



Product manual, spare parts IRBT 4004/6004/7004

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Product manual, spare parts

IRBT 4004

IRBT 6004

IRBT 7004

IRC5

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Original instructions.

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Overview of this manual

About this manual

This manual contains spare parts for:

- IRBT 4004/6004/7004

Usage

This manual shall be used as a complement to the Product manual during:

- maintenance work
- repair work.

Who should read this manual?

This manual is intended for:

- maintenance personnel
- repair personnel.

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.

References

Reference	Document ID
<i>Product manual - IRBT 4004/6004/7004</i>	3HAC028506-001
<i>Circuit diagram - IRBT IRB 6600/7600</i>	3HEA803013-001
<i>Circuit diagram - IRBT IRB 4400/4400F</i>	3HEA803014-001
<i>Circuit diagram - IRBT IRB 4600</i>	3HAC033657-001

Revisions

Revision	Description
-	<p>This is the first edition of the Spare part manual for IRBT 4004/6004/7004. The spare parts has historically been presented in the Product manual, but is now separated into this Spare part manual.</p> <p>Changes made in this manual, in regard to the previous Spare part chapter in the Product manual:</p> <ul style="list-style-type: none">• Part number for cable chain part is corrected and plug is added to the spare part list and figure, see Cable chain Brevetti on page 23.• Flexible cables for position switches on IRB 6640 are added to the table, see IRB Position switch cables, flexible on page 36.• Part number for grease pump is corrected, see Lubrication system, central, including control unit for grease pump on page 33.• Part number for gearbox is added see Drive unit on page 11.
A	<p>Changes made in this revision:</p> <ul style="list-style-type: none">• Added runner block and guide rails from INA, see Runner block on page 13.

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Revision	Description
B	Changes made in this revision: <ul style="list-style-type: none">• Part number for printed circuit board is added, see Lubrication system, central, including control unit for grease pump on page 33.• Added new motor (type A) in spare part list, see Drive unit on page 11.
C	Changes made in this revision: <ul style="list-style-type: none">• Added a note about re-labeling and keying ordered signal cables, see IRBT Signal cables on page 39.• Added lubrication system local adaption, see Lubrication system, local adaption, including oil brush on page 31.• Added lubrication system central, see Lubrication system, central, including control unit for grease pump on page 33.• Added separate gearbox as spare part, see Drive unit on page 11.• Added cable chain Murrplastik as spare part, see Cable chain Murrplastik on page 25 and Cable tray for cable chain Murrplastik on page 29.
D	Changes made in this revision: <ul style="list-style-type: none">• Incorrect spare part number is deleted.• Spare part number for SMB unit is added.
E	Changes made in this revision: <ul style="list-style-type: none">• New spare part numbers added for TMA2B.• Spare parts with color Graphite White are added to the spare part lists.
F	Changes made in this revision: <ul style="list-style-type: none">• New spare part "Fuse" added for central lubrication.• cable tray spare part list changed for Murrplastic cable chain.• Spare parts updated generally due to information from after sales.
G	Published in release R16.2. The following updates are done in this revision: <ul style="list-style-type: none">• Added spare part numbers for hydraulic hoses.
H	Published in release R17.1. The following updates are made in this revision: <ul style="list-style-type: none">• Note about motor removed from section Drive unit.

Product documentation, IRC5

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.

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).

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.

Operating manuals

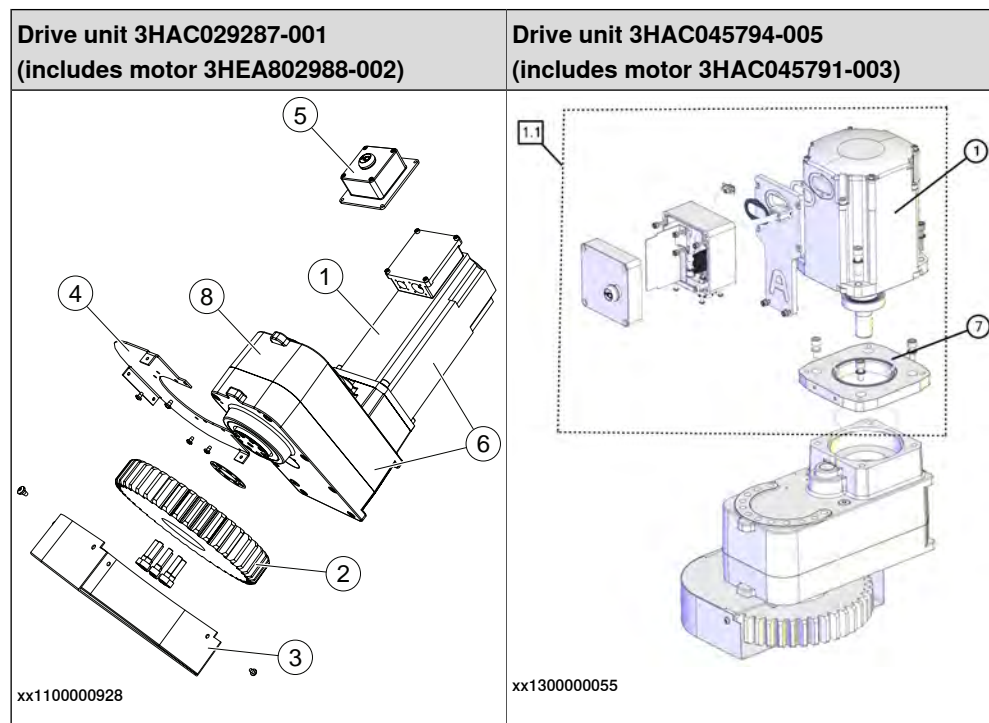
The operating manuals describe hands-on handling of the products. The manuals are aimed at those having first-hand operational contact with the product, that is production cell operators, programmers, and trouble shooters.

