-axis Reducer

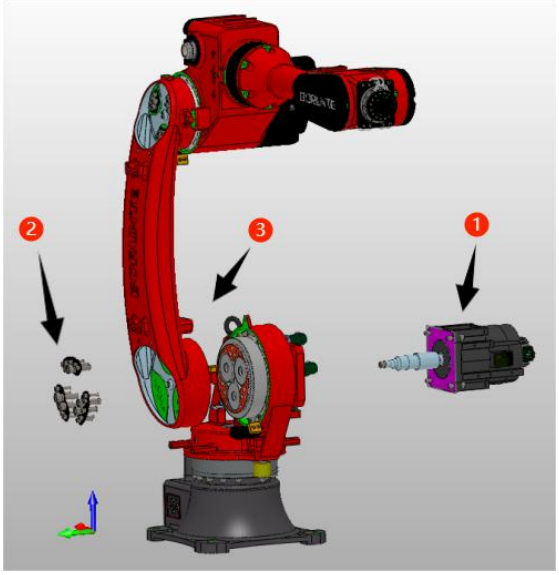


Fig. 1

1. As shown in Fig. 1:

Fix the robot base, cross the hoisting belt through Axis 3 during disassembly, and use mobile crane to hang the hoisting belt at the same time.

Loosen the set screws of two-axis motor, then take out the motor assembly body.

Use 7# and 11# Allen wrench respectively to take down the 15 M8 screws and 6 M16 screws that fix the big arm and reducer.

Then, separate the big arm from the two-axis reducer (remove the O-ring).

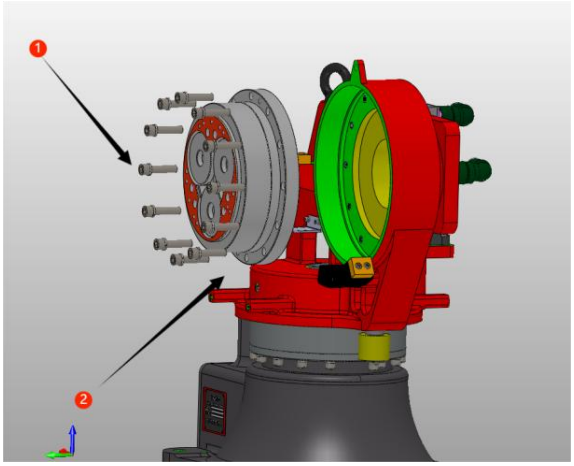


Fig. 2

2. As shown in Fig. 2:

Use 9# Allen wrench to take down the 12 M12 set screws of reducer and main body.

Separate the reducer from the main body through the ejection holes on reducer.

Note: As the end face of reducer has sealing adhesive, the reducer should be pushed out through two M8 threaded holes on reducer during disassembly.

7.4.5.3 Disassembly Diagram of Three-axis Reducer

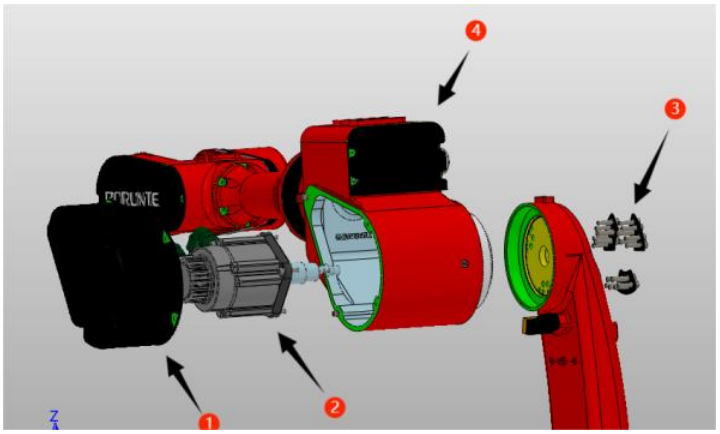


Fig. 1

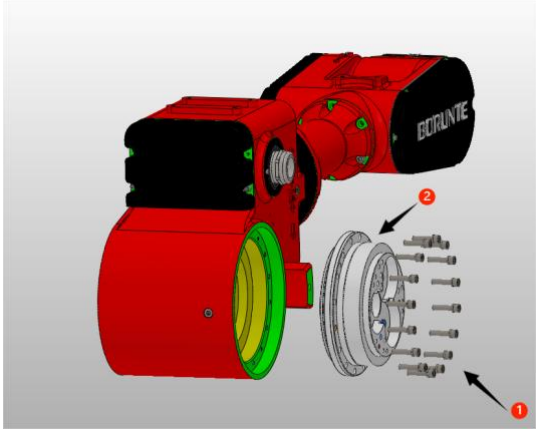


Fig. 2

1. As shown in Fig. 1:

Fix the robot base, cross the hoisting belt through Axis 4 and 5 during disassembly, and use mobile crane to hang the hoisting belt at the same time.

