

ROBOTICS

# Product manual, spare parts

## IRB 14050



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**Product manual, spare parts**

**IRB 14050-0.5/0.5**

OmniCore

Document ID: 3HAC064628-001

Revision: B

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# Overview of this manual

## About this manual

This manual contains spare parts for:

- IRB 14050 and all its variants.

## Usage

This manual shall be used as a complement to the product manual for IRB 14050 during:

- maintenance work
- repair work.

## Who should read this manual?

This manual is intended for:

- maintenance personnel
- repair personnel.

## Prerequisites

A maintenance/repair/installation craftsman working with an ABB Robot must:

- be trained by ABB and have the required knowledge of mechanical and electrical installation/repair/maintenance work.

## Organization of chapters

The manual is organized in the following chapters:

Chapter	Contents
1 Spare parts and exploded view	Complete spare part list and complete list of robot components shown in exploded views.

## References

Reference	Document ID
<i>Product manual - IRB 14050</i>	<i>3HAC064625-001</i>
<i>Circuit diagram - IRB 14050</i>	<i>3HAC064375-009</i>

## Revisions

Revision	Description
A	First edition.
B	Published in release 20A. The following updates are made in this revision: <ul style="list-style-type: none"> <li>• Added information about Type A which has a reinforced design.</li> </ul>

# Product documentation

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### Categories for user documentation from ABB Robotics

The user documentation from ABB Robotics is divided into a number of categories. This listing is based on the type of information in the documents, regardless of whether the products are standard or optional.

All documents can be found via myABB Business Portal, [www.myportal.abb.com](http://www.myportal.abb.com).

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### Product manuals

Manipulators, controllers, DressPack/SpotPack, and most other hardware is delivered with a **Product manual** that generally contains:

- Safety information.
  - Installation and commissioning (descriptions of mechanical installation or electrical connections).
  - Maintenance (descriptions of all required preventive maintenance procedures including intervals and expected life time of parts).
  - Repair (descriptions of all recommended repair procedures including spare parts).
  - Calibration.
  - Decommissioning.
  - Reference information (safety standards, unit conversions, screw joints, lists of tools).
  - Spare parts list with corresponding figures (or references to separate spare parts lists).
  - References to circuit diagrams.
- 

### Technical reference manuals

The technical reference manuals describe reference information for robotics products, for example lubrication, the RAPID language, and system parameters.

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### Application manuals

Specific applications (for example software or hardware options) are described in **Application manuals**. An application manual can describe one or several applications.

An application manual generally contains information about:

- The purpose of the application (what it does and when it is useful).
- What is included (for example cables, I/O boards, RAPID instructions, system parameters, software).
- How to install included or required hardware.
- How to use the application.
- Examples of how to use the application.

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**Operating manuals**

The operating manuals describe hands-on handling of the products. The manuals are aimed at those having first-hand operational contact with the product, that is production cell operators, programmers, and troubleshooters.

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# 1 Spare parts and exploded views

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## Spare part level

ABB spare parts are categorized into two levels, L1 and L2. Always check the part level before conducting a service work on a spare part.

- L1 spare parts

The L1 parts can be replaced in the field. The maintenance and replacement instructions given in the related product manuals must be strictly followed. If there are any problems, contact your local ABB for support.

- L2 spare parts

To replace the L2 parts require specialized training. Only ABB field service personnel or qualified personnel trained by ABB can replace L2 parts.

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# 1 Spare parts and exploded views

## 1.1.1 Spare parts - manipulator

### 1.1 Arm


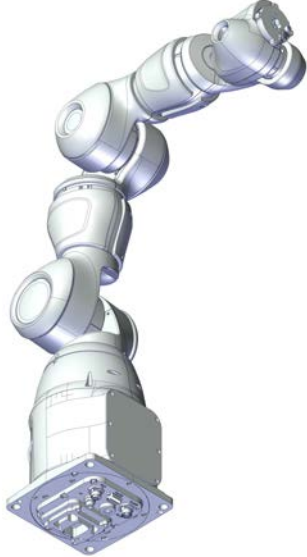
#### 1.1.1 Spare parts - manipulator

##### Manipulator

As standard feature, the connector interface is located at the rear of the base. The interface can also be bottom mounted, as an option.

For robots with Absolute Accuracy option, it is recommended to exchange the complete manipulator in case of a broken axis-1 motor, axis-7 motor and/or hall sensors; otherwise, the motors and/or hall sensors must be replaced by ABB. Contact your local ABB for more information.

##### Spare part list and illustration

Manipulator with rear connector interface	Manipulator with bottom connector interface
 xx180000612	 xx1800001264
3HAC074256-001	3HAC074260-001
Spare part level: L1	Spare part level: L1

### 1.1.2 Spare parts - motors

#### 1.1.2.1 Spare parts - axis-1 motor

##### Axis-1 motor



#### Note

For robots without Absolute Accuracy option, axis-1 motor is available for replacement.

For robots with Absolute Accuracy option, it is recommended to exchange the complete manipulator in case of a broken axis-1 motor; otherwise, the axis-1 motor must be replaced by ABB. Contact your local ABB for more information.

##### Spare part list - axis-1 motor

	Spare part number	Description	Spare part level
A	3HAC072394-001	Motor M93 Always use a new o-ring 3HAB3772-137. To be ordered separately.	L2 <sup>i</sup>

<sup>i</sup> The spare part level is available only for robots without Absolute Accuracy option.

##### Spare part list - axis-1 motor parts

	Spare part number	Description	Spare part level
B	3HAB3772-137	O-ring	L2 <sup>i</sup>

<sup>i</sup> The spare part level is available only for robots without Absolute Accuracy option.

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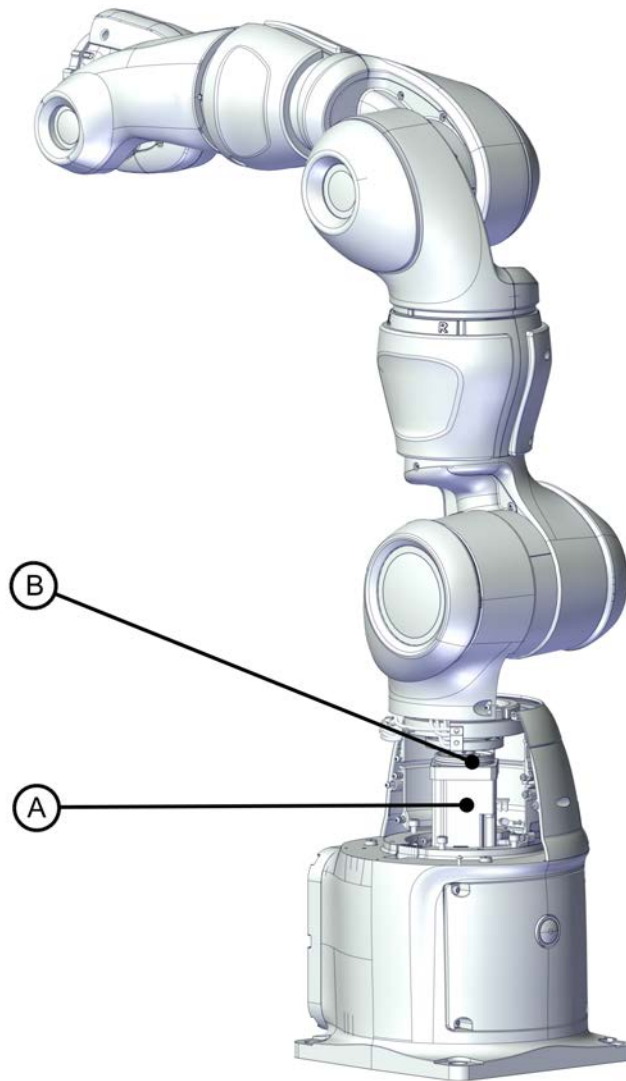
# 1 Spare parts and exploded views

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## 1.1.2.1 Spare parts - axis-1 motor

*Continued*

Spare part illustration



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### 1.1.2.2 Spare parts - axis-2 motor

#### Axis-2 motor

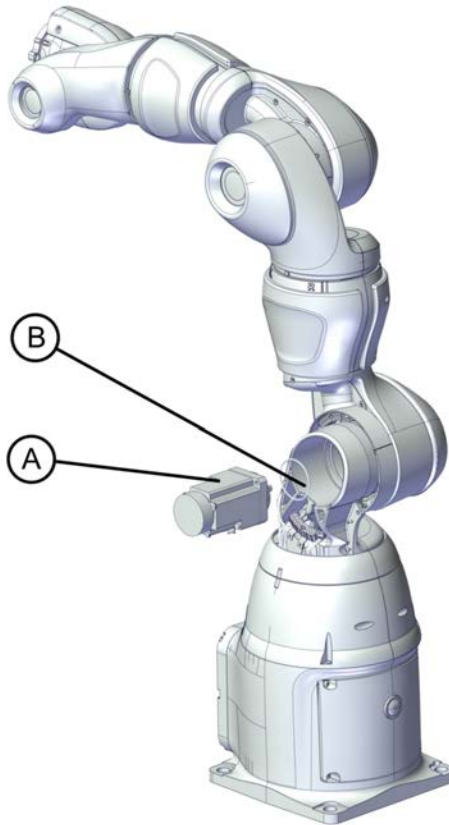
##### Spare part list - axis-2 motor

	Spare part number	Description	Spare part level
A	3HAC072394-001	Motor M93 Always use a new o-ring 3HAB3772-137. To be ordered separately.	L2

##### Spare part list - axis-2 motor parts

	Spare part number	Description	Spare part level
B	3HAB3772-137	O-ring	L2

##### Spare part illustration



xx1800001472

# 1 Spare parts and exploded views

## 1.1.2.3 Spare parts - axis-7 motor

### 1.1.2.3 Spare parts - axis-7 motor

#### Axis-7 motor



#### Note

For robots without Absolute Accuracy option, axis-7 motor is available for replacement.

