

# Product manual, spare parts IRB 6650S

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## **Product manual, spare parts**

**IRB 6650S - 200/3.0**

**IRB 6650S - 125/3.5**

**IRB 6650S - 90/3.9**

**M2000**

**Document ID: 3HAC049111-001**

**Revision: D**

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# Overview of this manual

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## About this manual

This manual contains spare parts for:

- IRB 6650S and all its variants.

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## Usage

This manual shall be used as a complement to the product manual for IRB 6650S during:

- maintenance work
- repair work.

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## Who should read this manual?

This manual is intended for:

- maintenance personnel
- repair personnel.

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## Prerequisites

Maintenance/repair/installation personnel working with an ABB Robot must:

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

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## Organization of chapters

The manual is organized in the following chapters:

Chapter	Contents
1 Spare parts and exploded views	Complete spare part lists and spare parts shown in exploded views.

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## References

Reference	Document ID
<i>Product manual - IRB 6650S</i>	<i>3HAC020993-001</i>
<i>Circuit diagram - IRB 6650S</i>	<i>3HAC13347-1</i> <i>3HAC025744-001</i>

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## Revisions

Revision	Description
-	First edition
A	This revision includes following corrected, added or deleted spare part numbers: <ul style="list-style-type: none"><li>• Spare parts with color Graphite White are added to the spare part lists.</li></ul>

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Revision	Description
B	<p>This revision includes following corrected, added or deleted spare part numbers:</p> <ul style="list-style-type: none"><li>• The complete manual has been restructured. All article numbers not considered spare parts are removed from the manual.</li><li>• Spare parts for Axis Calibration added to the spare part lists.</li><li>• Following spare part numbers are updated:<ul style="list-style-type: none"><li>- axis 3-4</li><li>- axis-2 gearbox</li><li>- axis-4 motor</li><li>- serial measurement unit</li><li>- battery box cover</li><li>- axis-6 motor</li><li>- axis-6 motor gasket</li><li>- axis-6 gearbox</li><li>- turning disc</li></ul></li></ul>
C	<p>This revision includes following corrected, added or deleted spare part numbers:</p> <ul style="list-style-type: none"><li>• Retaining ring, shaft and protection washer (lower arm shaft) deleted.</li></ul>
D	<p>Published in release R16.2. The following updates are done in this revision:</p> <ul style="list-style-type: none"><li>• Added painted base as spare part.</li><li>• Added spare part number for protection cover and plug set (Axis Calibration).</li><li>• Updated spare parts due to sealing upgrade in the motors:<ul style="list-style-type: none"><li>- Motors</li><li>- Axis 3-4</li><li>- Wrist</li></ul></li></ul>



# Product documentation, IRC5

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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 listed can be ordered from ABB on a DVD. The documents listed are valid for IRC5 robot systems.

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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 exploded views (or references to separate spare parts lists).
- Circuit diagrams (or references to circuit diagrams).

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## Technical reference manuals

The technical reference manuals describe reference information for robotics products.

- *Technical reference manual - Lubrication in gearboxes*: Description of types and volumes of lubrication for the manipulator gearboxes.
- *Technical reference manual - RAPID overview*: An overview of the RAPID programming language.
- *Technical reference manual - RAPID Instructions, Functions and Data types*: Description and syntax for all RAPID instructions, functions, and data types.
- *Technical reference manual - RAPID kernel*: A formal description of the RAPID programming language.
- *Technical reference manual - System parameters*: Description of system parameters and configuration workflows.

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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, DVD with PC 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 trouble shooters.

The group of manuals includes (among others):

- *Operating manual - Emergency safety information*
- *Operating manual - General safety information*
- *Operating manual - Getting started, IRC5 and RobotStudio*
- *Operating manual - IRC5 Integrator's guide*
- *Operating manual - IRC5 with FlexPendant*
- *Operating manual - RobotStudio*
- *Operating manual - Trouble shooting IRC5*

# 1 Spare parts

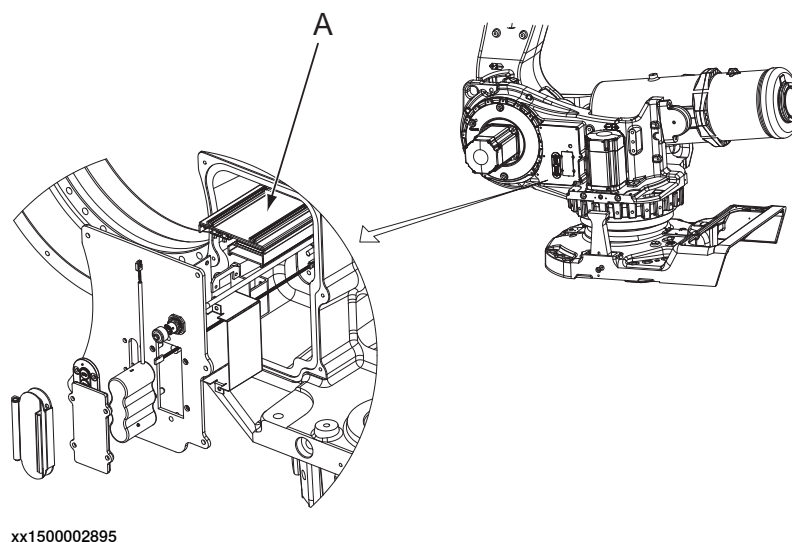
## 1.1 Spare parts - Electrical parts

### Manipulator harness

Spare part list - manipulator harness

Spare part number	Description	200/3.0	125/3.5	90/3.9
3HAC033389-001	Manipulator harness axes 1-4	X	X	X
3HAC14139-1	Manipulator harness axis 5	X	X	X
3HAC14140-1	Manipulator harness axes 5-6	X	X	-
3HAC038800-001	Manipulator harness axes 1-6	X	X	X

### SMB unit



Spare part list - SMB

	Spare part number	Description
N	3HAC031851-001	Serial measurement unit DSQC633A
	3HAC046277-001	Serial measurement unit Contains serial measurement board 3HAC044168-001 and battery pack 3HAC044075-001.

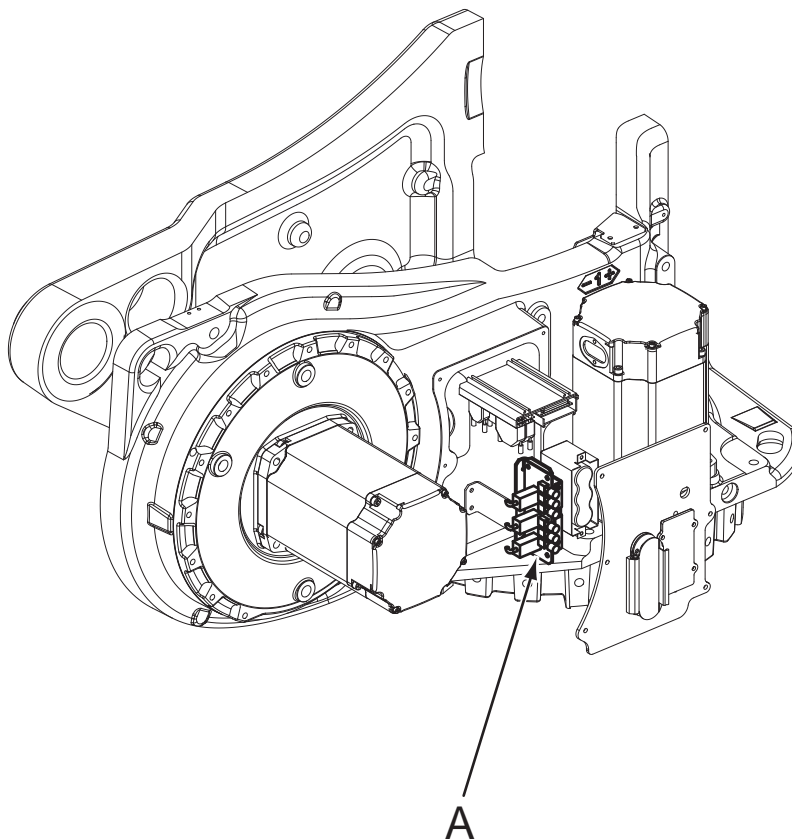
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# 1 Spare parts