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 Drive unit

Illustration



Spare part list

Item	Qty	Part number	Description	Color	Dimension/Note
1	1	3HEA802988-002	AC motor TMA		Not Type A.
		3HAC045791-003	AC motor TMA2		Type A. i ii
		3HAC049857-002	AC motor TMA2B	Graphite White	
		3HAC049857-003	AC motor TMA2B	ABB Orange	
1.1		3HAC046327-001	AC motor TMA2 complete kit		Includes all necessary equipment required when replacing motor 3HEA802988-002 with motor 3HAC045791-003. i ii
-	1	3HAC046328-001	Adapter cable kit		Required when installing motor 3HAC045791-003 with power and signal cabling without bayonet fitting.
2	1	3HEA801668-001	Gear wheel IRBT 4004/6004/7004		
3	1	3HEA801942-001	Gear Wheel Protection, lower		

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1 Drive unit

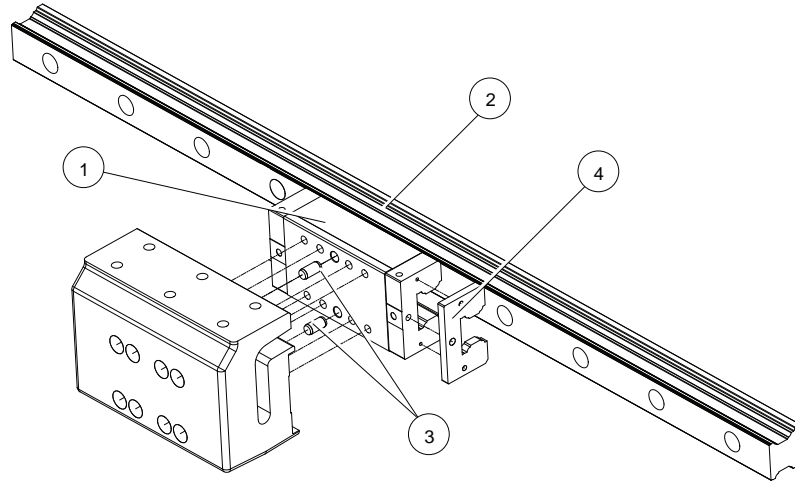
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Item	Qty	Part number	Description	Color	Dimension/Note
4	1	3HEA801942-001	Gear Wheel Protection, upper		
		3HEA801943-001	Gear Wheel Protection, upper		Mirrored
		3HAC051336-001	Gear Wheel Protection, upper	Graphite White	
		3HAC051336-002	Gear Wheel Protection, upper	ABB Orange	
		3HAC051337-001	Gear Wheel Protection, upper	Graphite White	Mirrored
		3HAC051337-002	Gear Wheel Protection, upper	ABB Orange	Mirrored
5	1	3HAC030110-001	BRB box for IRBT 4004/6004/7004		BRB Option
6	1	3HAC029287-001	Gearbox and motor TMA2		Includes motor 3HEA802988-002.
		3HAC045794-005	Gearbox and motor TMA2		Includes motor 3HAC045791-003.
		3HAC049849-004	Gearbox and motor TMA2B	Graphite White	Includes motor 3HAC049857-002.
		3HAC049849-005	Gearbox and motor TMA2B	ABB Orange	Includes motor 3HAC049857-003.
7	1	3HAB3772-107	O-ring		
8	1	3HAC029134-002	Gearbox TMA2		
		3HAC049856-004	Gearbox TMA2B	Graphite White	
		3HAC049856-005	Gearbox TMA2B	ABB Orange	

- i If using power and signal cabling without bayonet fitting the adapter cable kit 3HAC046328-001 must be installed.
- ii If changing motor from 3HEA802988-001 to Type A (3HAC045791-003) necessary software updates must be made, see *Product manual - IRBT 4004/6004/7004*. If the system contains an Optional Disk, please contact ABB.

2 Runner block

Illustration



Spare part list

The guide rails and the runner blocks from the two sub-suppliers, INA and Bosch-Rexroth, are not compatible with each other.

Order the correct spare part, in regard to what is installed on the track motion.
(Information available in Web Config via ABB.)

INA

Item	Quantity	Part number	Description	Dimension/Note
1	1	3HAC042192-001	Runner block (ball element) Size 45	
2		3HAC042178-003	Guide rail, Standard	Hole cc. 100 mm size 45 L=0.5 m
		3HAC042178-004	Guide rail, Foundry	Hole cc. 100 mm size 45 L=0.5 m
		3HAC042178-001	Guide rail, Standard	Hole cc. 100 mm size 45 L=1 m
		3HAC042178-002	Guide rail, Foundry	Hole cc. 100 mm size 45 L=1 m
3	2	9ABA107-56	Parallel pin	
4	-	Not used.	Not used.	

Bosch-Rexroth

Item	Quantity	Part number	Description	Dimension/Note
1	1	3HEA802931-001	Runner Block Size 45	Standard
		3HEA802959-001	Runner Block Size 45	Foundry

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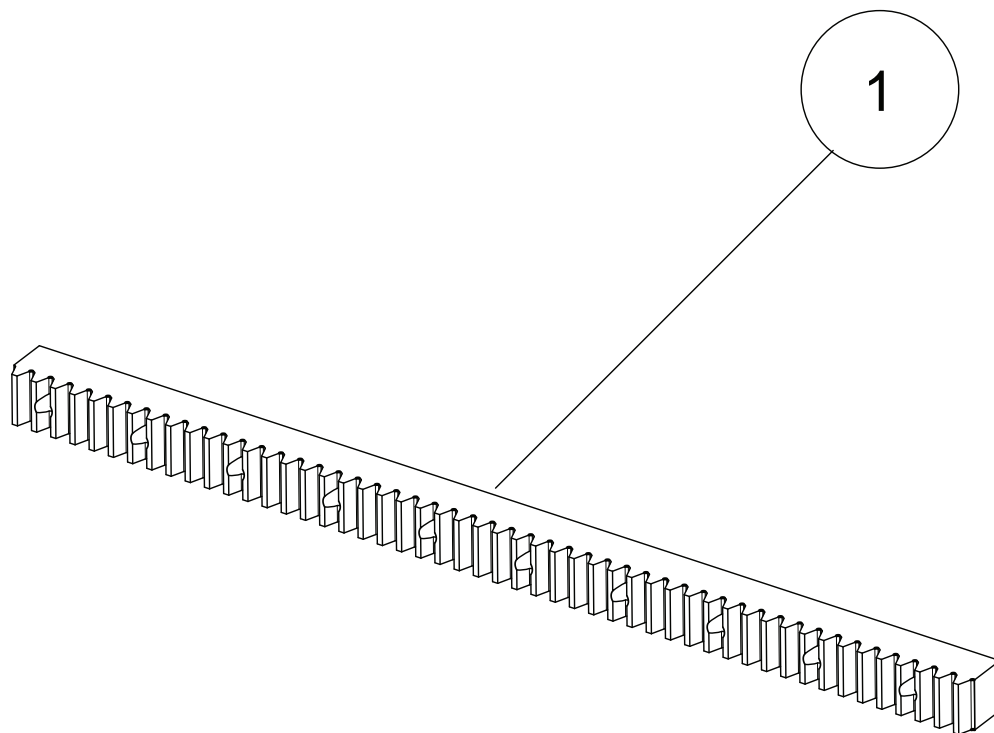
2 Runner block