For robots with Absolute Accuracy option, it is recommended to exchange the complete manipulator in case of a broken axis-7 motor; otherwise, the axis-7 motor must be replaced by ABB. Contact your local ABB for more information.

#### Spare part list - axis-7 motor

	Spare part number	Description	Spare part level
A	3HAC036900-001	Motor M92 Always use a new o-ring 3HAB3772-136. To be ordered separately.	L2 <sup>i</sup>

<sup>i</sup> The spare part level is available only for robots without Absolute Accuracy option.

#### Spare part list - axis-7 motor parts

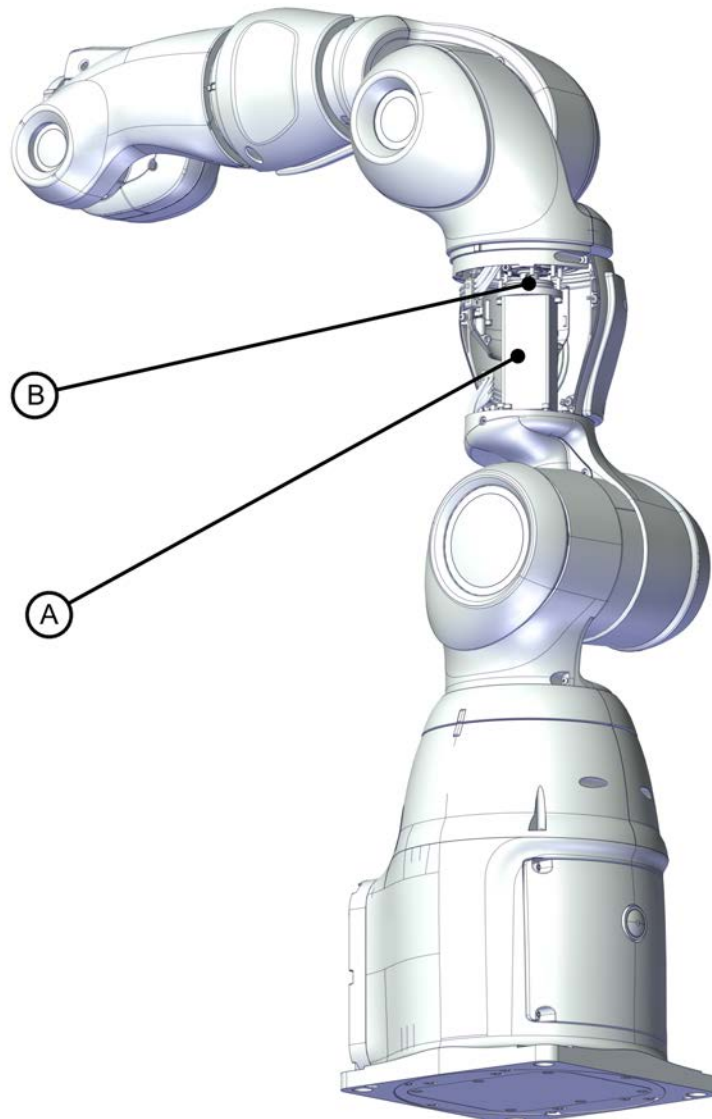
	Spare part number	Description	Spare part level
B	3HAB3772-136	O-ring	L2 <sup>i</sup>

<sup>i</sup> The spare part level is available only for robots without Absolute Accuracy option.

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### Spare part illustration



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# 1 Spare parts and exploded views

## 1.1.2.4 Spare parts - axis-3 motor

### 1.1.2.4 Spare parts - axis-3 motor

#### Axis-3 motor

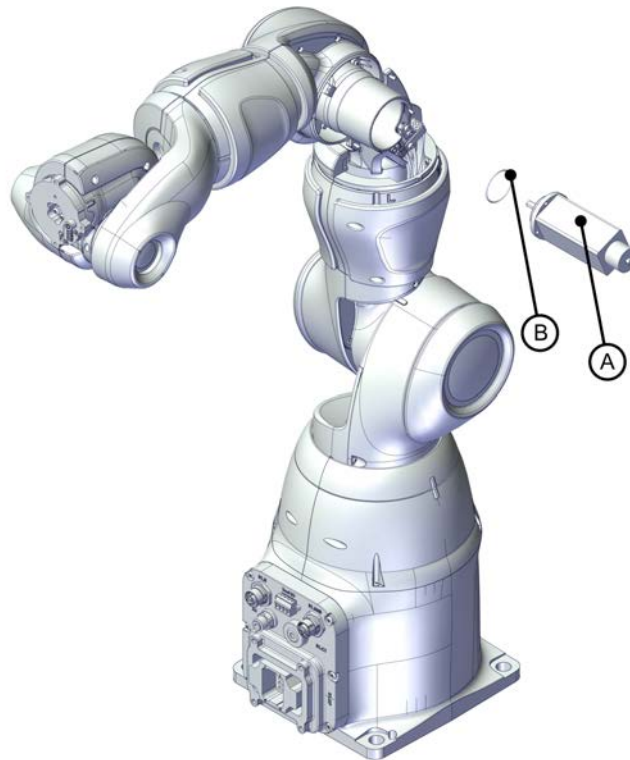
##### Spare part list - axis-3 motor

	Spare part number	Description	Spare part level
A	3HAC036900-001	Motor M92 Always use a new o-ring 3HAB3772-136. To be ordered separately.	L2

##### Spare part list - axis-3 motor parts

	Spare part number	Description	Spare part level
B	3HAB3772-136	O-ring	L2

##### Spare part illustration



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### 1.1.2.5 Spare parts - axis-4 motor

#### Axis-4 motor

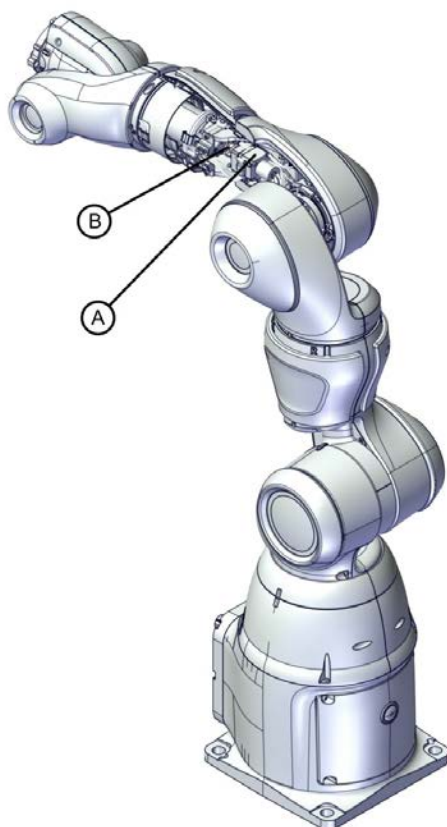
##### Spare part list - axis-4 motor

	Spare part number	Description	Spare part level
A	3HAC036950-001	Motor M91 Always use a new o-ring 3HAB3772-138. To be ordered separately.	L2

##### Spare part list - axis-4 motor parts

	Spare part number	Description	Spare part level
B	3HAB3772-138	O-ring	L2
C	3HAB3772-119	O-ring on flange	L2
D	3HAC072381-001	Flange	L2
E	3HAC073135-001	Washer	L2
F	3HAC072396-001	Small head screw	L2

##### Spare part illustration



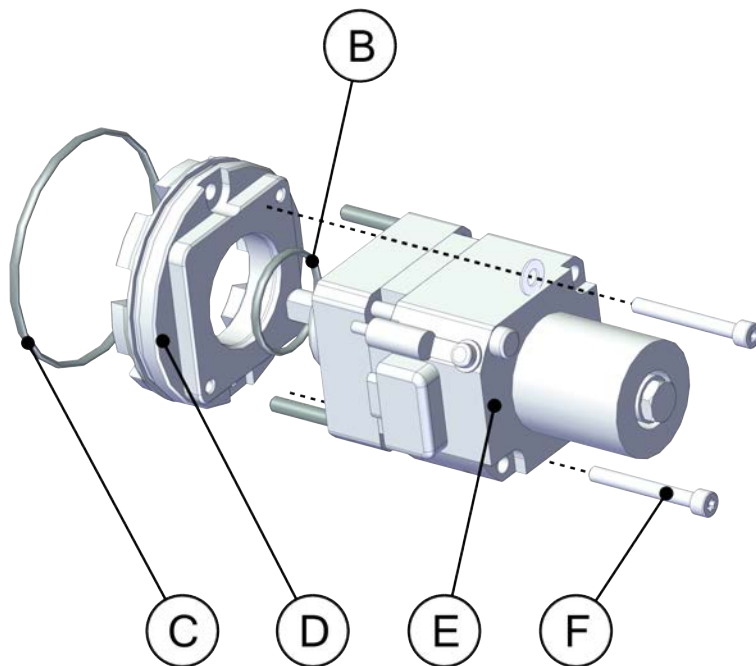
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# 1 Spare parts and exploded views

## 1.1.2.5 Spare parts - axis-4 motor

Continued



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### 1.1.2.6 Spare parts - axis-5 motor