## 1.1 Spare parts - Electrical parts

*Continued*

### Brake release unit



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#### Spare part list - brake release unit

	Spare part number	Description
A	3HAC16035-1	Brake release unit with buttons DSQC 563

### Other parts

#### Spare part list - other parts manipulator harness

	Description	Spare part number	Color
-	Protection cover for connector R1.MP	3HAC13416-1	-
-	Push button guard	3HAC6499-1	-
-	Cover battery box	3HAC14791-4	-
-	Cover SMB and BRU	3HAC021228-005	ABB Orange
		3HAC021228-006	Graphite White
-	Battery pack (2-pole battery contact) Can only be used with SMB unit 3HAC16014-1.	3HAC16831-1	

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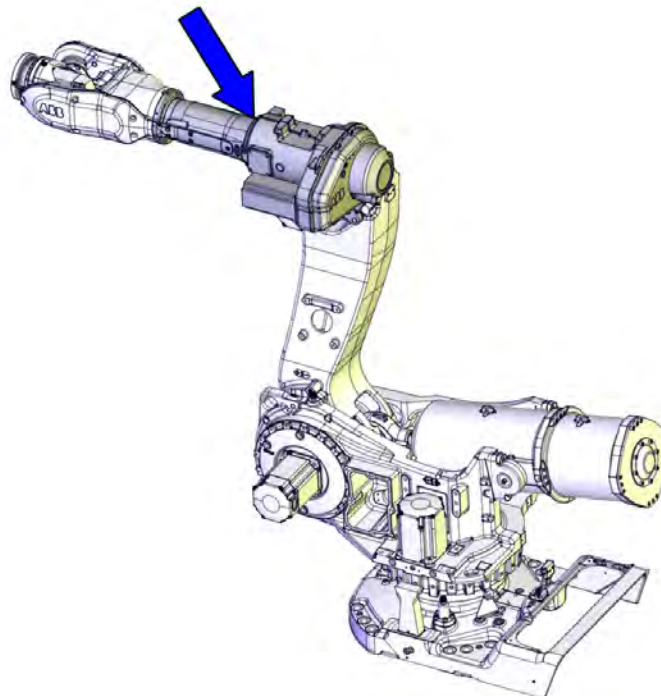
	Description	Spare part number	Color
-	Battery pack (3-pole battery contact) Can only be used with SMB unit 3HAC022286-001.	3HAC044075-001	-
-	Battery holder Required for installation of battery pack 3HAC044075-001.	3HAC046520-001	-
-	Battery holder	3HAC020105-001	-
-	Cable battery/SMB Used with battery pack 3HAC16831-1.	3HAC13151-1	
-	Cable battery/SMB Used with battery pack RMU 3HAC044075-001.	3HAC046287-001	-

# 1 Spare parts

## 1.2 Spare parts - Axis 3-4

### 1.2 Spare parts - Axis 3-4

#### Axis 3-4



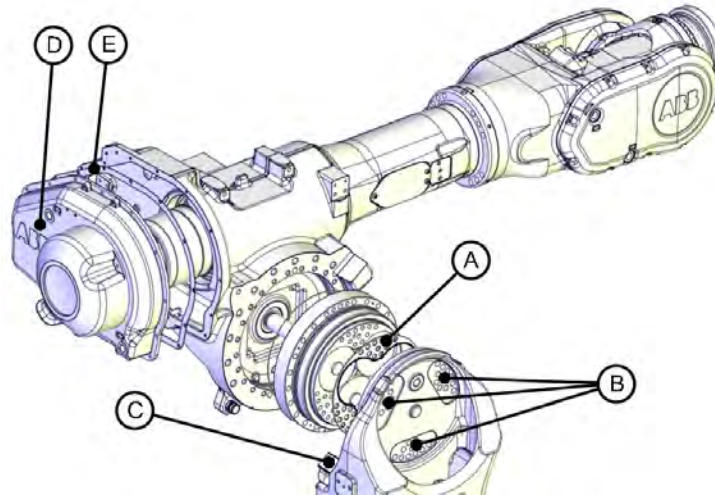
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#### Spare part list - axis 3-4

Description	Spare part number	Protection type	Color
Axis 3-4	3HAC050459-010	Standard/Foundry	ABB Orange
	3HAC050459-011	Standard/Foundry	Graphite White
Axis 3-4 LeanID	3HAC056274-003	Standard/Foundry	ABB Orange
	3HAC056274-002	Standard/Foundry	Graphite White

*Continues on next page*

### Other parts



xx1500002901

### Spare part list - axis 3-4 other parts

	Description	Spare part number	Color	Note
A	Sealing, axis 2/3	3HAC17212-1		
B	Washer, axis 3	3HAC038648-002	ABB Orange	3 pcs
		3HAC038648-003	Graphite White	3 pcs
C	Mechanical stop axis 3	3HAC12708-1		
D	Axis-4 cover with sealing	3HAC049789-001	Graphite White	
E	Sealing	3HAA1001-628		
-	Axis-4 wheel unit	3HAC037677-001		
-	Wedge	3HAA1001-99		
-	Axis-4 damper	3HAC13564-1		
-	Magnetic plug, axis-4 gearbox	3HAC16721-1		

# 1 Spare parts

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## 1.3 Spare parts - Arm extender

### 1.3 Spare parts - Arm extender

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#### Arm extender

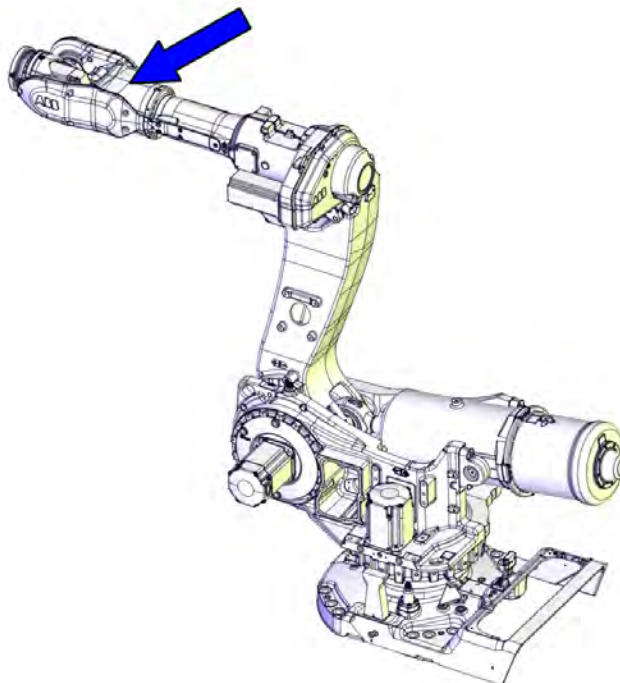
##### Spare part list - arm extender

Description	Spare part number	Protection type	Color
Arm extender 450 mm	3HAC038666-003	Standard/Foundry	ABB Orange
	3HAC050495-001	Standard/Foundry	Graphite White