Continued

Item	Quantity	Part number	Description	Dimension/Note
2		3HEA801632-001	Guide rail, Standard	Hole cc. 100 mm size 45 L=1 m
		3HEA801632-002	Guide rail, Standard	Hole cc. 100 mm size 45 L=1.5 m
		3HEA801632-003	Guide rail, Standard	Hole cc. 100 mm size 45 L=2 m
		3HEA801632-004	Guide rail, Foundry	Hole cc. 100 mm size 45 L=1 m
		3HEA801632-005	Guide rail, Foundry	Hole cc. 100 mm size 45 L=1.5 m
		3HEA801632-006	Guide rail, Foundry	Hole cc. 100 mm size 45 L=2 m
		3HAC031542-003	Guide rail, Standard	Hole cc. 105 mm size 45 L=0.5 m
		3HAC031542-001	Guide rail, Standard	Hole cc. 105 mm size 45 L=1 m
		3HAC031542-004	Guide rail, Foundry	Hole cc. 105 mm size 45 L=0.5 m
		3HAC031542-002	Guide rail, Foundry	Hole cc. 105 mm size 45 L=1 m
3	2	9ABA107-56	Parallel pin	
4	1	3HEA801658-001	Sealing	size 45, Viton (Foundry option), outside mounted only

3 Gear rack

Illustration



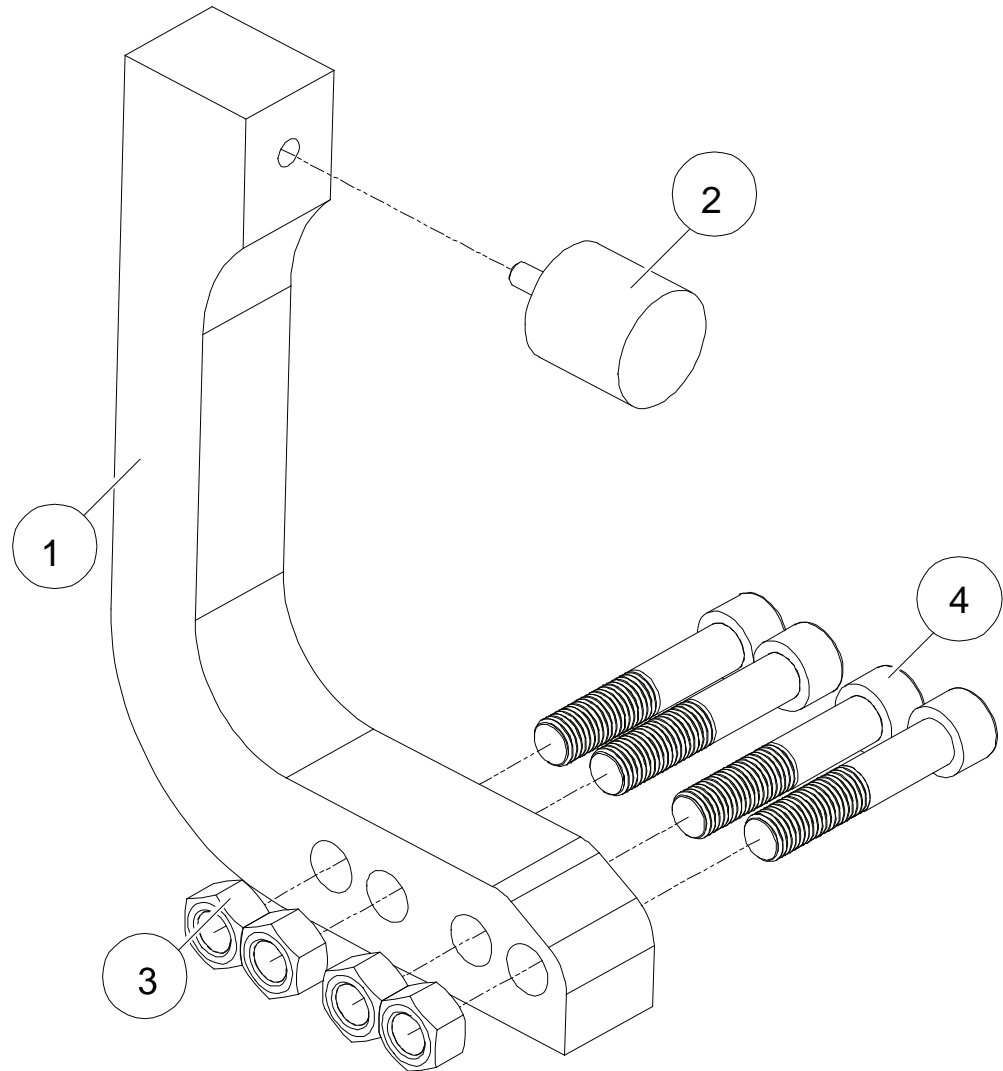
Spare part list

Item	Quantity	Part number	Description	Dimension/Note
1		3HEA801651-001	Gear rack	1 m
1		3HEA801651-002	Gear rack	0.5 m