#### Axis-5 motor

##### Spare part list - axis-5 motor

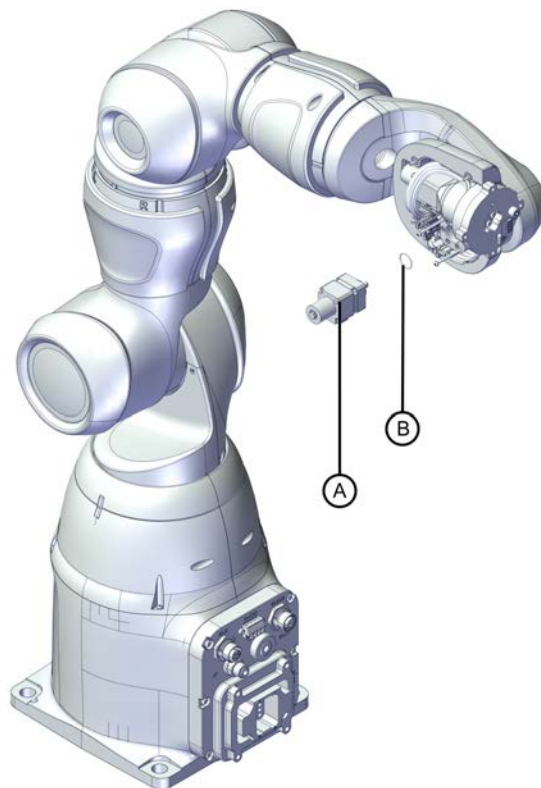
	Spare part number	Description	Spare part level
A	3HAC036950-001	Motor M91 Includes o-ring 3HAB3772-138.	L2

##### Spare part list - axis-5 motor parts

	Spare part number	Description	Spare part level
B	3HAB3772-138	O-ring	L2
C	3HAB3772-119	O-ring on flange	L2
D	3HAC072381-001	Flange	L2
E	3HAC073135-001	Washer	L2
F	3HAC072396-001	Small head screw	L2
-	3HAC051316-001	PTFE film on axis-5 and axis-6 motors <sup>i</sup>	L2

<sup>i</sup> Used only on axis-5 motor of IRB 14050 no-type-specified and axis-6 motor of both robot types. See [Robot description on page 43](#) for robot type.

#### Spare part illustration



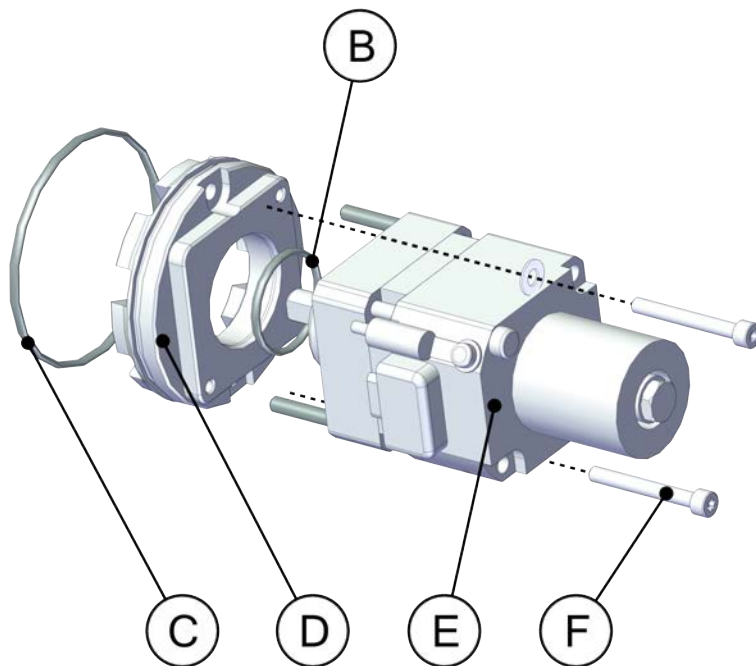
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# 1 Spare parts and exploded views

## 1.1.2.6 Spare parts - axis-5 motor

Continued



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### 1.1.2.7 Spare parts - axis-6 motor

#### Axis-6 motor

##### Spare part list - axis-6 motor

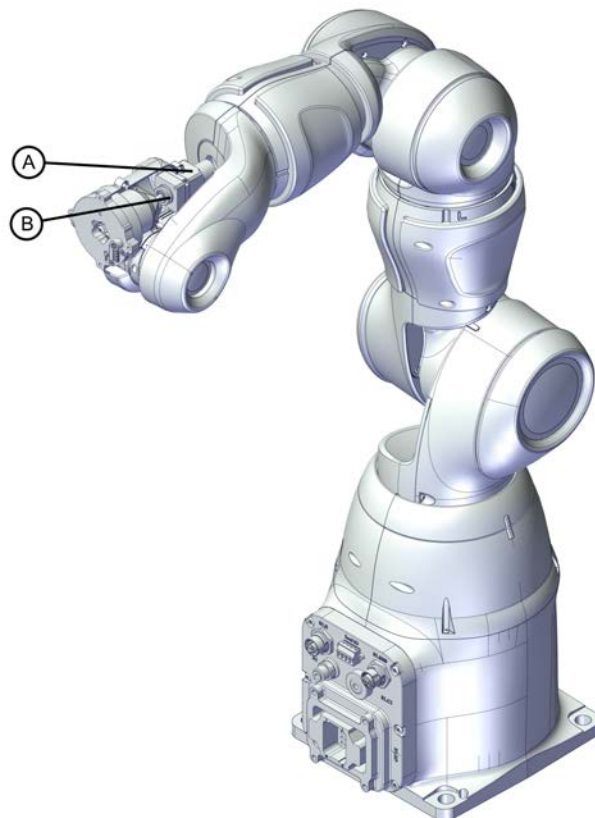
	Spare part number	Description	Spare part level
A	3HAC036950-001	Motor M91 Includes o-ring 3HAB3772-138.	L2

##### Spare part list - axis-6 motor parts

	Spare part number	Description	Spare part level
B	3HAB3772-138	O-ring	L2
-	3HAC051316-001	PTFE film on axis-5 and axis-6 motors <sup>i</sup>	L2

<sup>i</sup> Used only on axis-5 motor of IRB 14050 no-type-specified and axis-6 motor of both robot types. See [Robot description on page 43](#) for robot type.

#### Spare part illustration



xx1800001477

# 1 Spare parts and exploded views

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## 1.1.3 Spare parts - hall sensors

### 1.1.3 Spare parts - hall sensors

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#### Hall sensors



#### Note

For robots without Absolute Accuracy option, hall sensors are available for replacement.

For robots with Absolute Accuracy option, it is recommended to exchange the complete manipulator in case of a broken hall sensor; otherwise, the hall sensor must be replaced by ABB. Contact your local ABB for more information.

#### Spare part list

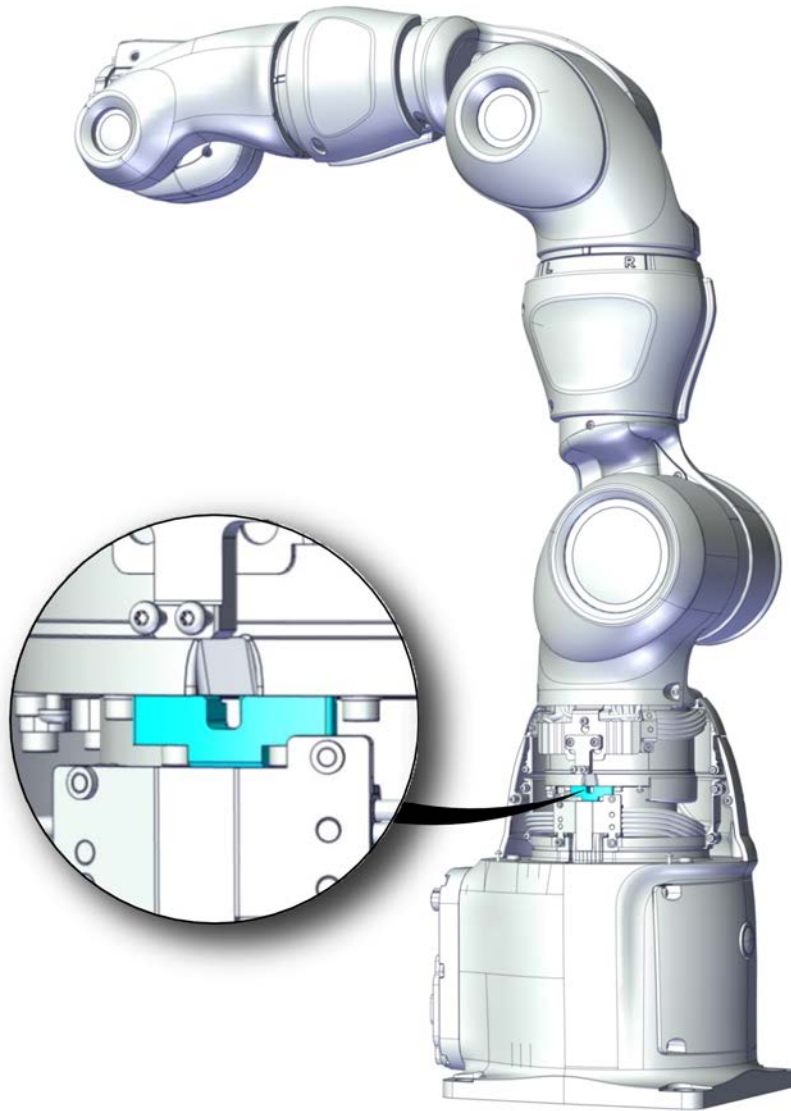
	Spare part number	Description	Spare part level
A	3HAC052445-001	Hall sensor with attachment for axis 1	L2 <sup>i</sup>
B	3HAC052446-001	Hall sensor with attachment for axis 2	L2 <sup>i</sup>
C	3HAC052447-001	Hall sensor with attachment for axis 7	L2 <sup>i</sup>
D	3HAC052448-001	Hall sensor with attachment for axis 3	L2 <sup>i</sup>
E	3HAC052450-001	Hall sensor with attachment for axis 4	L2 <sup>i</sup>
-	3HAC050887-001	Hall sensor interface board	L2 <sup>i</sup>

<sup>i</sup> The spare part level is available only for robots without Absolute Accuracy option.