## 1.4 Spare parts - Wrist

### Wrist

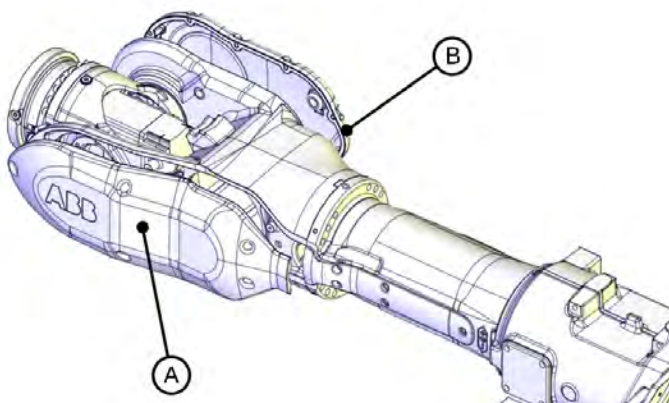


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### Spare part list - wrist

Description	Spare part number	Protection type	Color
Wrist, type 2	3HAC055547-003	Standard/Foundry	ABB Orange
	3HAC055547-004	Standard/Foundry	Graphite White
Wrist, type 2, insulated	3HAC058947-004	Standard/Foundry	ABB Orange

### Other parts



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*Continues on next page*

# 1 Spare parts

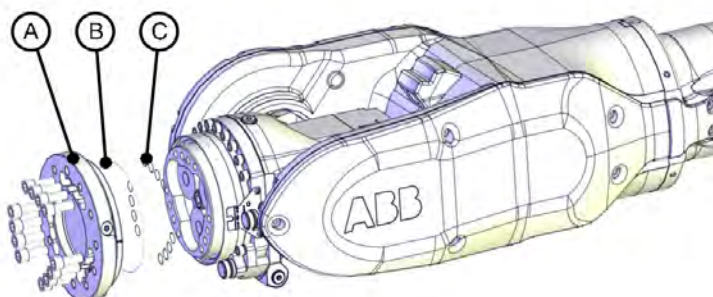
## 1.4 Spare parts - Wrist

Continued

### Spare part list - wrist other parts

	Description	Spare part number	Protection type	Color
A	Cable cover	3HAC022172-003	Standard/Foundry Plus	ABB Orange
		3HAC022172-006	Standard/Foundry Plus	Graphite White
B	Cover with gasket	3HAC08081-8		
-	Magnetic plug, axis-5 gear-box	3HAC16721-1		

### Turning disc



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### Spare part list - turning disc


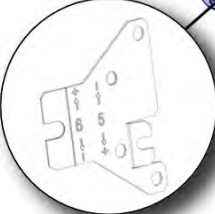
	Description	Spare part number	
A	Turning disc, diameter 200	3HAC055229-002 <sup>i</sup>	
B	O-ring	3HAB3772-64	1 pc
C	O-ring	3HAB3772-61	12 pcs

<sup>i</sup> A set with an axis-6 synchronization mark plate is enclosed and replaces an incompatible plate, if currently installed.

The two versions of the synchronization mark plate are shown in [Axis-6 synchronization mark plate on page 19](#).

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### Axis-6 synchronization mark plate

Description	Spare part number	Image
Synchronization mark plate axis-6 <sup>i</sup>	3HAC025581-001	 xx1500002960
Synchronization mark plate axis-6 <sup>ii</sup>	3HAC055074-001	 xx1500002959

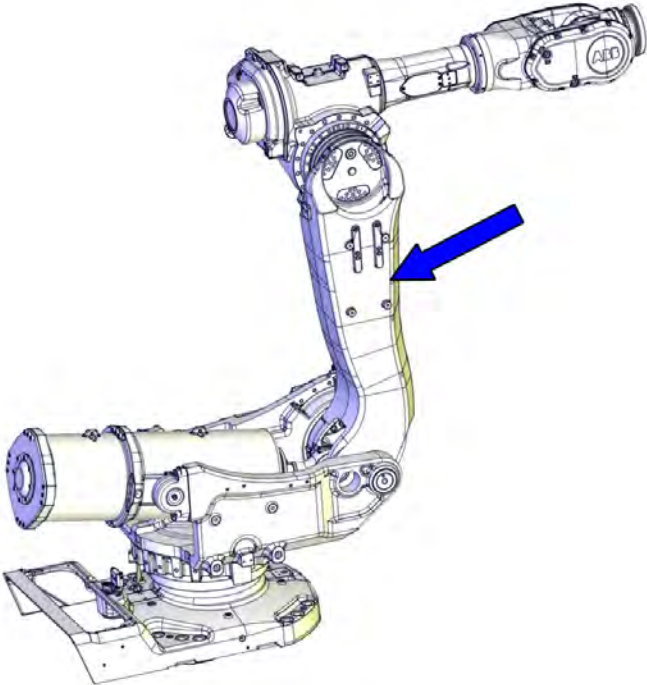
- <sup>i</sup> Compatible with turning disc 3HAC13572-1. (The spare part number is obsolete.)  
<sup>ii</sup> Compatible with turning disc 3HAC055229-002.

# 1 Spare parts

## 1.5 Spare parts - Lower arm

### 1.5 Spare parts - Lower arm

#### Lower arm

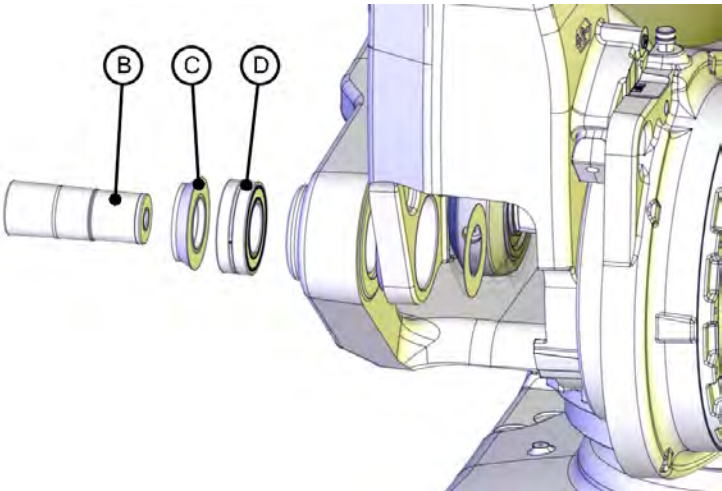


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#### Spare part list - lower arm

Description	Spare part number	Protection type	Color
Lower arm type A	3HAC051909-001	Standard/Foundry	ABB Orange
Lower arm type B	3HAC020505-007	Standard/Foundry	ABB Orange
	3HAC020505-008	Standard/Foundry	Graphite White