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4 Mechanical stop material set

Illustration



Spare part list

Item	Quantity	Part number	Description	Dimension/Note
1	2	3HEA801660-001	Mechanical stop IRBT	Complete
2	2	3HEA801665-001	Rubber buffer	

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5 Serial measurement unit

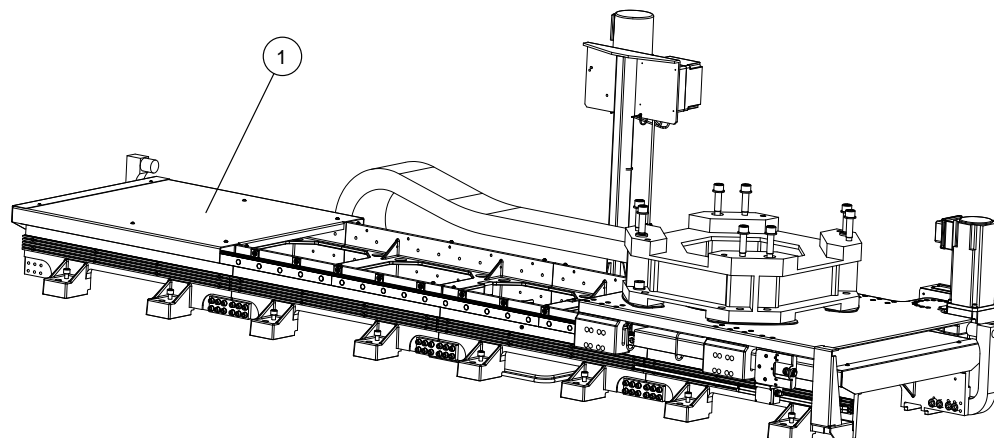
Spare part list

Item	Quantity	Part number	Description	Dimension/Note
-	1	3HAC046686-003	SMB replacement set	
-	1	3HAC043904-001	SMB-board	RMU102
-	1	3HAC044075-001	Battery Pack RMU	Battery Pack RMU

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6 Covers

Illustration



Spare part list

Item	Quantity	Part number	Description	Color	Dimension/Note
1	1	3HEA802136-001	Top cover	ABB Orange	
1	1	3HAC050065-001	Top cover	Dark grey	

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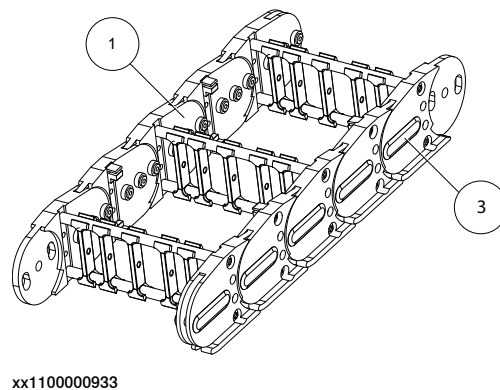
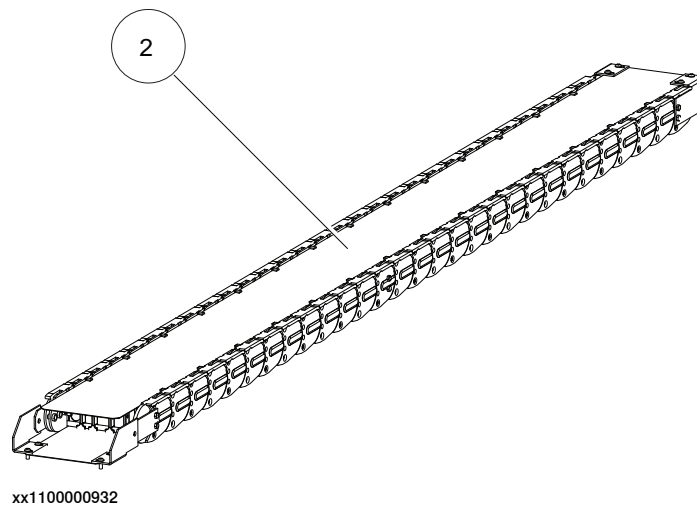
7 Cable chain Brevetti

Different designs of the cable chain

The two different designs of the cable chain, Brevetti and Murrplastik, are not compatible with each other. The cable trays are designed to fit each cable chain. Order the correct spare part, in regard to what is installed on the track motion. (Information available in Web Config via ABB.)

Illustration

Cable chain Brevetti



Spare part list

Cable chain Brevetti

Item	Quantity	Part number	Description	Dimension/Note
1		3HEA802778-001	Cable chain part	Plastic

Continues on next page

7 Cable chain Brevetti

Continued

Item	Quantity	Part number	Description	Dimension/Note
2		3HEA802786-001	Cable chain complete	Plastic (specify travel length)
		3HEA802948-001	Cable chain complete	2 m
		3HEA802954-001	Foundry option (steel)	3-4 m
		3HEA802955-001		5-6 m
		3HEA802956-001		7-8 m
3		3HEA802305-001	Plug	