Use 7# and 8# Allen wrench respectively to take down M8 and M10 set screws of big arm and reducer, adjust the hoisting beam, then separate the big arm from the three-axis reducer. (Pay attention to O-ring)

Take down the cover of three-axis motor, then take out three-axis motor. (Through the top hole)

2. As shown in Fig. 2:

Use 11# Allen wrench to take down the M16 screws that fix the reducer and main body, push out the three-axis reducer through the top hole of reducer.

7.4.5.4 Disassembly Diagram of Four-axis Reducer

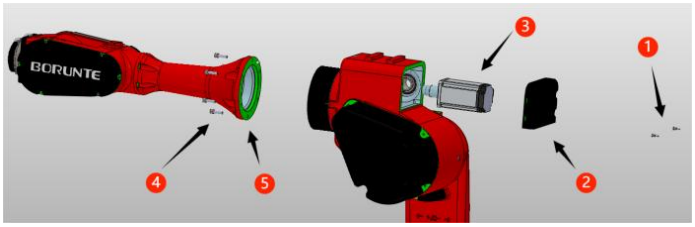


Fig. 1

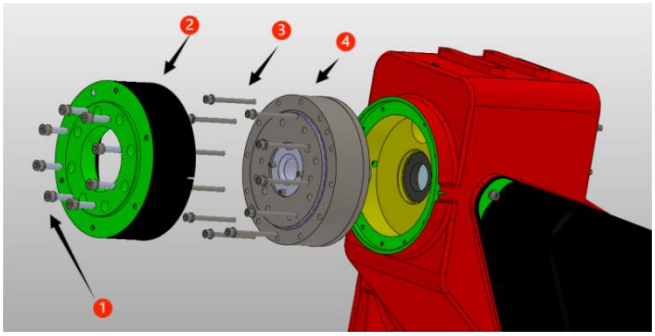


Fig. 2

1. As shown in Fig. 1:

Take down the 6 M8 screws of five-axis pull rod and adapter plate, take down the assembly body of Axis 5 and 6, use 4# Allen wrench to take down 4 M4 screws on rear cover of four-axis motor, take down the cover plate, take down the screws that fix four-axis motor, then take down the assembly body of four-axis motor.

2. As shown in Fig. 2:

Use 7# Allen wrench to take down the M8 screws which are on adapter plate and connect the four-axis reducer, take down the adapter plate, then use 6# Allen wrench to take down the M6 screws that connect the fixed reducer to the main body, and take out the four-axis reducer through the ejection hole on four-axis reducer. (Pay attention to O-ring)

7.4.5.5 Disassembly Diagram of Five-axis Reducer

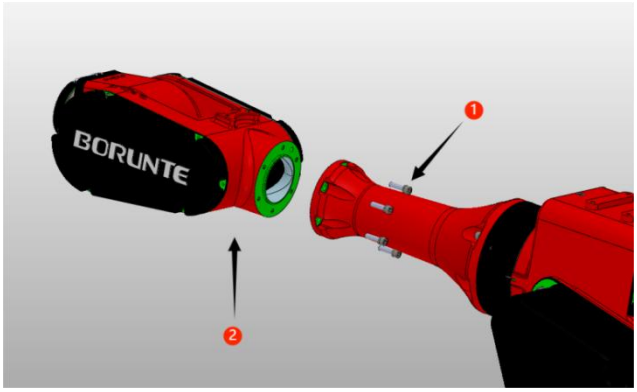


Fig. 1

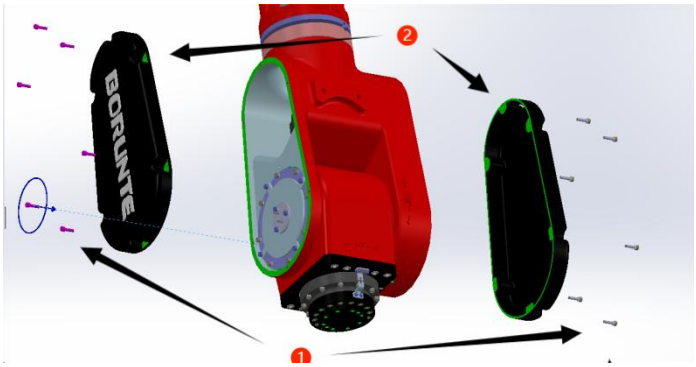
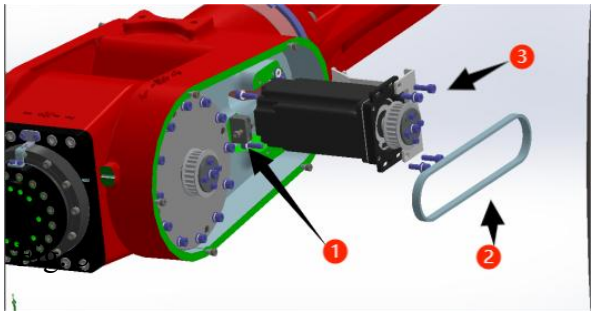