#### Lower arm - other parts (protection type Standard)



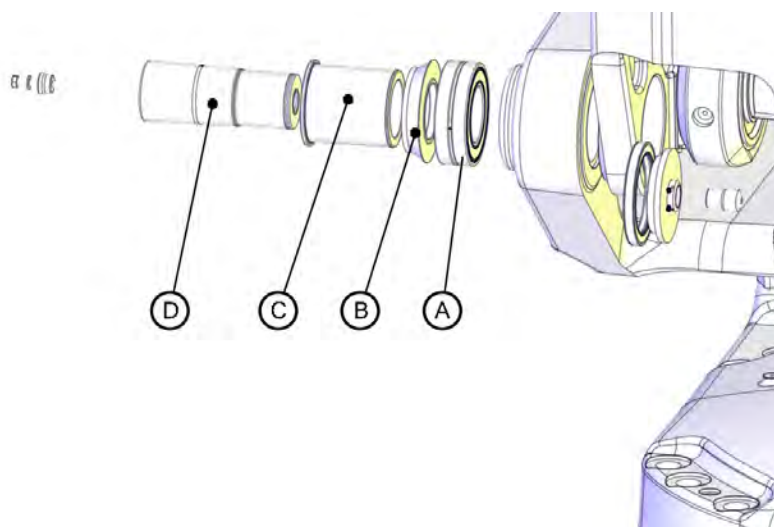
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### Spare part list - lower arm other parts

	Description	Spare part number	Protection type
-	Protection plug	3HAC4836-7	Standard
B	Lower arm shaft (axis-2 shaft)	3HAC12480-1	Standard
C	Thrust washer	3HAC12481-1	Standard
D	Spherical roller bearing	3HAC12441-2	Standard
-	Sealing, axis 2/3	3HAC020123-001	Standard

### Lower arm - other parts (protection type Foundry Plus)



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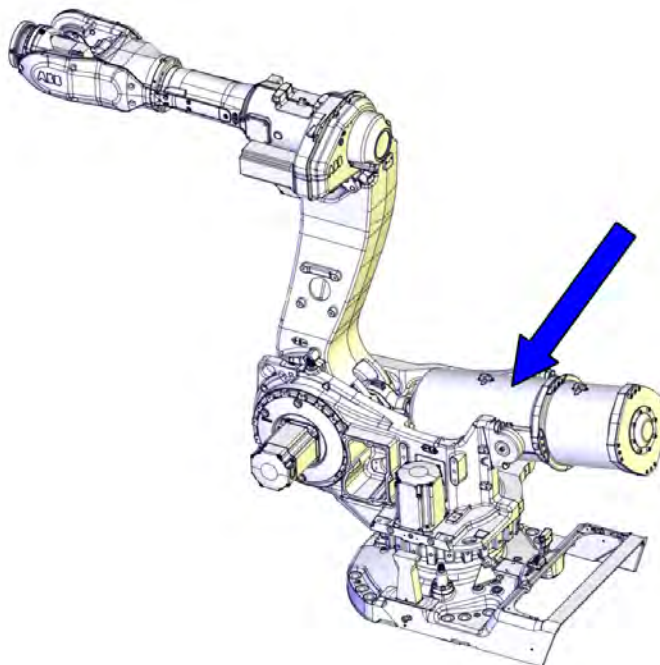
	Description	Spare part number	Protection type
A	Spherical roller bearing	3HAC12441-2	
B	Thrust washer	3HAC12481-1	
C	Bushing	3HAC12627-1	Foundry Plus
D	Lower arm shaft (axis-2 shaft)	3HAC12480-1	

## 1 Spare parts

### 1.6 Spare parts - Balancing device

### 1.6 Spare parts - Balancing device

#### Balancing device



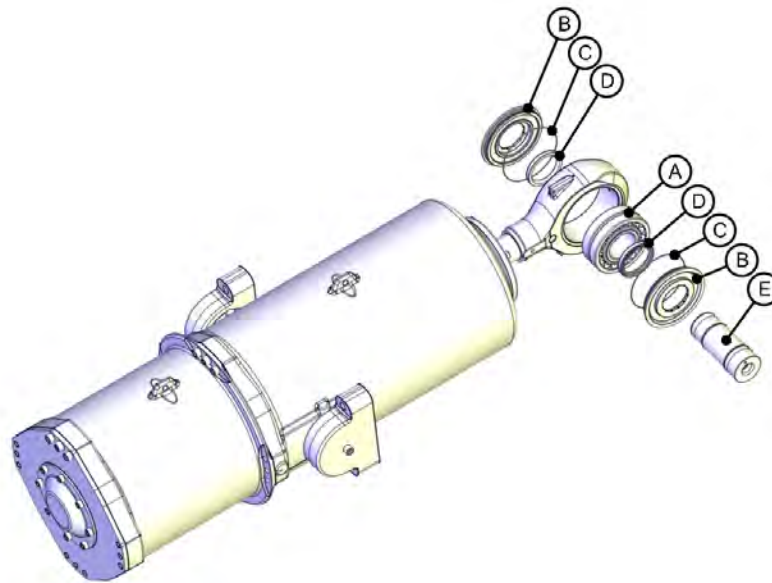
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#### Spare part list - balancing device

Description	Spare part number	Color	Note
Balancing device	3HAC021031-002	ABB Orange	
	3HAC021031-003	Graphite White	

*Continues on next page*

### Other parts



xx1500002900

### Spare part list - balancing device other parts

	Description	Spare part number	Note
A	Spherical roller bearing	3HAA2167-17	At front ear of the balancing device.
B	Sealing spacer	3HAC12988-1	2 pcs. At front ear of the balancing device.
C	O-ring	3HAB3772-76	2 pcs. At front ear of the balancing device.
D	Sealing ring	3HAC11581-6	2 pcs. At front ear of the balancing device.
E	Shaft, balancing device	3HAC11427-1	