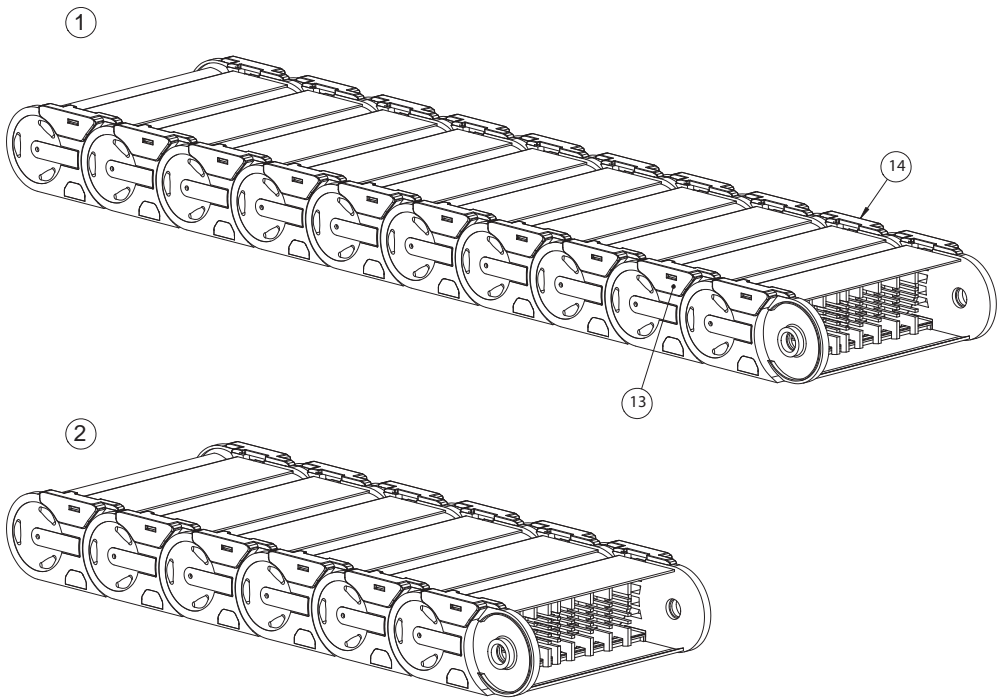
8 Cable chain Murrplastik

Different designs of the cable chain

The two different designs of the cable chain, Brevetti and Murrplastik, are not compatible with each other. The cable trays are designed to fit each cable chain. Order the correct spare part, in regard to what is installed on the track motion. (Information available in Web Config via ABB.)

Illustration

Cable chain Murrplastik



xx1300001028

Spare part list

Cable chain Murrplastik

Item	Part number	Description	Dimension/Note
1	3HAC045102-003	Cable chain plastic with 10 links	Width: 246 mm.
2	3HAC045103-003	Cable chain plastic with 6 links	Width: 246 mm.
13	3HAC045660-001	Gliding shoe, left	
14	3HAC045661-001	Gliding shoe, right	

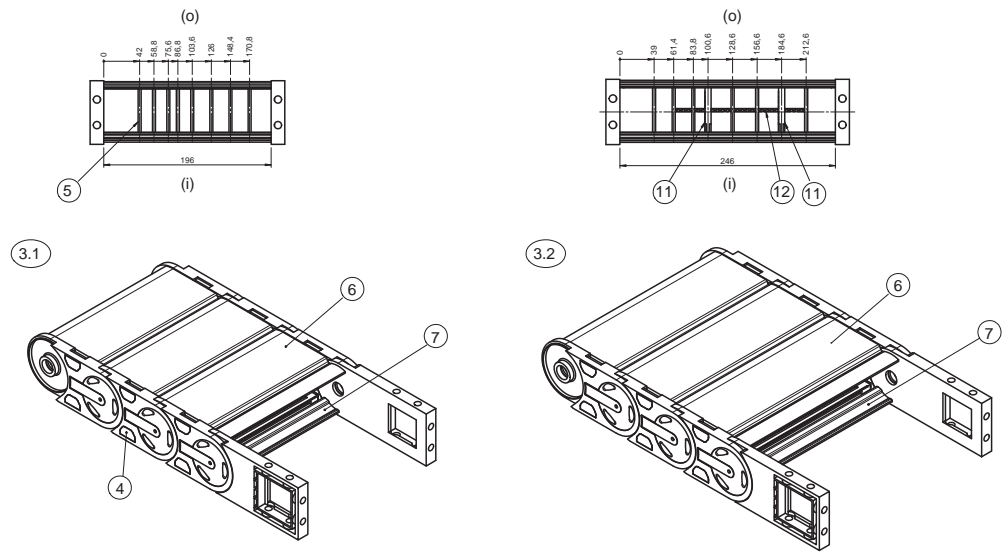
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8 Cable chain Murrplastik

Continued

Illustration

Moving end bracket of cable chain Murrplastik

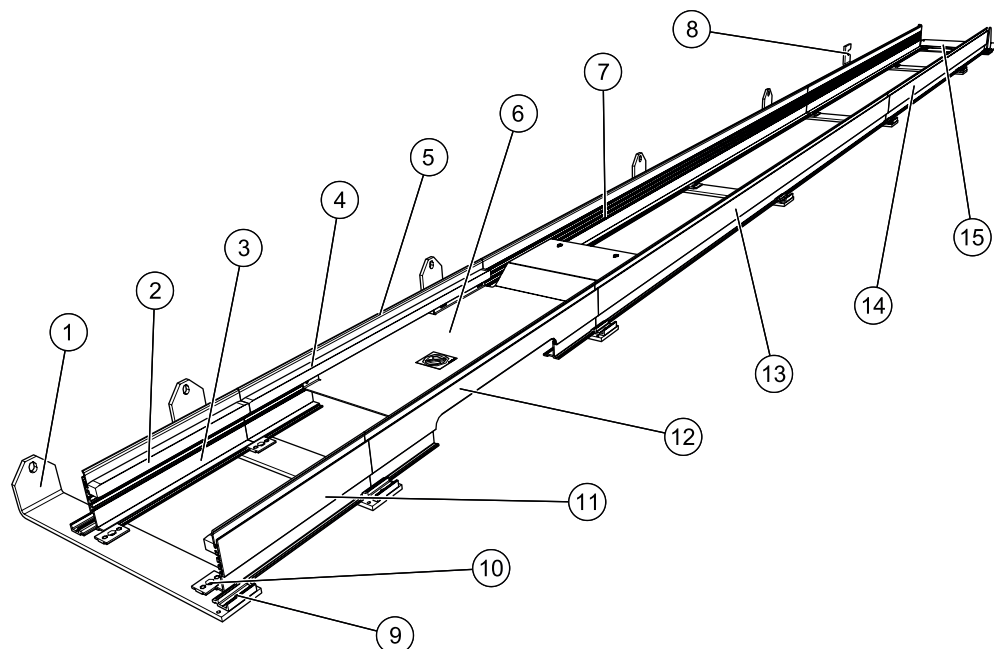


Item	Part number	Description	Dimension/Note
6	3HAC045658-001	Cover, outside	For width: 196 mm
	3HAC045746-001	Cover, outside	For width: 246 mm
7	3HAC045659-001	Cover, inside	For width: 196 mm
	3HAC045747-001	Cover, inside	For width: 246 mm
11	3HAC045744-001	Shelf support, with lid	For width: 246 mm
12	3HAC045745-001	Shelf support 168-5mm	For width: 246 mm