Fig. 2



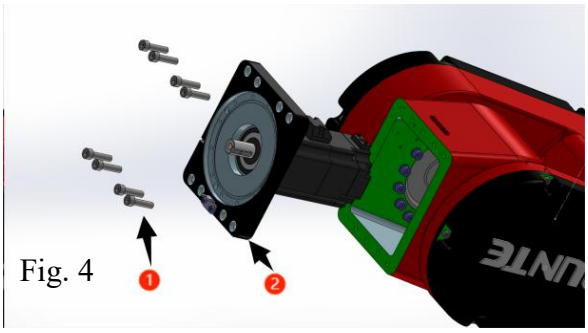


Fig. 4

1. As shown in Fig. 1:

Use 7# Allen wrench to take down the M8 screws that connect the pull rod and main body of Axis 5, then take down the assembly body at end of Axis 5.

2. As shown in Fig. 2:

Loosen the screws of lateral cover and take down the five-axis lateral cover.

3. As shown in Fig. 3:

Loosen the limit screws and take down timing belt, loosen the set screws of motor, then take down the assembly body of five-axis motor.

4. As shown in Fig. 4:

Take down the six-axis motor and reducer assembly body, loosen the front-end flange, loosen the axis press plate, take down the motor mounting screws, pull out the motor, loosen the set screws of reducer, then use a puller to pull out the 25-80 thin harmonic reducer.

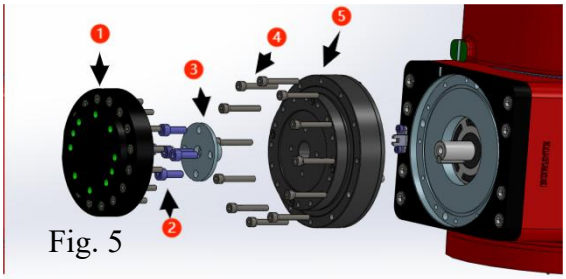


Fig. 5

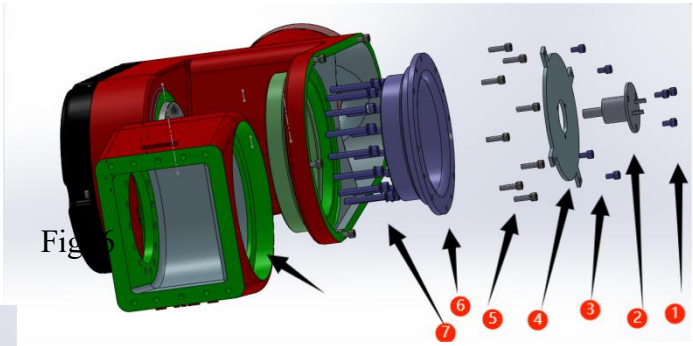


Fig. 6

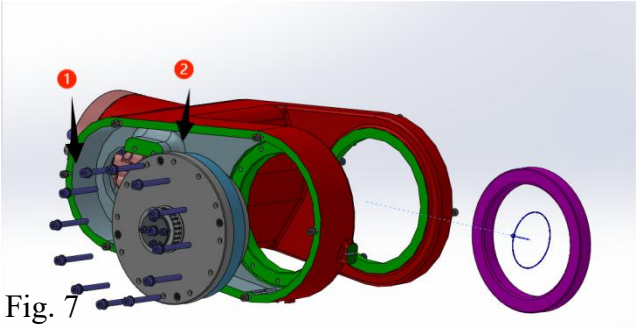


Fig. 7

5. As shown in Fig. 5:

Continue the operation of 6, take down the lower line sleeve, adapter of conductive slip ring and cap type conductive slip ring, take down the mounting screws of Axis 6 and reducer, then take down the main body of Axis 6

6. As shown in Fig. 7:

Loosen the set screws of Axis 5 of reducer, take down the harmonic reducer (with axis) 32-100.