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Spare part illustration - axis 1



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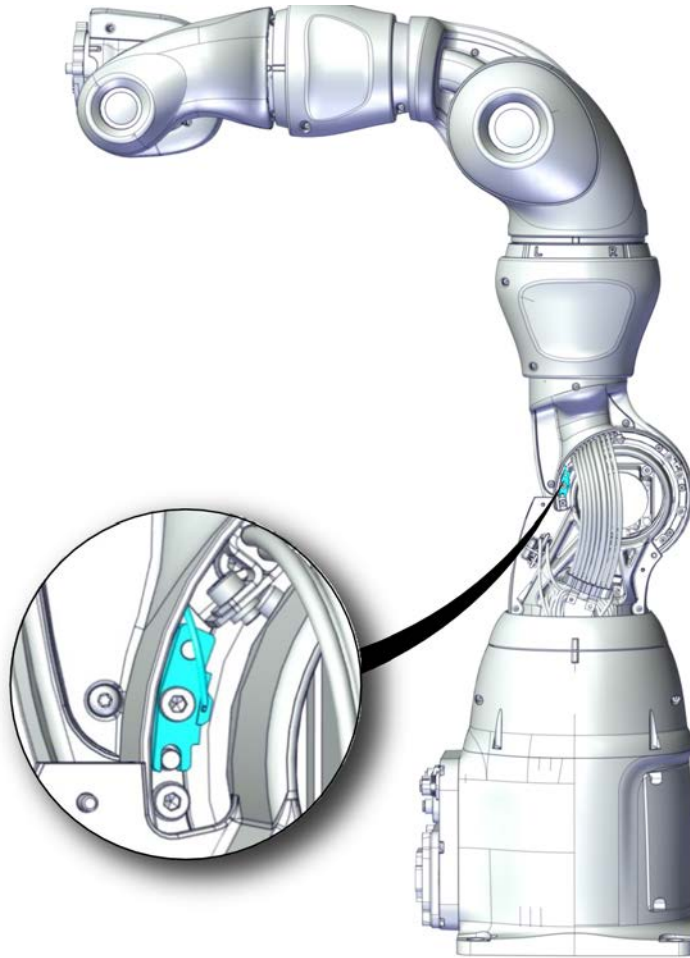
# 1 Spare parts and exploded views

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## 1.1.3 Spare parts - hall sensors

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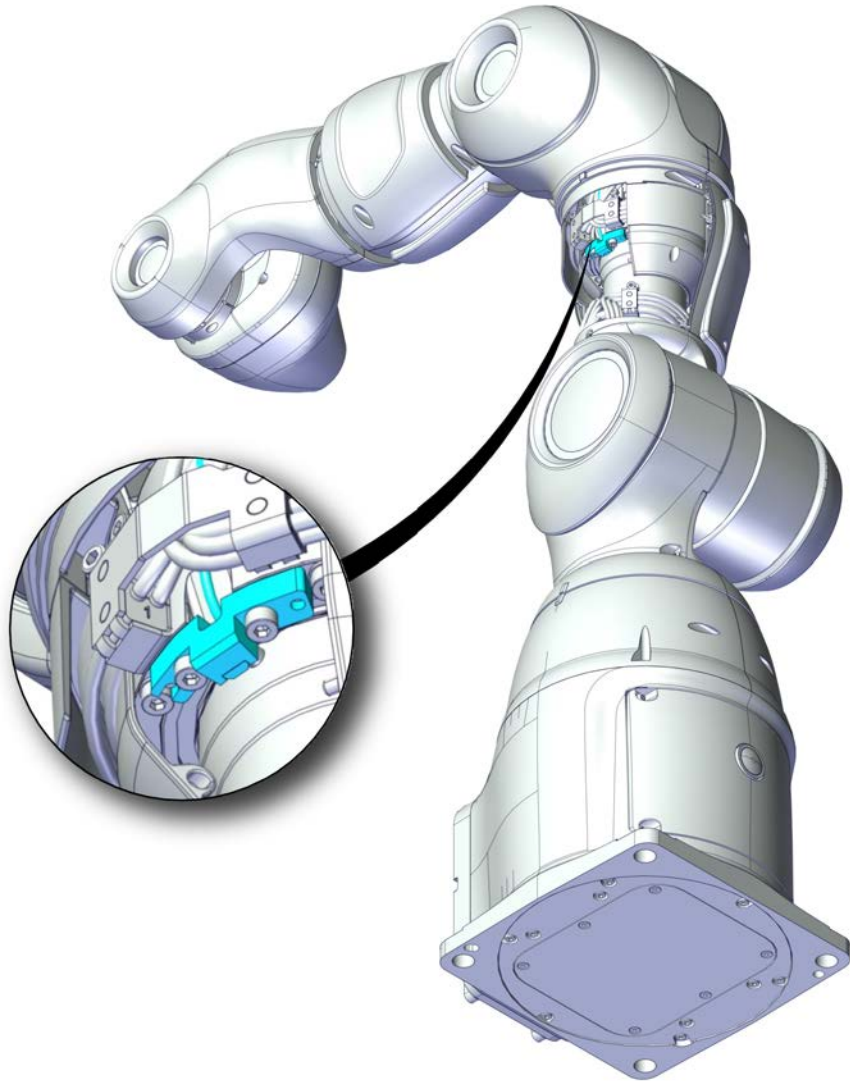
Spare part illustration - axis 2



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Spare part illustration - axis 7



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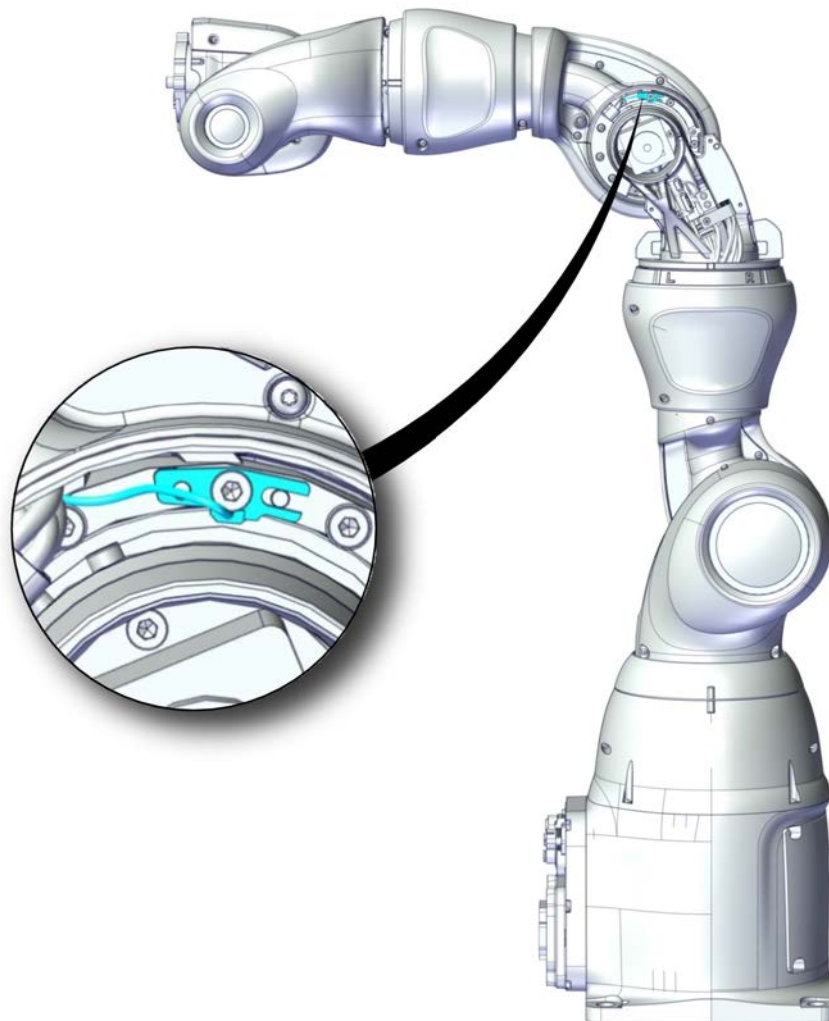
# 1 Spare parts and exploded views

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## 1.1.3 Spare parts - hall sensors