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9 Cable tray for cable chain Murrplastik

Illustration



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Spare part list

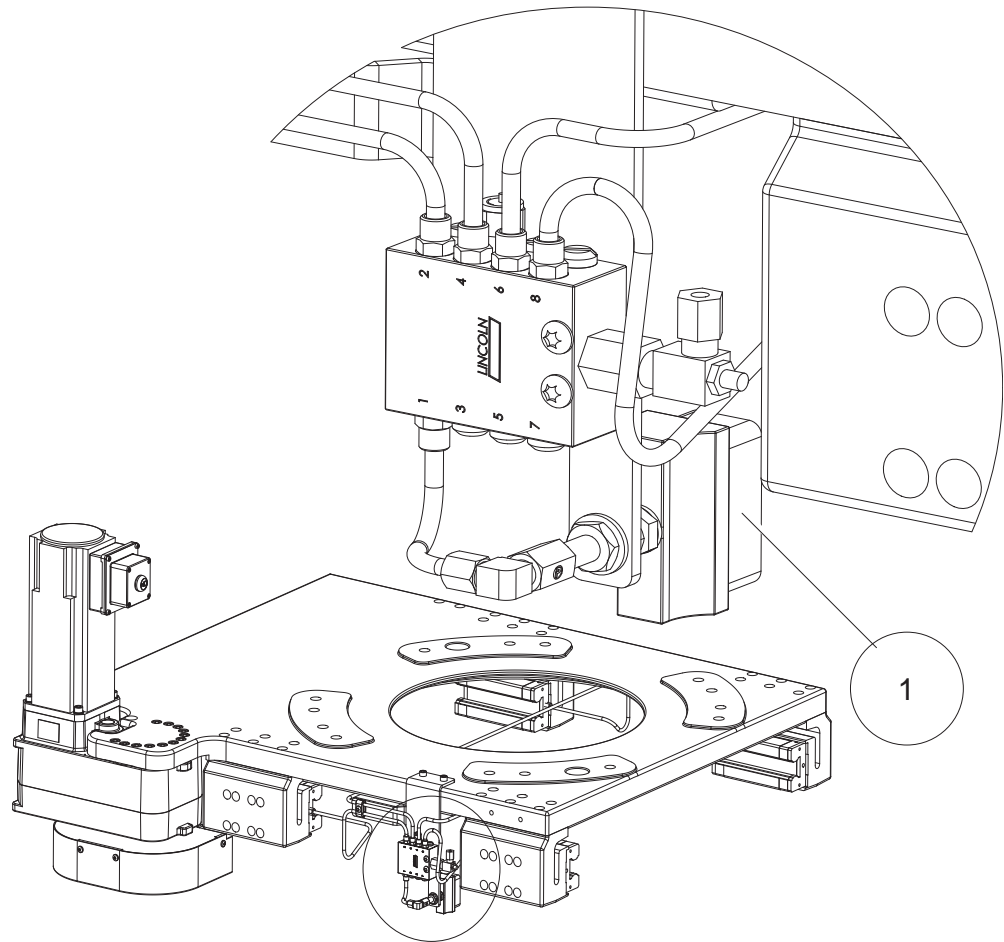
Item	Part number	Description	Dimension/Note
1	3HAC044761-001	Bracket for cable tray	For width: 246 mm
2	3HAC045179-004	Gliding bar IRBT	
3	3HAC045164-001	Aluminium profile, cable tray IRBT	
4	3HAC045179-001	Gliding bar IRBT	
5	3HAC045176-001	Aluminium profile, cable tray IRBT	
6	3HAC054525-001	Protection plate	
7	3HAC045164-005	Aluminium profile, cable tray IRBT	
8	3HAC044762-001	End bracket for cable tray	For width: 246 mm
9	3HAC045487-001	Clamping profile	
10	3HAC045487-001	Clamping profile plastic	
11	3HAC045164-001	Aluminium profile, cable tray IRBT	
12	3HAC045176-001	Aluminium profile, cable tray IRBT	
13	3HAC045164-005	Aluminium profile, cable tray IRBT	
14	3HAC045164-004	Aluminium profile, cable tray IRBT	
15	3HAC045027-001	Support plate cable tray	For width: 246 mm

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10 Automatic lubrication system

10.1 Lubrication system, local adaption, including oil brush

Illustration



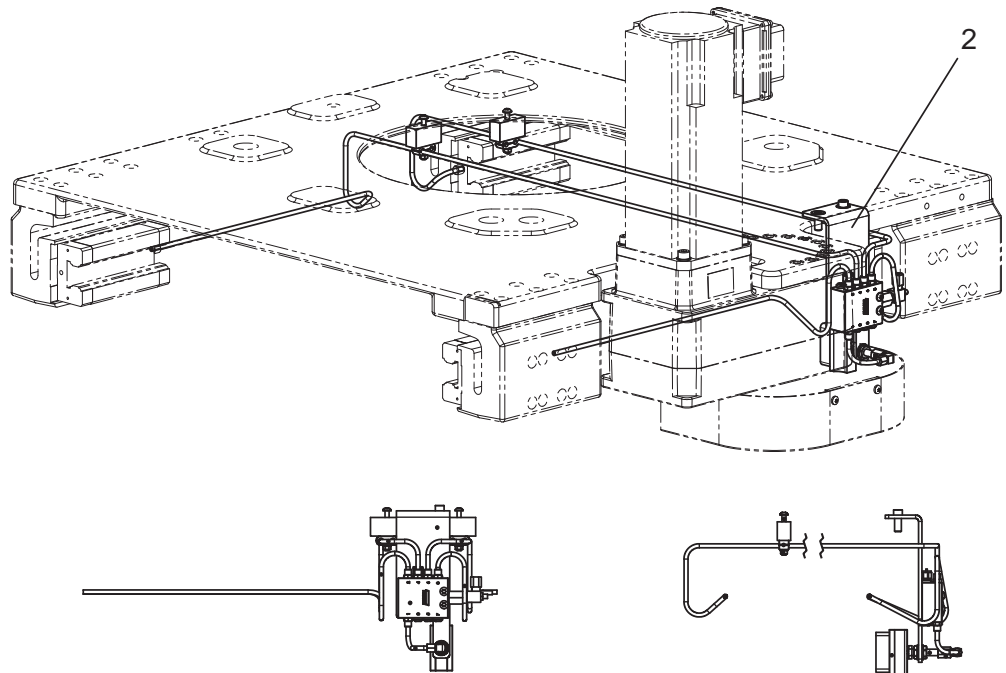
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10 Automatic lubrication system