7.4.5.6 Maintenance of RV Reducer

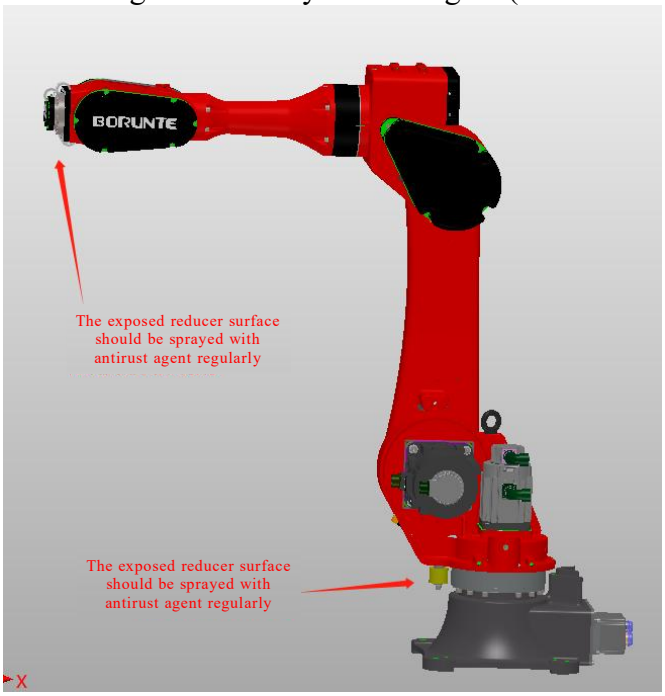
As the core part of robot, the RV reducer should be provided with regular maintenance, for its surface can have corrosion such as yellowing and rusting after long-term exposure or use in severely corroded environment, to avoid affecting the reducer's appearance, service life and robot safety.

①Use white gas and clean shred to wipe and clean the outer surface of reducer, make sure no corrosive liquid or solid is attached on the outer surface. Take down the iron rust (if any) with fine sandpaper.

②After wiping the outer surface with white gas, spray the dry rust remover on the outer surface of reducer, and avoid skipped or insufficient spraying; otherwise, it may fail to realize the rust protection effects.

Maintenance cycle: Not above 3 months.

Antirust agent: HIRI dry antirust agent (HIRI 725 antirust agent)





7.4.6 Four-axis Robot BRTIRPZ2480A (Version 10)

7.4.6.1 Replacement & Disassembly Diagram of C Series RV (One-axis)



Fig. 1

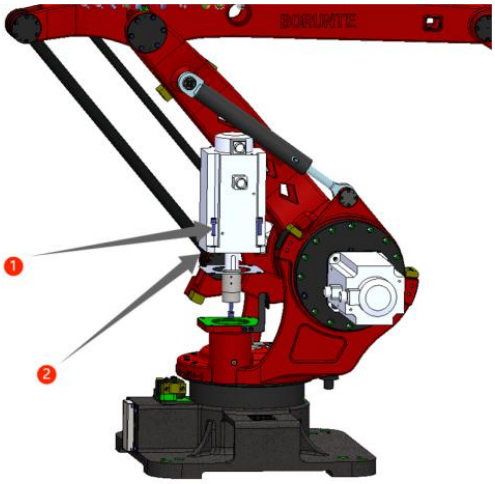


Fig. 2

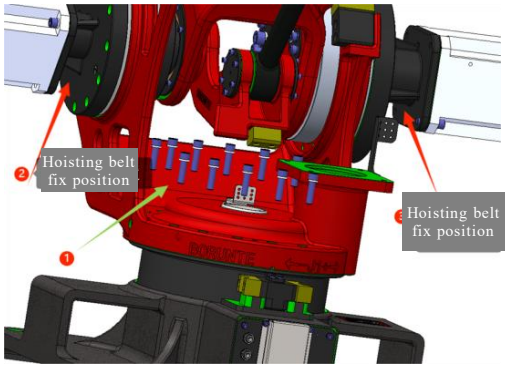


Fig. 3



Fig. 4

1. As shown in Fig. 1:

Manually swing the manual controller and stop it at J2:90°J3:90°.

2. As shown in Fig. 2:

Take down the followings by sequence: 1-4*M12*40 screws (through 10mm wrench) 2-Assembly body of one-axis motor (take down the motor through the diagonal M14 threaded top hole of motor mounting hole, 12mm wrench and M14 screws).

3. As shown in Fig. 3:

Use 10mm Allen wrench to take down 1-11*M12*45 screws, fix the mounting bases (at the position in Fig. 3) on both sides with hoisting belt at retracted status. As shown in Fig. separate the rotation base from transition plate through M10 threaded top hole on rotation base, the 8mm wrench and M10 screws.