*Continued*

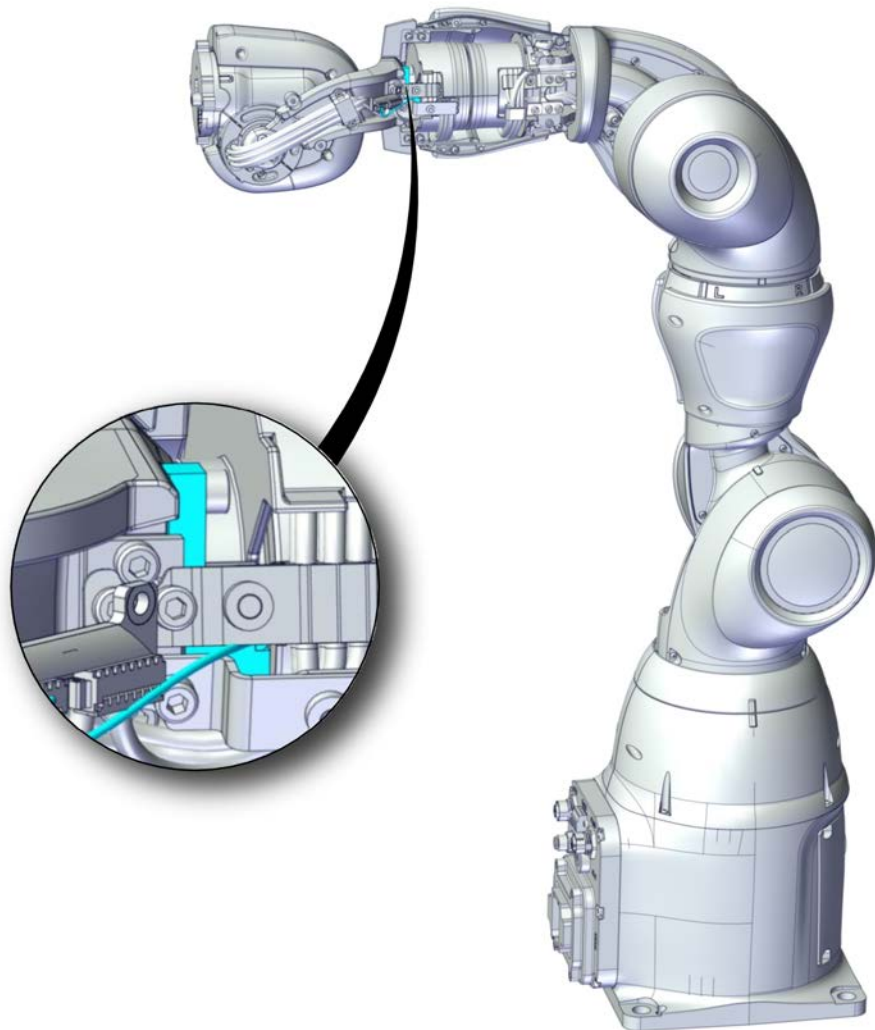
Spare part illustration - axis 3



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Spare part illustration - axis 4



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# 1 Spare parts and exploded views

## 1.1.4 Spare parts - mechanical stops

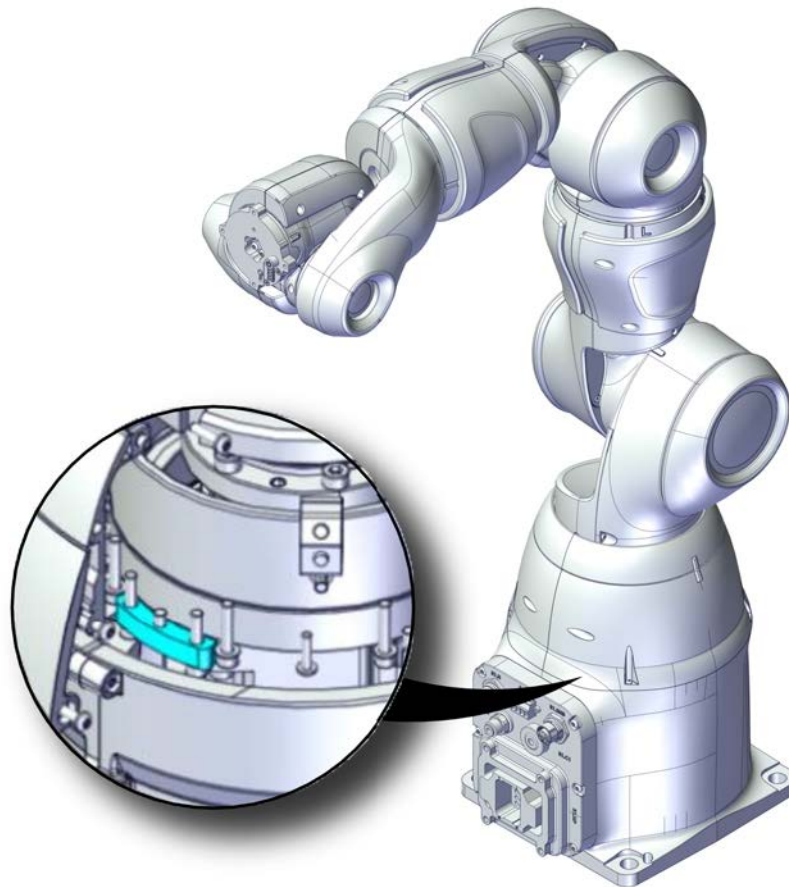
### 1.1.4 Spare parts - mechanical stops

#### Mechanical stops

##### Spare part list

	Spare part number	Description	Spare part level
A	3HAC047602-001	Mechanical stop for axis 1	L2
B	3HAC047602-001	Mechanical stop for axis 2	L2
C	3HAC047603-001	Mechanical stop for axis 7	L2
D	3HAC047603-001	Mechanical stop for axis 3	L2

##### Spare part illustration - axis 1

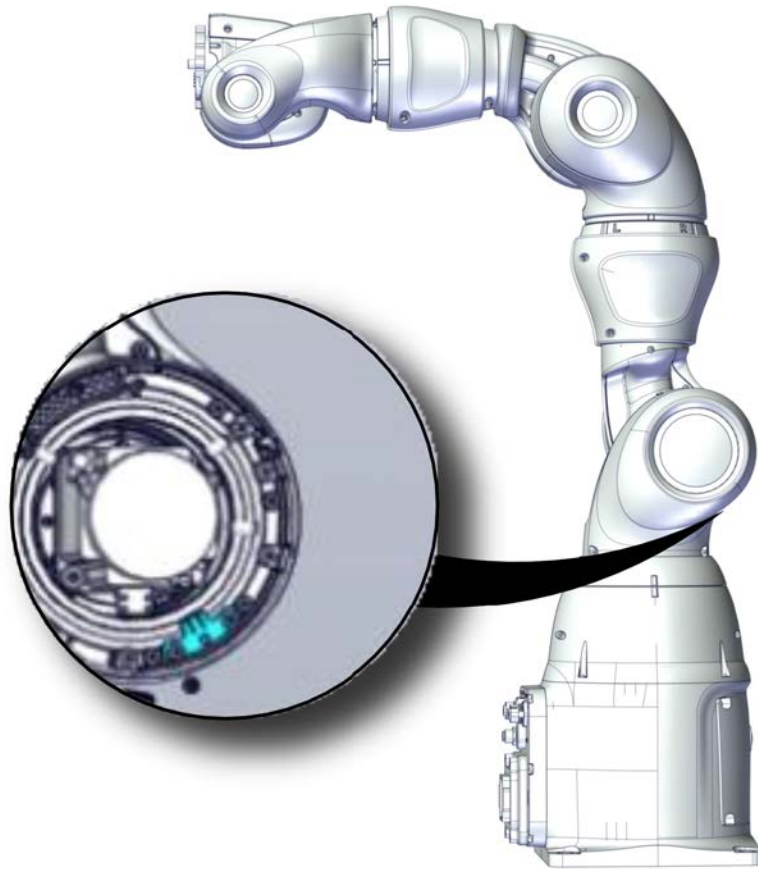


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Spare part illustration - axis 2



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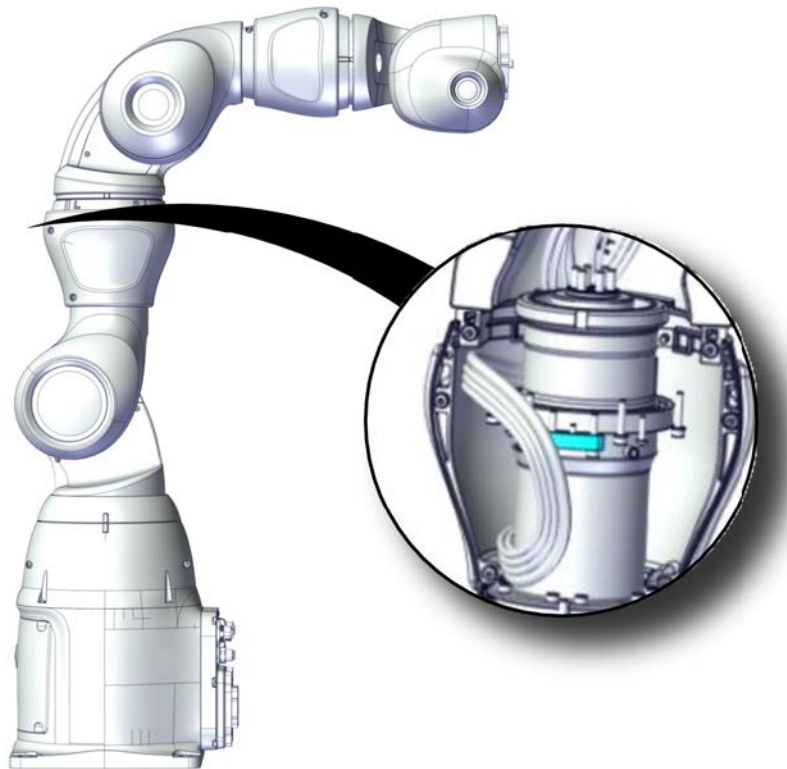
# 1 Spare parts and exploded views