10.1 Lubrication system, local adaption, including oil brush

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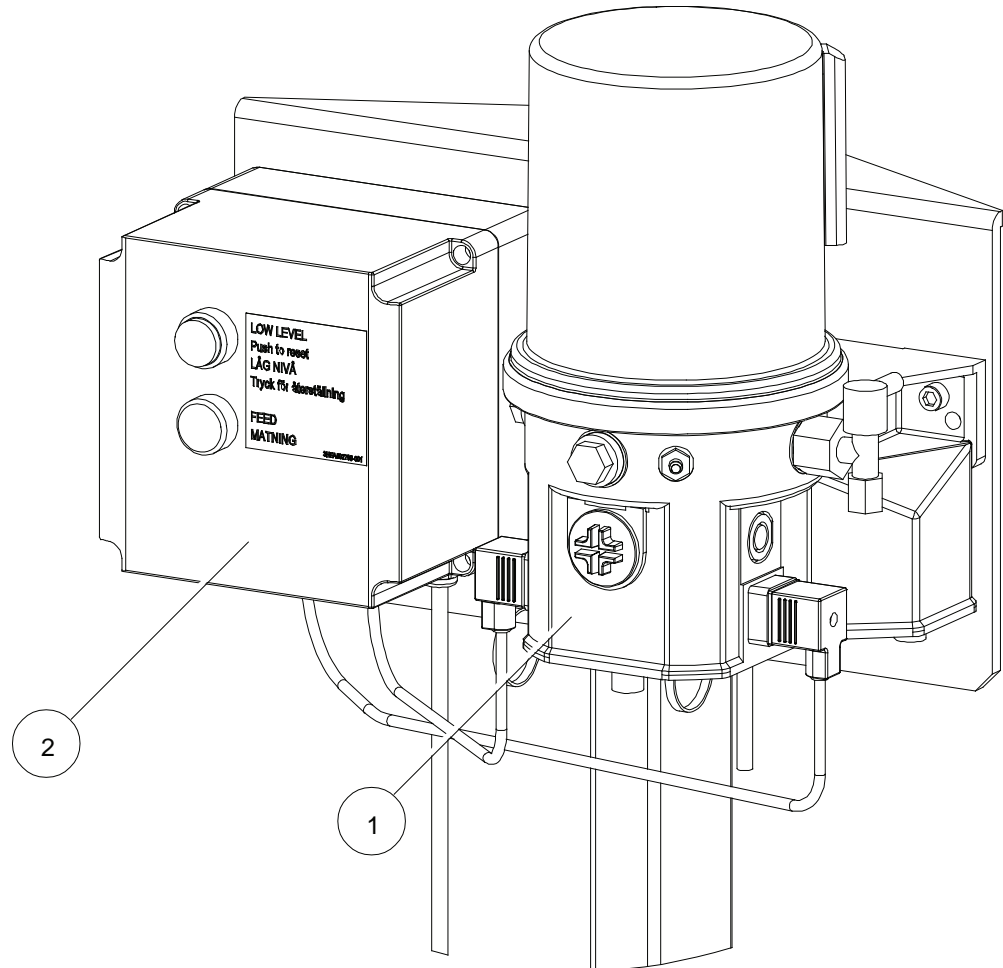
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Spare part list


Item	Quantity	Part number	Description	Dimension/Note
1	1	3HXG1000-562	Oil brush	
2	1	3HEA802673-003	Lubrication system, local adaption	Includes oil brush, brush holder, hydraulic tubes, screws, washers etc. Does not include pump or control unit.

10.2 Lubrication system, central, including control unit for grease pump

Illustration



Spare part list

Item	Quantity	Part number	Description	Dimension/Note
-	1	3HAC032577-002	Lubrication system, central	Complete assembly. Includes pump, control unit, grease, frame and screws.
1	1	3HEA802824-001	Pump	
2		3HEA802798-001	Control unit grease pump	
		3HAC045131-001	Printed circuit board	Integrated in the housing
	2	3HAC056386-001	Fuse	 Note Only for Control unit grease pump marked rev.05 or later.

10 Automatic lubrication system

10.3 Lubrication system, hydraulic hoses

10.3 Lubrication system, hydraulic hoses

Spare part list

The hydraulic hoses listed can be used both as fixed hoses from the automatic lubrication system control panel to the control plate underneath the track, and as flexible hoses running in the cable chain from the control plate to the grease distribution block. The dimension of the hoses is Ø 6.3 x 11.3 mm.

Total length of the hydraulic hose, measured from the automatic lubrication system control panel to the grease distribution block should not exceed 30 m.

Part number	Description	Dimension/Note
3HAC049534-006	Hydraulic hose	6 m
3HAC049534-007	Hydraulic hose	7 m
3HAC049534-008	Hydraulic hose	8 m
3HAC049534-009	Hydraulic hose	9 m
3HAC049534-010	Hydraulic hose	10 m
3HAC049534-011	Hydraulic hose	11 m
3HAC049534-012	Hydraulic hose	12 m
3HAC049534-013	Hydraulic hose	13 m
3HAC049534-014	Hydraulic hose	14 m
3HAC049534-015	Hydraulic hose	15 m

11 Cabling

11.1 Flexible cables

Cable lengths

Flexible cables are mounted in the cable chain of the track motion. The tables show the cable lengths required for different connections with different travel lengths.