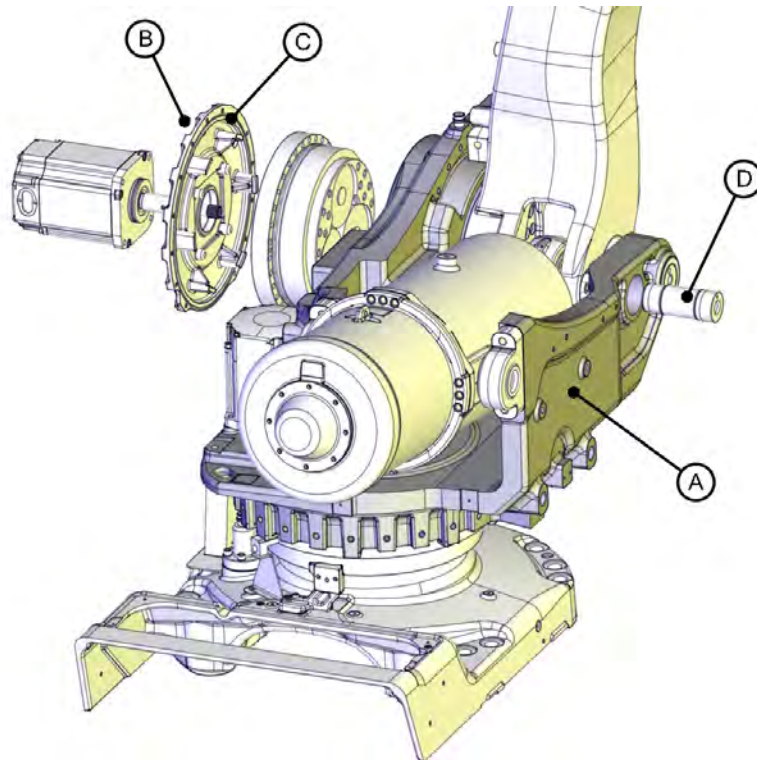


# 1 Spare parts

## 1.7 Spare parts - Frame and base

### 1.7 Spare parts - Frame and base

#### Frame



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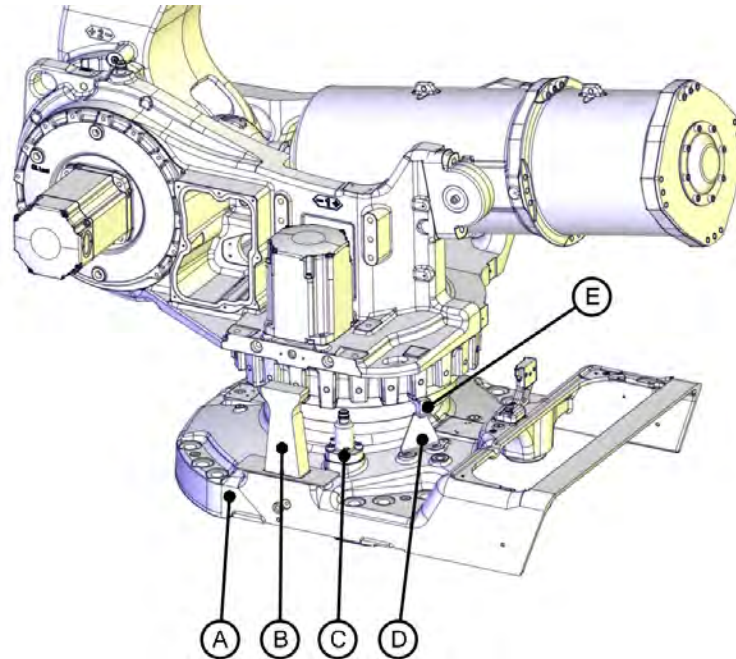
#### Spare part list - frame

	Description	Spare part number	Color
A	Frame	3HAC055429-003	ABB Orange
		3HAC055429-004	Graphite White
B	O-ring, type A	3HAB3772-69	-
	O-ring, type B	3HAB3772-73	-
C	Axis-2 cover	3HAC022812-005	ABB Orange
		3HAC022812-006	Graphite White
D	Shaft, balancing device	3HAC11427-1	

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### Base



xx1500002952

	Description	Spare part number	Color
A	Base	3HAC058104-001	Graphite White
		3HAC058104-002	ABB Orange
B	Mechanical stop, axis 1	3HAC12812-2	
C	Calibration stand	3HAC053515-002	Graphite White
		3HAC053515-003	ABB Orange
D	Synchronization plate	3HAC021287-001	
E	Block for calibration	3HAC053973-001	

## 1 Spare parts

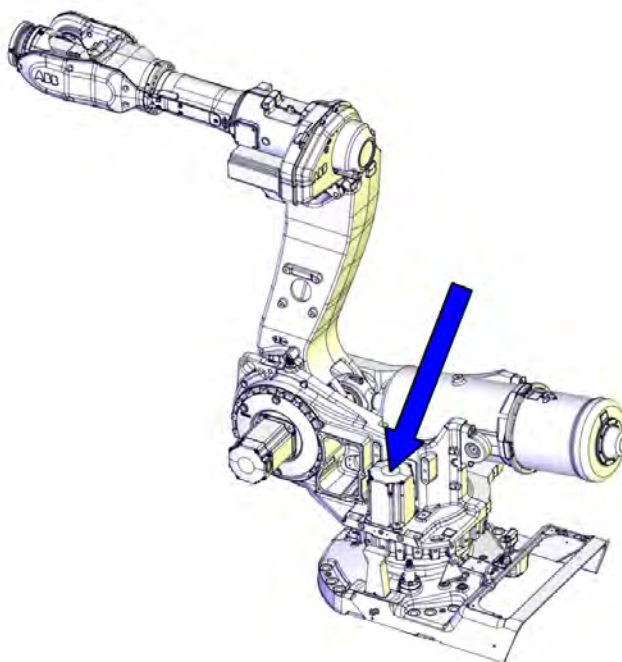
### 1.8.1 Motor axis 1

## 1.8 Spare parts - Motors

### 1.8.1 Motor axis 1

#### Axis-1 motor (including pinion)

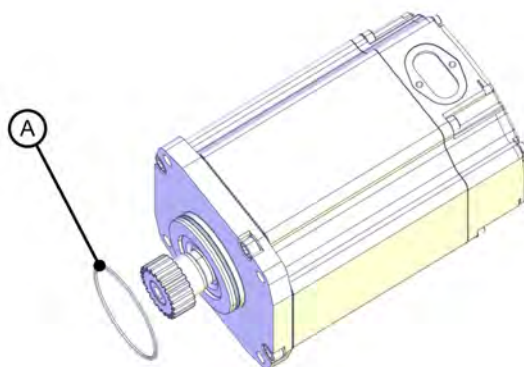
The spare part motor includes: pinion, connection box, cover and o-rings.



xx1500002885

Description	Spare part number	Protection type	Color
Motor axis 1	3HAC057550-003	Foundry	ABB Orange
	3HAC057550-004	Foundry	Graphite White
	3HAC057550-005	Foundry Prime	Grey

#### Axis-1 motor - other parts



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## 1 Spare parts

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### 1.8.1 Motor axis 1

*Continued*

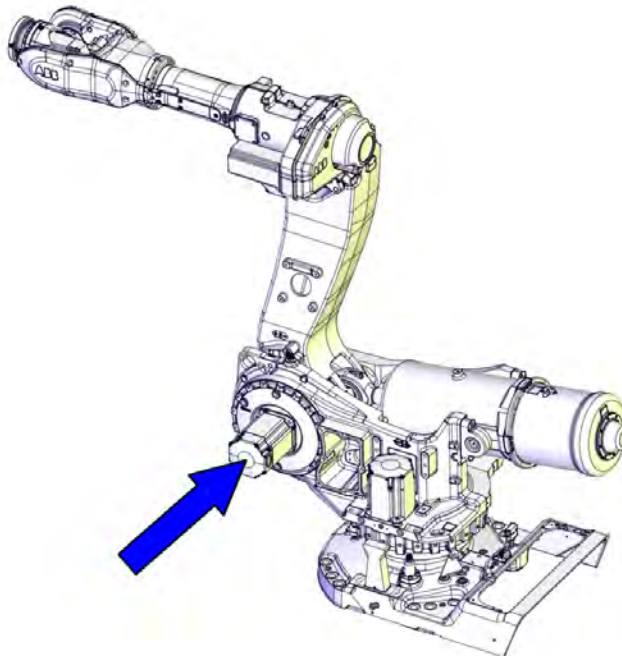
	Description	Spare part number
A	O-ring	21522012-430

## 1 Spare parts

### 1.8.2 Motor axis 2

### 1.8.2 Motor axis 2

#### Axis-2 motor (including pinion)



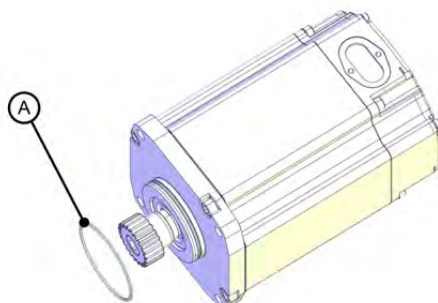
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#### Spare part list - axis-2 motor

The spare part motor includes: pinion, connection box, cover and o-rings.