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## 1.1.4 Spare parts - mechanical stops

*Continued*

Spare part illustration - axis 7

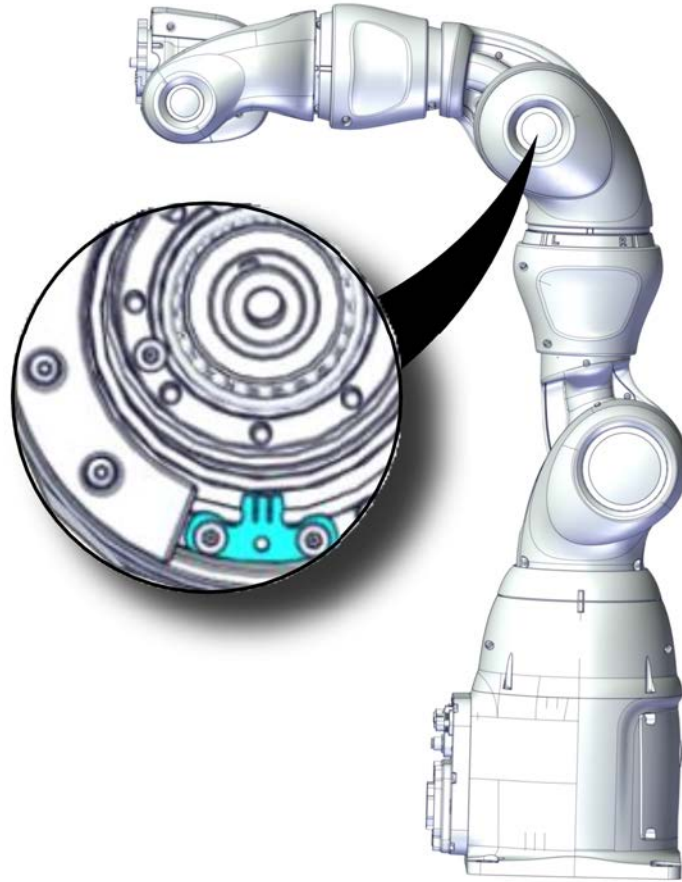


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Spare part illustration - axis 3



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# 1 Spare parts and exploded views

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## 1.2.1 Spare parts - cable

## 1.2 Cable

### 1.2.1 Spare parts - cable

---

#### Control cable, power

##### Spare parts list

Spare part number	Description	Length	Spare part level
3HAC061139-001	Control cable power (IRB14050), 3m	L=3 m	L1
3HAC061139-002	Control cable power (IRB14050), 7m	L=7 m	L1

---

#### Control cable, signal

##### Spare parts list

Spare part number	Description	Length	Spare part level
3HAC067446-001	Control cable signal	L=3 m	L1
3HAC067446-002	Control cable signal	L=7 m	L1

---

#### Ethernet floor cable

##### Spare parts list

Spare part number	Description	Length	Spare part level
3HAC063855-001	Ethernet Floor Cable (IRB14050)	L=3 m	L1
3HAC063855-002	Ethernet Floor Cable (IRB14050)	L=7 m	L1

p

### 1.3 Base

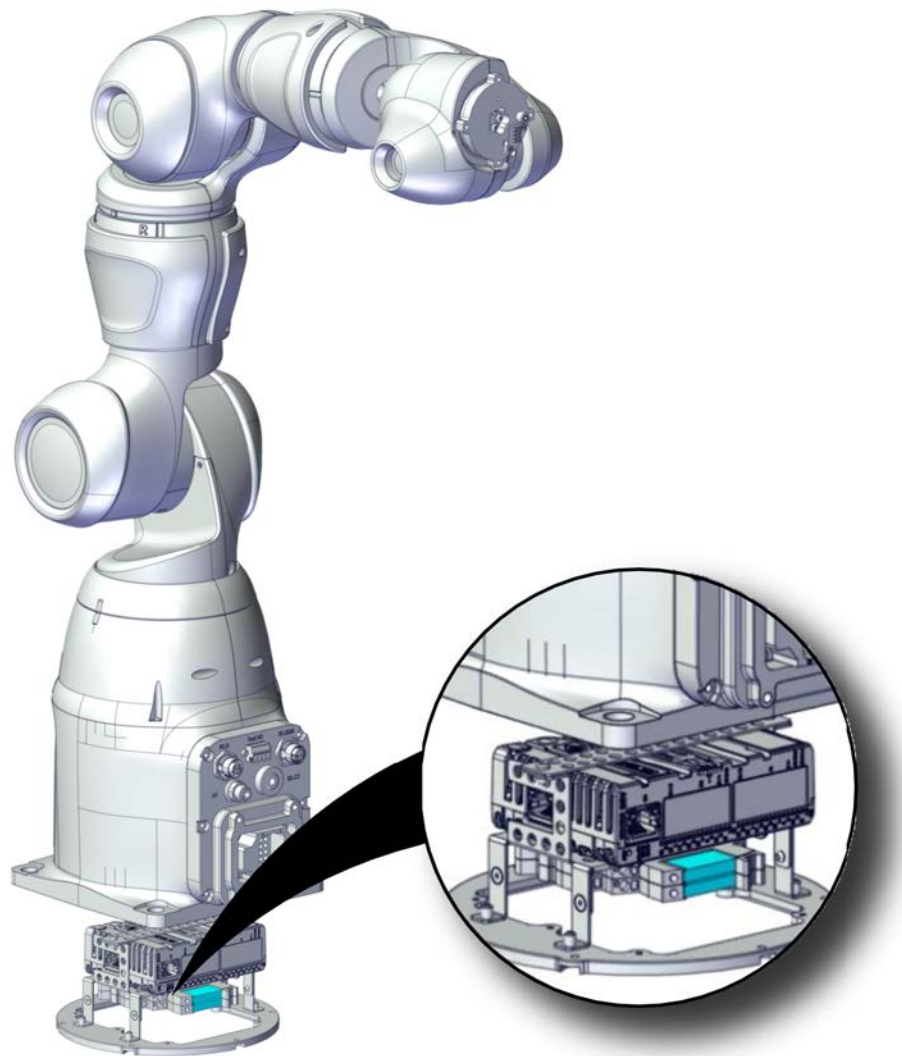
#### 1.3.1 Spare parts - Single relay

##### Single relay

##### Spare part list

Spare part number	Description	Spare part level
3HAC065024-001	Single relay (DC24V)	L2

##### Spare part illustration - Single relay



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# 1 Spare parts and exploded views