The cables are divided into following tables:

- IRB Power cables: handles power supply to the motors of the robot.
- IRBT Power cables: handles power supply to the motor of the track motion.
- IRB/IRBT Signal cables: handles feedback from the serial measurement board.
- Position switch cables: handles supply to and feedback from position switches, if any.
- Customer cables: handles communication with equipment fitted on robot.

IRB Power cables, flexible

Travel length (m)	Cable length (m)	IRB 6600/6620/6640/6650S/7600/4600/6700 3HAC033548-	IRB 4400 3HEA802211-	IRB 4400 F 3HEA802219-
2	7	002	002	002
3-4	8	003	003	003
5-6	9	004	004	004
7-8	10	005	005	005
9-10	11	006	006	006
11-12	12	007	007	007
13-14	13	008	008	008
15-16	14	009	009	009
17-18	15	010	010	010
19-20	16	011	011	011

IRBT Power cables, flexible

Travel length (m)	Cable length (m)	Motor of track motion		Motor of track motion + 8th axis	
		3HEA802403- i	3HAC045971- ii	3HEA802835- i	3HAC043632- ii
2	7	002	002	002	002
3-4	8	003	003	003	003
5-6	9	004	004	004	004
7-8	10	005	005	005	005
9-10	11	006	006	006	006
11-12	12	007	007	007	007
13-14	13	008	008	008	008

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11 Cabling

11.1 Flexible cables

Continued

Travel length (m)	Cable length (m)	Motor of track motion		Motor of track motion + 8th axis	
		3HEA802403- ⁱ	3HAC045971- ⁱⁱ	3HEA802835- ⁱ	3HAC043632- ⁱⁱ
15-16	14	009	009	009	009
17-18	15	010	010	010	010
19-20	16	011	011	011	011

ⁱ Valid for motor 3HEA802988-001 (version not marked with "A").

ⁱⁱ Valid for motor 3HAC045791-003 (Type A version, marked with "A").

IRB / IRBT Signal cables, flexible

Travel length (m)	Cable length (m)	IRBT 3HEA801331-	IRB 4400/4400F/6600/6620 IRB 6640/6650S/7600 3HEA802409-	IRB 4600/6700 3HAC029834-
2	7	003	002	002
3-4	8	004	003	003
5-6	9	005	004	004
7-8	10	006	005	005
9-10	11	007	006	006
11-12	12	008	007	007
13-14	13	009	008	008
15-16	14	010	009	009
17-18	15	011	010	010
19-20	16	012	011	011

IRB Position switch cables, flexible

Only available for old versions.

Travel length (m)	Cable length (m)	Position switch axis 1 IRB 6600/7600/6640 3HXD1638-	Position switch axis 1 IRB 4400/4400F 3HXD1433-	Position switch axis 2 IRB 6600/7600/6640 3HXD1691-
2	6	60	60	60
3-4	7	70	70	70
5-6	8	80	90	80
7-8	9	90	100	90
9-10	10	100	110	100
11-12	11	110	120	110
13-14	12	120	130	120
15-16	13	130	140	130
17-18	14	140	150	140
19-20	15	150	160	150

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Customer cables IRB 4600/6600/6620/6640/6650S/7600, flexible

Travel length (m)	Cable length (m)	Cable CP/CS Parallel 3HEA801277-	Cable CP/CS Interbus ⁱ 3HEA801278-	Cable CP/CS ProfiBus 3HEA801280-	Cable CP/CS CanBus 3HEA801279-	Ethernet 3HAC032951-
2	7	003	003	003	003	002
3-4	8	004	004	004	004	003
5-6	9	005	005	005	005	004
7-8	10	006	006	006	006	005
9-10	11	007	007	007	007	006
11-12	12	009	008	008	009	007
13-14	13	010	009	009	010	008
15-16	14	011	010	010	011	009
17-18	15	012	011	011	012	010
19-20	16	013	012	012	013	011

ⁱ Only available for old versions.

Customer cables IRB 4400/4400F, flexible

Travel length (m)	Cable length (m)	Cable CP/CS IRB 4400 3HXD1296-	Cable CP/CS IRB 4400F 3HXD1486-
2	7	70	70
3-4	8	80	80
5-6	9	90	90
7-8	10	100	100
9-10	11	110	110
11-12	12	120	120
13-14	13	130	130
15-16	14	140	140
17-18	15	150	150
19-20	16	160	160

IRB Weld / Split box cables, flexible

Travel length (m)	Cable length (m)	TG Weld 3HXD1474-	Split box 3HXD1633-
2	7	70	70
3-4	8	80	80
5-6	9	90	90
7-8	10	100	100
9-10	11	110	110
11-12	12	120	120

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11 Cabling

11.1 Flexible cables

Continued

Travel length (m)	Cable length (m)	TG Weld 3HXD1474-	Split box 3HXD1633-
13-14	13	130	130
15-16	14	140	140
17-18	15	150	150
19-20	16	160	160

11.2 Fixed cables

Overview

Fixed cables are connected between the control equipment and the track motion. The tables specify cables for the track motion. As for the manipulator cables, same cables are used as when connecting the manipulator directly to the control equipment. Further information about the manipulator cables are found in the Product manual for the manipulator.

IRBT Power cables

Cable length (m)	All IRBT XP7-J1.XS7 3HEA802402-
7	001
15	002
22	003
30	004

IRBT Signal cables

Cable length (m)	All Control Cable Signal
7	3HAC2493-1
15	3HAC2530-1
22	3HAC2540-1



Note

The signal cables listed above are as default used between connector XS2 on the cabinet and R1.SMB on the manipulator and are therefor labeled and keyed accordingly.

In order to avoid a mix-up of cables when using them for the track motion, the label and the keying pin can be changed according to the keying instruction enclosed with the spare part.

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