Description	Spare part number	Protection type	Color
Motor axis 2	3HAC057551-003	Standard/Foundry	ABB Orange
	3HAC057551-004	Standard/Foundry	Graphite White
	3HAC057551-005	Foundry Prime	Grey

#### Axis-2 motor - other parts



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**Spare part list - other parts axis-2 motor**

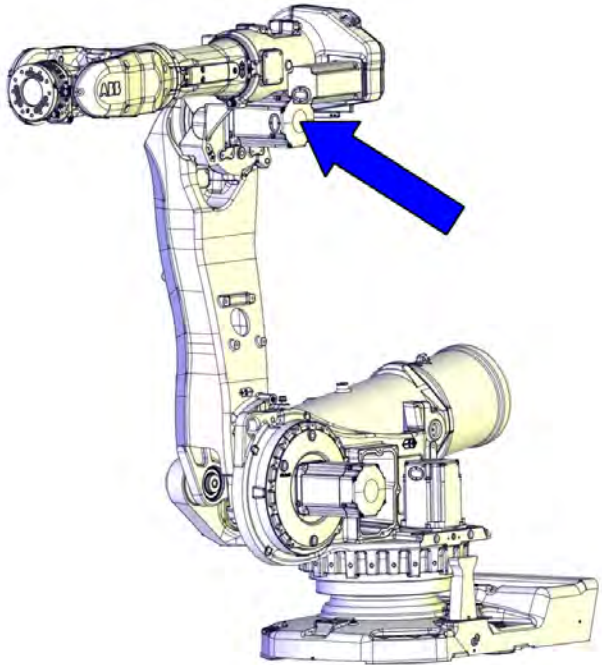
	Description	Spare part number
A	O-ring	21522012-430

1 Spare parts

1.8.3 Motor axis 3

1.8.3 Motor axis 3

Axis-3 motor (including pinion)



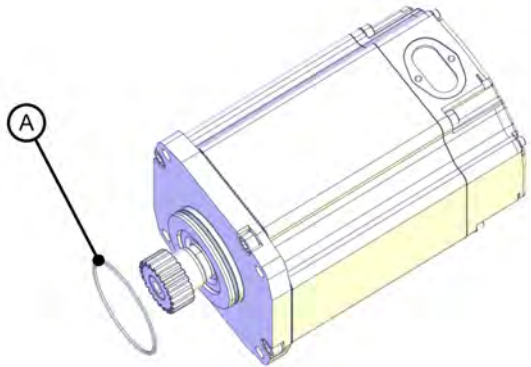
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Spare part list - axis-3 motor

The spare part motor includes: pinion, connection box, cover and o-rings.

Description	Spare part number	Protection type	Color
Motor axis 3	3HAC057546-003	Standard/Foundry	ABB Orange
	3HAC057546-004	Standard/Foundry	Graphite White
	3HAC058883-002	Foundry Prime	Grey

Axis-3 motor - other parts



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**Spare part list - other parts axis-3 motor**

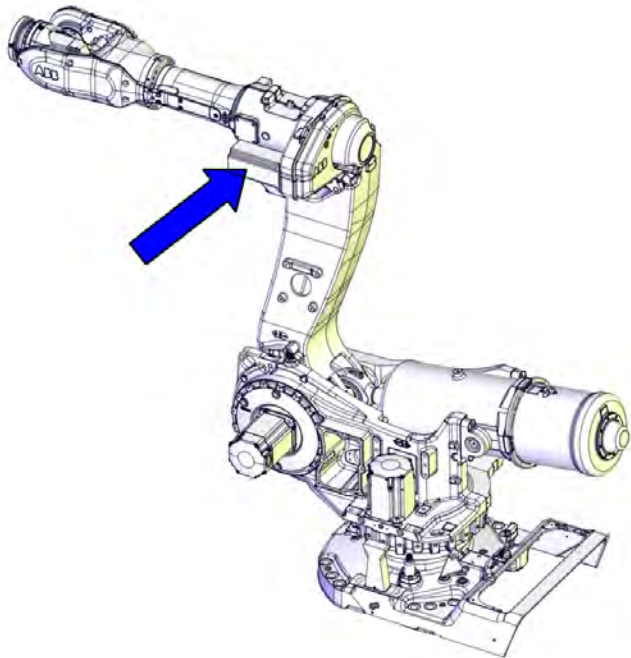
	Description	Spare part number
A	O-ring	21522012-430

1 Spare parts

1.8.4 Motor axis 4

1.8.4 Motor axis 4

Axis-4 motor (including pinion)



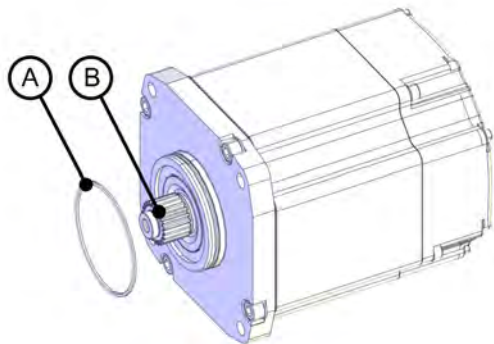
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Spare part list - axis-4 motor

The spare part motor includes: pinion, connection box, cover and o-rings.

Description	Spare part number	Protection type	Color
Motor axis 4	3HAC057547-003	Standard	ABB Orange
	3HAC057547-004	Standard	Graphite White
	3HAC058885-002	Foundry Prime	Grey

Axis-4 motor - other parts



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	Description	Spare part number
A	O-ring	21522012-430

## 1 Spare parts

### 1.8.5 Motor axis 5

### 1.8.5 Motor axis 5

#### Axis-5 motor (including pinion)

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

The spare part motor includes: connection box, cover and o-rings.

Description	Spare part number	Protection	Note
Motor axis 5	3HAC057288-002	Standard/Foundry	The pinion in the axis-5 motor is matched with the bevel gear for axis 5. When replacing the motor the pinion must therefore be removed from the dismantled motor and fitted onto the new motor shaft as detailed in <i>Product manual - IRB 6650S</i> .
	3HAC058886-002	Foundry Prime	

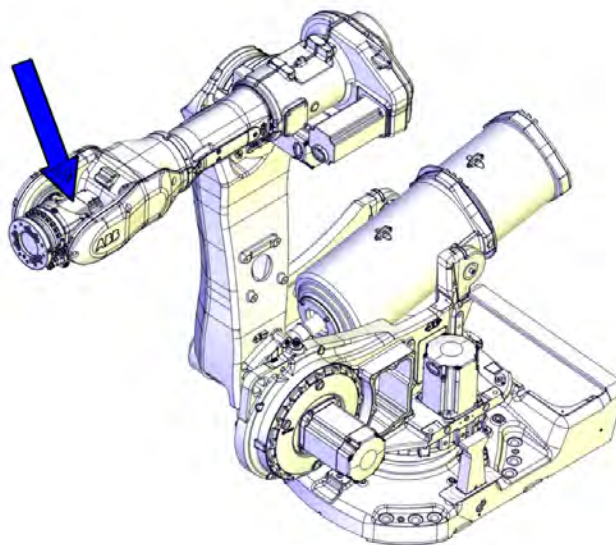
#### Axis-5 motor - other parts

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

Description	Spare part number
O-ring	21522012-430
Set of shim, motor	3HAC7941-28

## 1.8.6 Motor axis 6

### Axis-6 motor (including pinion)



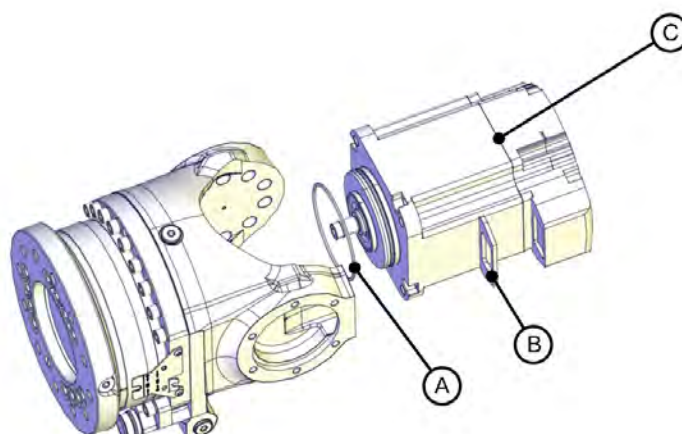
xx1500002953

### Spare part list - axis-6 motor

The spare part motor includes: pinion, connection box, cover and o-rings.