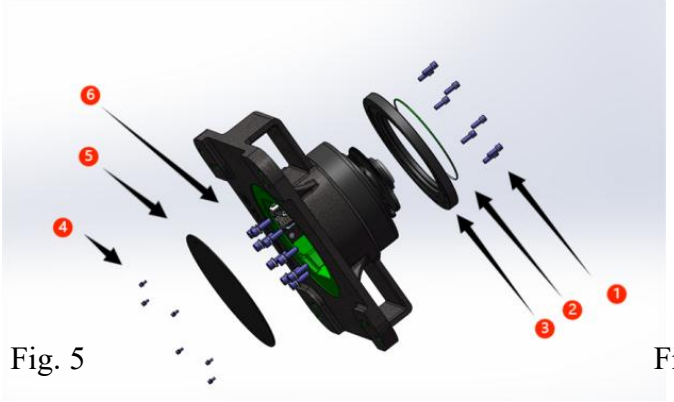


Fig. 5



Fig. 6

After separation of rotation base and bottom base:

1. As shown in Fig. 5:

Take down the followings by sequence: 1-8*M12*35 (by using 10mm Allen wrench), 2- O-ring (be sure to store it), 3- Transition plate (which can be pushed out and separated through 8mm wrench and two M10 screws), 4-6*M6*16 screws (by using 5mm Allen wrench), 5- Sealing plate, 6-8*M16*50 screws (by using 14mm Allen wrench).

2. As shown in Fig. 5:

Fix both ends of reducer with M12 pull ring, take out the assembly body of reducer through the hoisting beam (be sure to store the O-ring on reducer and line pipe)

7.4.6.2 Replacement & Disassembly of E Series RV Reducer (Axis 2, 3 and 4)

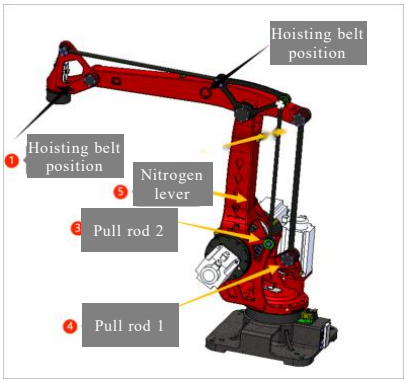


Fig. 1

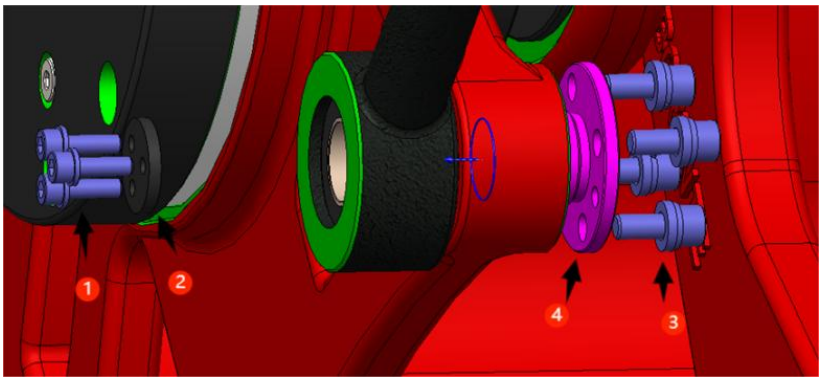


Fig. 2

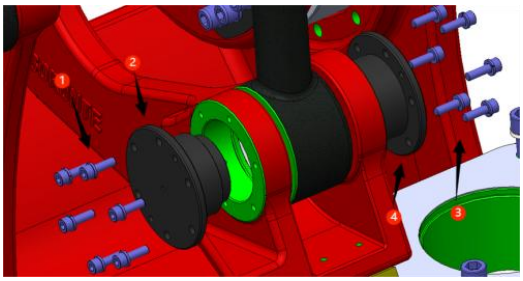


Fig. 3

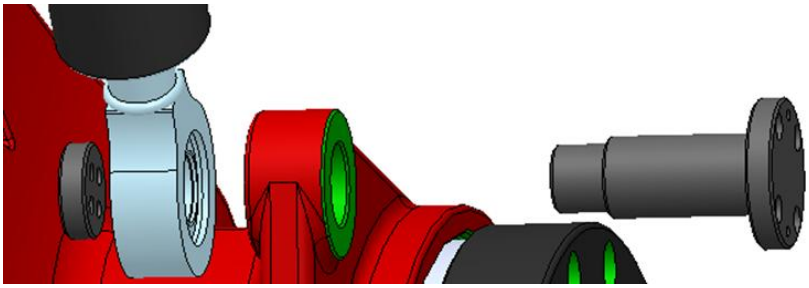


Fig. 4

1. As shown in Fig. 1:

Manually swing the manual controller and stop it at J2:90°J3:90°, then use hoisting beam to fix the position as shown in Fig. 1.