## 1.3.2 Spare parts - SMB unit

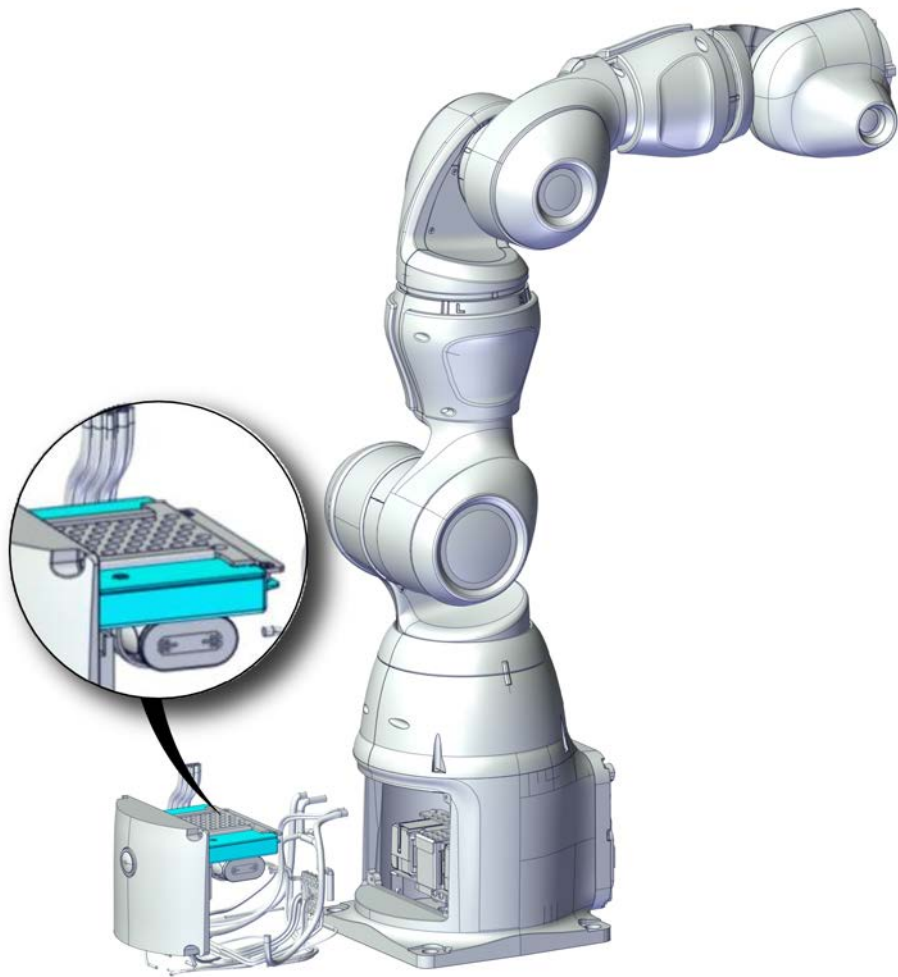
### 1.3.2 Spare parts - SMB unit

#### SMB unit

#### Spare part list

Spare part number	Description	Spare part level
3HAC063968-001	SMB Unit	L2

#### Spare part illustration - SMB unit



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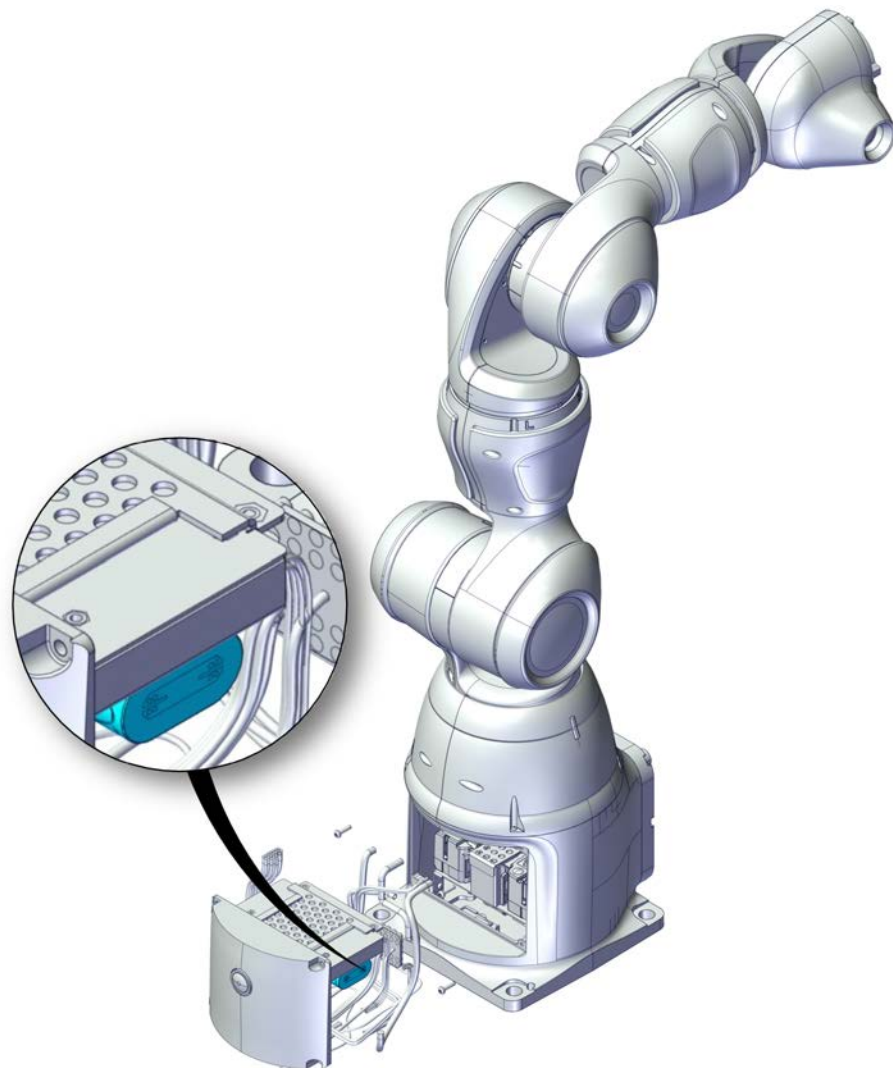
### 1.3.3 Spare parts - Battery unit

#### Battery unit

#### Spare part list

Spare part number	Description	Spare part level
3HAC044075-001	Battery unit	L2

#### Spare part illustration - battery unit



xx180000599

# 1 Spare parts and exploded views

## 1.3.4 Spare parts - Digital base

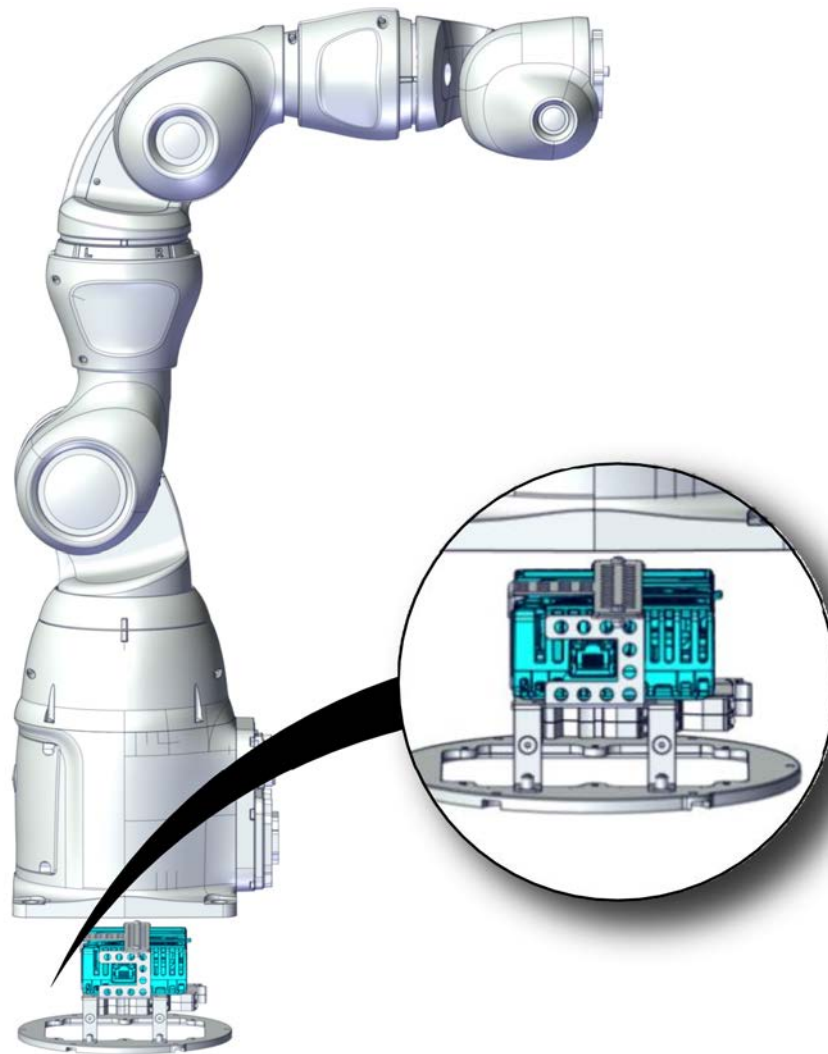
### 1.3.4 Spare parts - Digital base

#### Digital base

#### Spare part list

Spare part number	Description	Spare part level
3HAC058663-001	DSQC1030 Digital base	L2

#### Spare part illustration - Digital base



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### 1.4 Encapsulation and covers

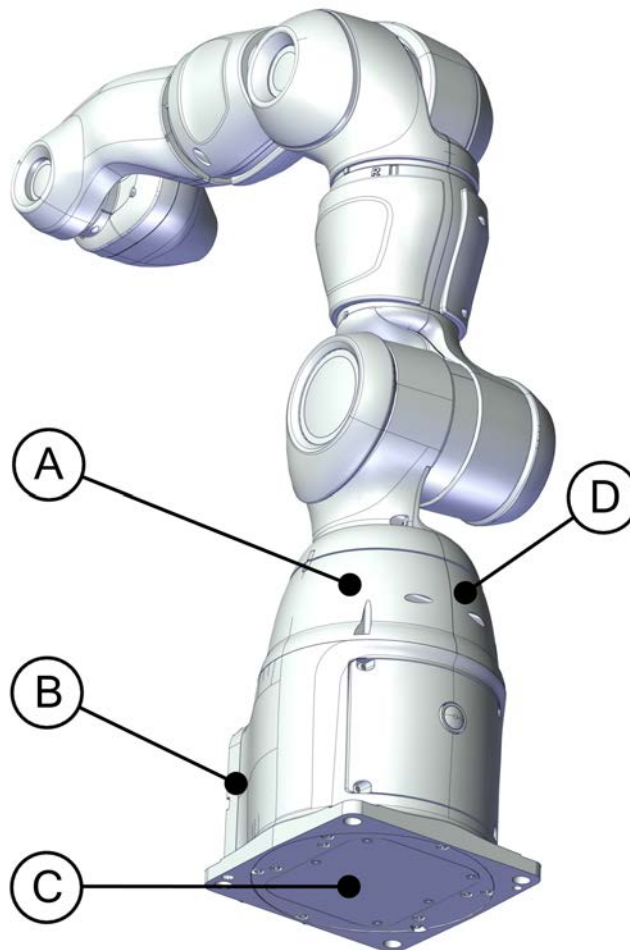
#### 1.4.1 Spare parts - base covers

##### Base covers

##### Spare part list

	Spare part number	Description	Spare part level
A	3HAC065032-001	Plastic cover, right	L1
B	3HAC063864-001	Base cover for SMB	L1
C	3HAC063874-001	Side plate	L1
D	3HAC065031-001	Plastic cover, left	L1

##### Spare part illustration



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# 1 Spare parts and exploded views