Description	Spare part number	Protection type	Color
Motor axis 6	3HAC057549-003	Standard/Foundry	ABB Orange
	3HAC057549-004	Standard/Foundry	Graphite White
	3HAC058887-002	Foundry Prime	Grey

### Axis-6 motor - other parts



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## 1 Spare parts

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### 1.8.6 Motor axis 6

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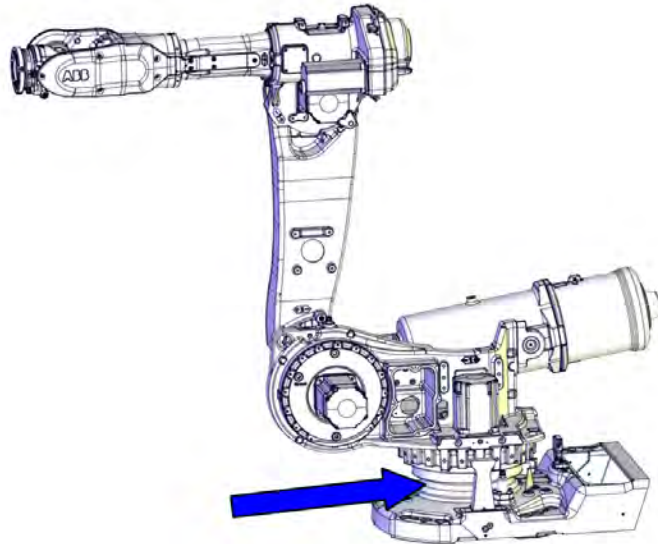
#### Spare part list - axis-6 motor other parts

	Description	Spare part number
A	O-ring	21522012-430
B	Gasket	3HAC048560-001
C	Gasket, cover	3HAC033489-001

### 1.9 Spare parts - Gearboxes

#### 1.9.1 Gearbox axis 1

##### Axis-1 gearbox



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Description	Spare part number	Protection type	Color
Gear axis 1	3HAC037638-002	Standard/Foundry	ABB Orange
	3HAC037638-005	Standard/Foundry	Graphite White

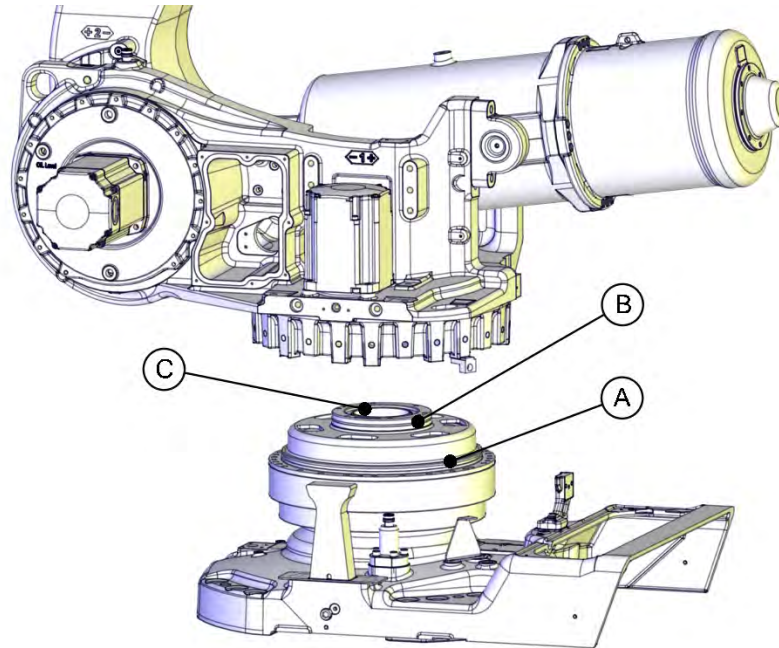
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## 1 Spare parts

### 1.9.1 Gearbox axis 1

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#### Axis-1 gearbox - other parts

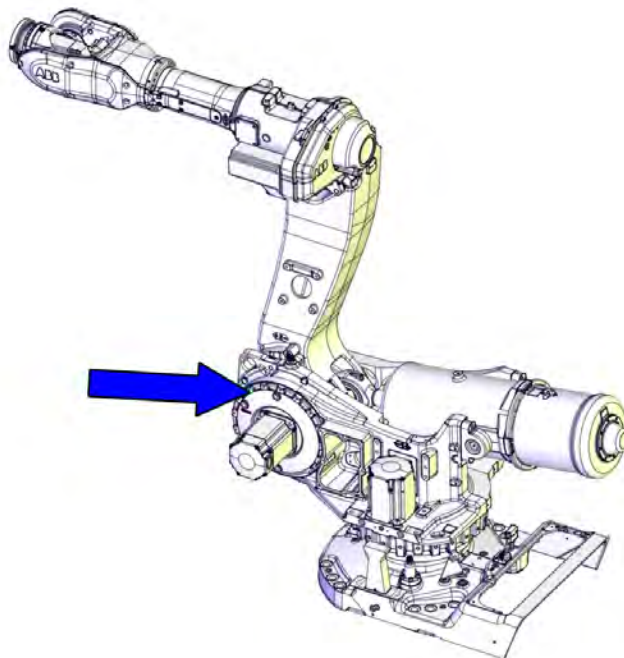


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	Description	Spare part number
A	O-ring	3HAB3772-54
B	O-ring	3HAB3772-55
C	Sealing ring	3HAC11581-4

## 1.9.2 Gearbox axis 2

### Axis-2 gearbox



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Description	Spare part number	Protection type	Color
Gear axis 2	3HAC021541-002	Standard/Foundry	ABB Orange
	3HAC021541-003	Foundry Prime	Grey

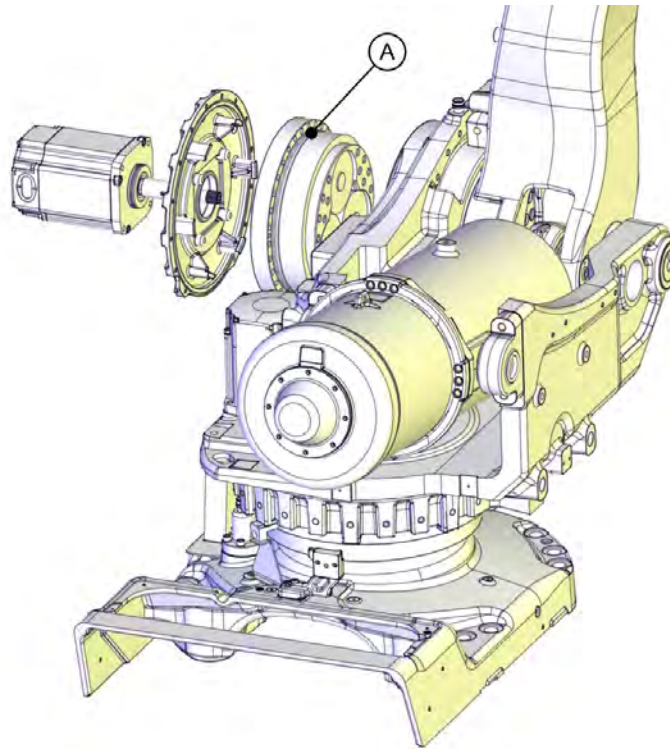
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## 1 Spare parts