2. As shown in Fig. 2:

Separate the position of pull rod 2 as shown in picture: 1-3*M6*20 screws (by using 5mm Allen wrench), 2-Bearing stop, 3-4*M8*20 screws (by using 6mm Allen wrench), 4-Bearing of pull rod 2 (do separation by using the upper M6 threaded holes, 5mm wrench and M6 screws).

3. As shown in Fig. 3:

Separate the position of pull rod 1 as shown in picture: (take down the motor assembly body of Axis 1 according to process above before disassembly): 1-6*M6*20 screws (by using 5mm Allen wrench), 2- Press cover (take it out through upper M5 threaded hole, 4mm Allen wrench and M5 screws), 3-6*M6*20 screws (through 5mm Allen wrench), 4- Axis of pull rod 1 (through the upper M5 threaded hole, 4mm Allen wrench and M5 screws).

4. As shown in Fig. 4:

Separate the position of nitrogen rod as shown in picture: Loosen the 4*M5*12 screws (through 4mm Allen wrench) of axis bearing plate, take out press plate, loosen the 4*M6*25 screws (through 5mm wrench) at axis end, push out Axis 1 of nitrogen cylinder through the M5 threaded hole of cover end, 4mm wrench and M5 screws.

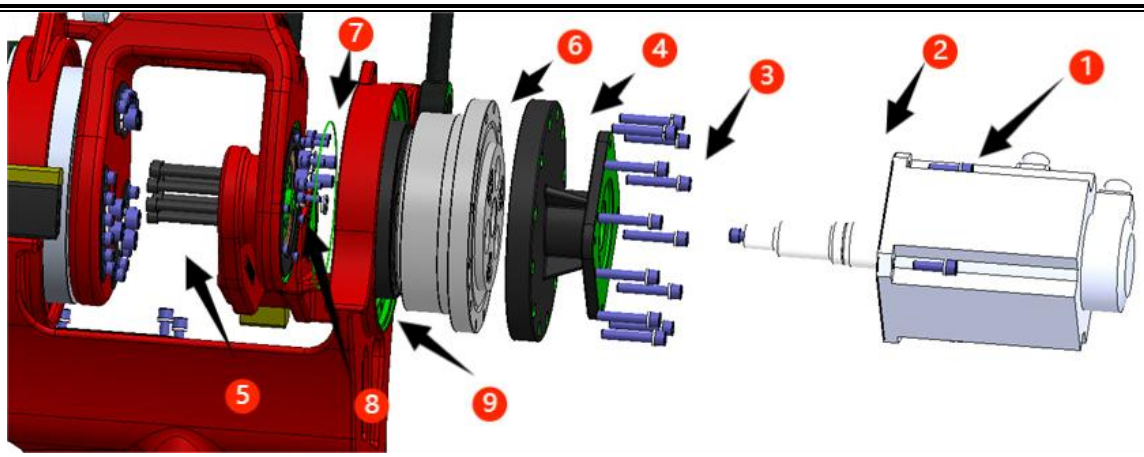


Fig. 5

After completing disassembly above:

1. As shown in Fig. 5:

Take down the followings by sequence: 1-4*M12*40 screws (through 10mm wrench), 2- Assembly body of three-axis motor (push it out through the diagonal M14 threads of motor mounting hole, 12mm wrench and M14 screws), 3-12*M12*65 screws (through 10mm wrench), 4- Motor mounting base (be sure to store O-ring), 5-8*M12*85 screws (through 10mm Allen wrench), 6-Assembly body of reducer (push it out through the M10 threads of outer ring, 8mm wrench and M10 screws, the balanced load at the other side is separated from three-axis reducer), 7-15*M8*20, 6*M16*30 screws (through 6mm wrench and 14mm wrench respectively), 9-Adapter plate (be sure to take out O-ring)