## 1.4.2 Spare parts - arm covers

### 1.4.2 Spare parts - arm covers

#### Arm covers and encapsulation

##### Spare part list - encapsulation

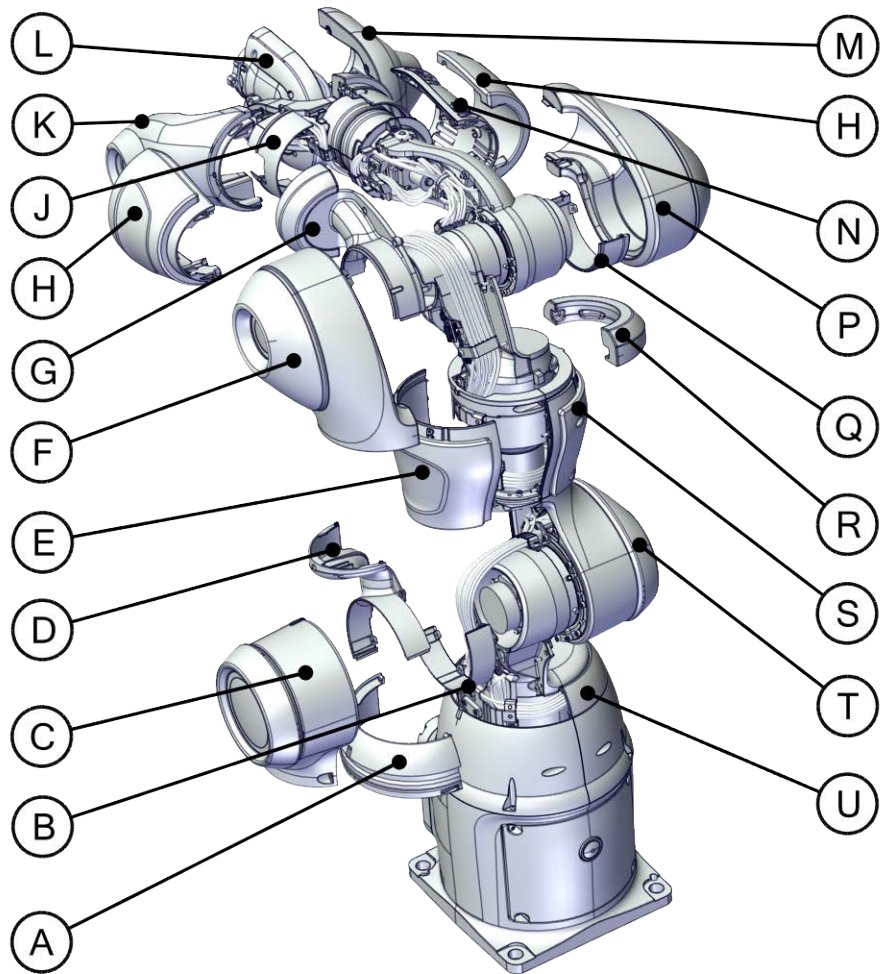
	Spare part number	Description	Spare part level
A	3HAC057719-001	Upper axis-1 cover, brake, ESD coated	L1
B	3HAC057721-001	Axis-2 cable collar, ESD coated	L1
C	3HAC050559-001	Lower axis-2 cover, ESD coated	L1
D	3HAC057722-001	Axis-2 cable cover, ESD coated	L1
E	3HAC050529-002	Axis-7 cover, ESD coated	L1
F	3HAC050532-001	Lower axis-3 cover, ESD coated	L1
G	3HAC050538-001	Upper axis-3 cover, ESD coated	L1
H	3HAC050542-001	Lower axis-4 cover, ESD coated	L1
J	3HAC049878-001	Axis-4 cable protection	L1
K	3HAC050548-001	Upper axis-4 cover, ESD coated	L1
L	3HAC041286-001	Cooling flange with padding	L1
M	3HAC050553-001/3HAC074222-001 <sup>i</sup>	Axis-6 cover, ESD coated	L1
N	3HAC050545-001	Axis-4 body cover, ESD coated	L1
P	3HAC050535-001	Axis-3 body cover, ESD coated	L1
Q	3HAC057727-001	Axis-3 cable collar, ESD coated	L1
R	3HAC050526-001	Axis-7 body padding	L1
S	3HAC050529-001	Axis-7 cover, ESD coated	L1
T	3HAC050558-001	Axis-2 padding	L1
U	3HAC057718-001	Upper axis-1 cover, ESD coated	L1

<sup>i</sup> Axis-6 cover 3HAC050553-001 is used with robot no-type-specified while axis-6 cover 3HAC074222-001 is used with robot Type A. See [Robot description on page 43](#) for robot type.

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### Spare part illustration



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## 2 Robot description

### 2.1 Robot type description

#### Type A of IRB 14050

The difference between IRB 14050 and IRB 14050 Type A is that the Type A has a reinforced design on the arm.

As a result of this, the following parts differ between types:

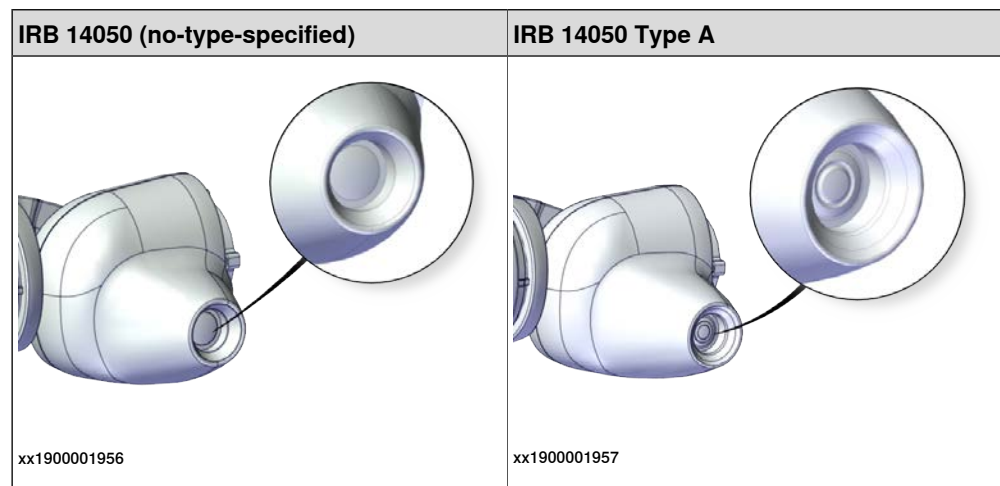
- Motor brake, axis 1 and axis 2
- Gearbox, axis 4 and axis 5
- Mechanical design, axis 4 and axis 5
- Cable harness design

Those robots in original design are simply named IRB 14050 (no-type-specified).

#### How to know which type the robot is?

The following characteristics can be used to figure out the robot type.

#### Axis 5 appearance



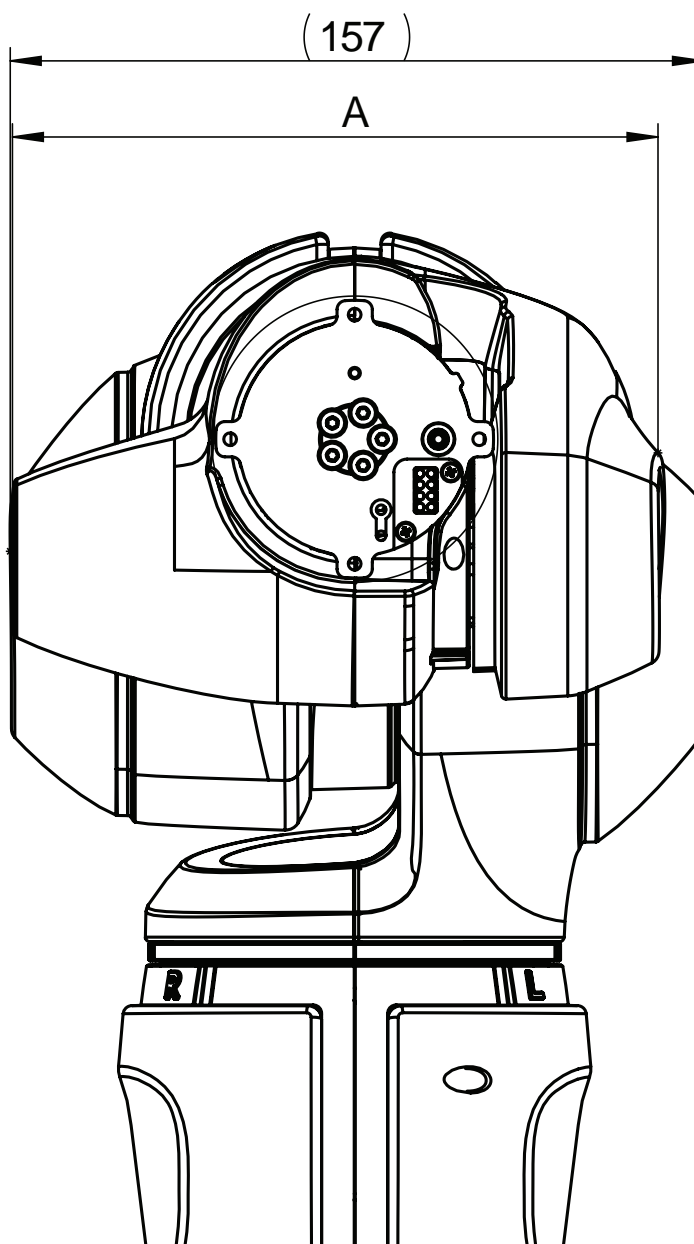
*Continues on next page*

## 2 Robot description

### 2.1 Robot type description

Continued

#### Robot dimension



xx1900001958

	IRB 14050 (no-type-specified)	IRB 14050 Type A
A	137 mm	146 mm





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