### 1.9.2 Gearbox axis 2

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#### Axis-2 gearbox - other parts



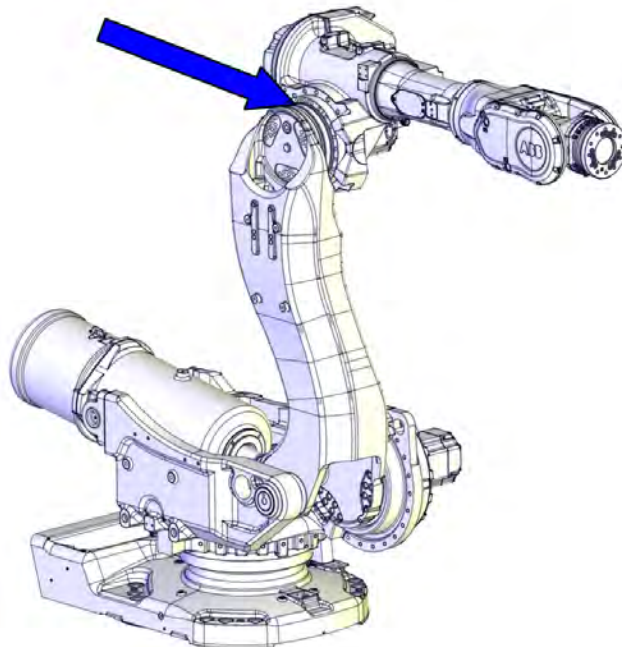
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	Description	Spare part number
A	O-ring	3HAB3772-77
-	Magnetic plug, axis-2 gearbox	3HAC16721-1



### 1.9.3 Gearbox axis 3

#### Axis-3 gearbox



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#### Spare part list - axis-3 gearbox

Description	Spare part number	Protection type	Color
Gear axis 3	3HAC021127-004	Standard/Foundry	ABB Orange
	3HAC021127-010	Standard/Foundry	Graphite White
	3HAC021127-003	Foundry Prime	Grey

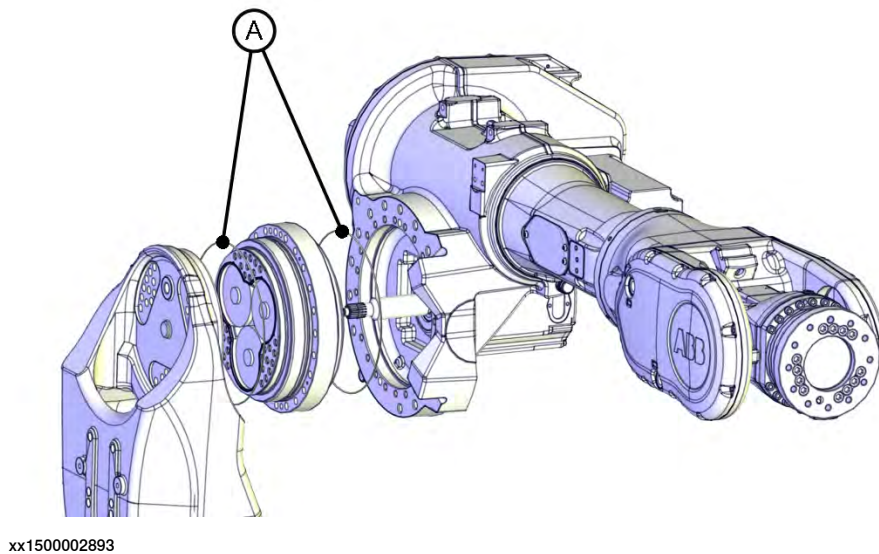
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## 1 Spare parts

### 1.9.3 Gearbox axis 3

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#### Axis-3 gearbox - other parts

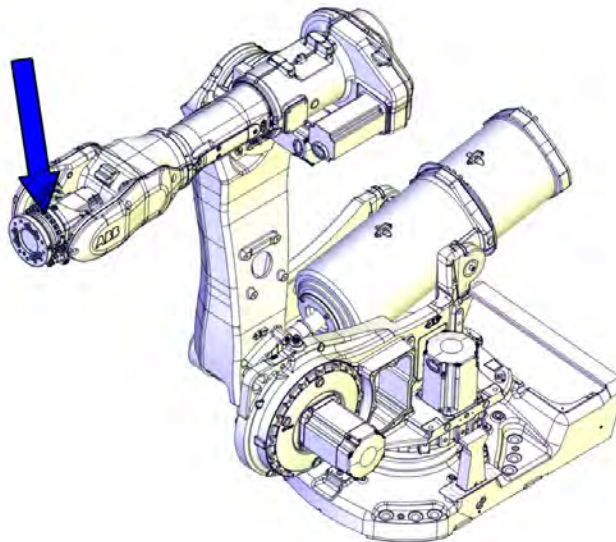


#### Spare part list - other parts axis-3 gearbox

	Description	Spare part number
A	O-ring	3HAB3772-68
-	Magnetic plug, axis-3 gearbox	3HAC16721-1

## 1.9.4 Gearbox axis 6

### Axis-6 gearbox

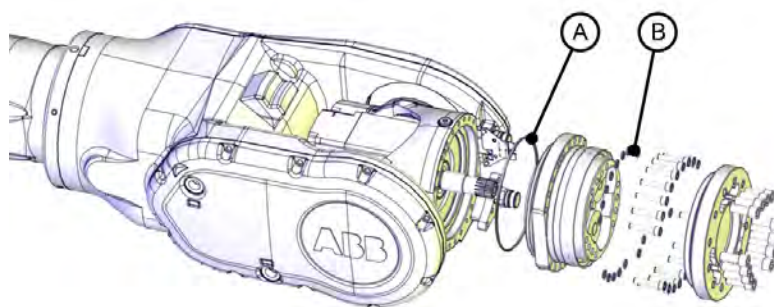


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### Spare part list - axis-6 gearbox

Description	Spare part number	Protection type	
Gear axis 6	3HAC037635-002	Standard/Foundry	ABB Orange

### Axis-6 gearbox - other parts



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### Spare part list - axis-6 gearbox other parts

	Description	Spare part number	Note
A	O-ring	3HAB3772-57	
B	Washer	3HAA1001-172	18 pcs

## 1 Spare parts

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### 1.10 Spare parts - Calibration items

#### 1.10 Spare parts - Calibration items

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##### Calibration items

Spare part number	Description	Note
3HAC056806-001	Protection cover and plug set	Contains replacement calibration pin covers and protective plugs for the bushing.

**1.11 Spare parts - Options**

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**Options**

Spare part number	Description
3HAC035933-001	Foundry Plus, Cable guard
3HAC045972-001	Upgrade kit Foundry Prime sealing
3HAC045972-002	Upgrade kit Foundry Prime sealing for arm extension

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