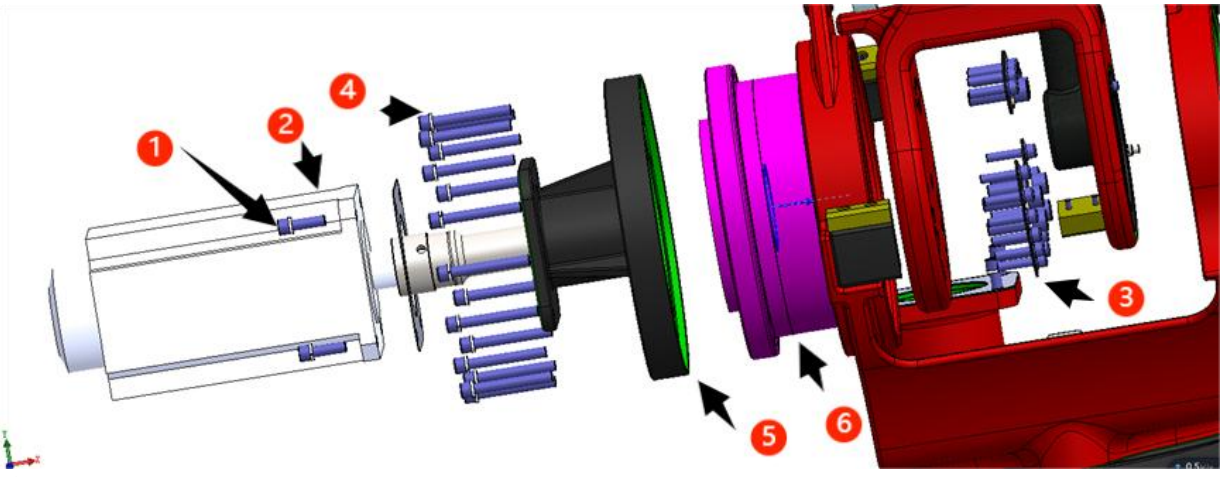


Fig. 6

2. As shown in Fig. 6:

Take down the followings by sequence: 1-4*M12*40 screws (through 10mm wrench), 2- Assembly body of two-axis motor (push it out through diagonal M14 threads of motor mounting hole, 12mm wrench and M14 screws), 3-18*M10*45,6*M16*50 screws (through 8mm and 14mm wrench) (Be aware of falling of big arm! Take out O-ring!) , 4-16*M12*90 screws (through 10mm wrench), 5- Base of two-axis motor (be sure to store O-ring), 6- Two-axis reducer (push it out through M10 threaded hole of outer ring, 8mm wrench and M10 screws) (Be aware of falling!)

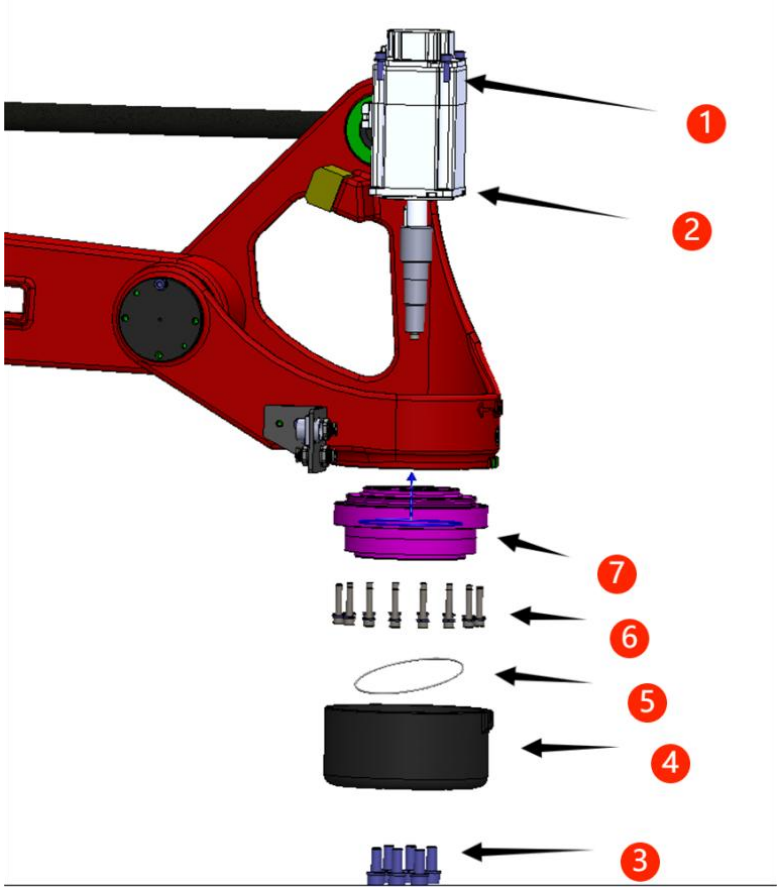


Fig. 7

3. As shown in Fig. 7:

Take down the followings by sequence: 1-4*M6*20 screws (through 5mm wrench), 2- Assembly body of four-axis motor (push it out through diagonal M8 threaded top holes of motor, 6mm wrench and M8 screws), 3-6*M10*25 screws (through 8mm wrench), 4- Four-axis flange cover (be aware to store 5-O-ring!) , 6-16*M6*30 screws (through 5mm wrench), 7- Four-axis reducer (push it out through M5 threads of outer ring, 4mm wrench and M5 screws (be aware of falling)).

7.3 Maintenance of RV Reducer

As the core part of robot, the RV reducer should be provided with regular maintenance, for its surface can have corrosion such as yellowing and rusting after long-term exposure or use in severely corroded environment, to avoid affecting the reducer's appearance, service life and robot safety.

①Use white gas and clean shred to wipe and clean the outer surface of reducer, make sure no corrosive liquid or solid is attached on the outer surface. Take down the iron rust (if any) with fine sandpaper.

②After wiping the outer surface with white gas, spray the dry rust remover on the outer surface of reducer, and avoid skipped or insufficient spraying; otherwise, it may fail to realize the rust protection effects.

Maintenance cycle: Not above 3 months.

Antirust agent: HIRI dry antirust agent (HIRI 725 antirust agent)





Appendix 1 Screw Tightening Torque Table

Screw Tightening Torque Table

Screw	Tightening torque (N-m)
M3 cup head hexagon socket screw	2±0.18 N.M
M4 cup head hexagon socket screw	5±0.5 N.M
M5 cup head hexagon socket screw	9±0.5 N.M
M6 cup head hexagon socket screw	16±1 N.M
M8 cup head hexagon socket screw	30 ±2 N.M
M10 cup head hexagon socket screw	65±3.5 N.M
M12 cup head hexagon socket screw	110±6.5 N.M
M14 cup head hexagon socket screw	175±10 N.M
M16 cup head hexagon socket screw	335±16 N.M
M18 cup head hexagon socket screw	460±18 N.M

7.4.6.4 Instructions and precautions for using Nitrogen balance cylinder

1. The Nitrogen balance cylinder is filled with high-pressure Nitrogen gas, only trained personnel can repair it. Untrained personnel are not allowed to open it without authorization.

2. Ensure the clean and tidy surroundings of the piston column and dust ring of the Nitrogen balance cylinder, install protective measures such as dust covers if necessary.

3. The screw plug at the inflation interface of the Nitrogen balance cylinder mainly serves to protect and strengthen the seal, and should not be dismantled or knocked arbitrarily.

4. Only Nitrogen gas can be used for filling. If other gases are used, there may be a risk of personal safety accidents.

5. Grinding, painting, or welding operations near the balance cylinder are strictly prohibited to prevent the surface of the plunger rod from burning or adhering to metal chips and other hard particles and powders, thereby shortening its service life or scrapping.

6. Don’t overstretch the balance cylinder during installing and using, avoid direct damage to the Nitrogen balance cylinder.

7. Avoid unbalanced use, the direction of the stretching force of the balance cylinder must be parallel to the direction of piston rod movement, to avoid Nitrogen balance cylinder leakage or damage caused by side load use.

8. When installing the Nitrogen balance cylinder, grease should be injected into the ear bearings of the two ends of the fulcrum cylinder to ensure lubrication and reduce dry friction of the movable joints.

7.4.6.5 Daily maintenance and correct use of Nitrogen balance cylinder

1. Keep a clear and tidy surroundings of the column and dust ring of the Nitrogen balance cylinder clean and tidy.

2. When installing or repairing a robotic arm, it is necessary to avoid dust and other debris falling on the balance cylinder, and if necessary, cover and protect it.

3. The Nitrogen balance cylinder should avoid contact with corrosive liquids to prevent corrosion damage to the sealing ring.

5. When encountering air leakage (pressure loss) in the balance cylinder during work, it is necessary to carefully inspect it, analyze the cause, and if necessary, return it to the factory for repair.

6. The storage environment for Nitrogen balance cylinders should be kept dry, ventilated, and avoid direct sunlight and high temperatures.

7. Abandoned balance cylinders should release the gas inside the cylinder. When releasing the gas, protective goggles should be worn and a releasing tool should be used (the releasing port should not be facing the operator).

伯朗特机器人股份有限公司
地址：广东省东莞市大朗镇沙步村沙富路 83 号
电话：400-870-8989
邮箱：rd316@borunte.com

因改良等原因，规格及外观有所变更时，不另行通知，敬请谅解。因排样需要，某些部件有所增减，请按实际订单为准。

BORUNTE ROBOT CO., LTD.
Address: NO. 83, Shafu Road, Shabu Village, Dalang Town, Dongguan City, Guangdong Province, China
Tel: 0086-400-870-8989
E-mail: rd316@borunte.com

All stated here is subject to change without advance notice. Some parts have been increased or deleted because of the shooting needed, please order as the actual standard.

抖音号　公众号　小程序

— www.borunte.com —