

# Product manual, spare parts IRBT 2005

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**Product manual, spare parts**

**IRBT 2005**

**IRC5**

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**Revision: -**

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# Overview of this manual

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## About this manual

This manual contains spare parts for:

- IRBT 2005

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## Usage

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

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.

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## References

Reference	Document ID
<i>Product manual - IRBT 2005</i>	<i>3HAC051130-001</i>
<i>Product manual - IRB 1520</i>	<i>3HAC043435-001</i>
<i>Product manual - IRB 1600 type A</i>	<i>3HAC026660-001</i>
<i>Circuit diagram - IRB 2600</i>	<i>3HAC029570-007</i>
<i>Product manual - IRB 4600</i>	<i>3HAC033453-001</i>

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## Revisions

Revision	Description
-	First edition.

# 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.

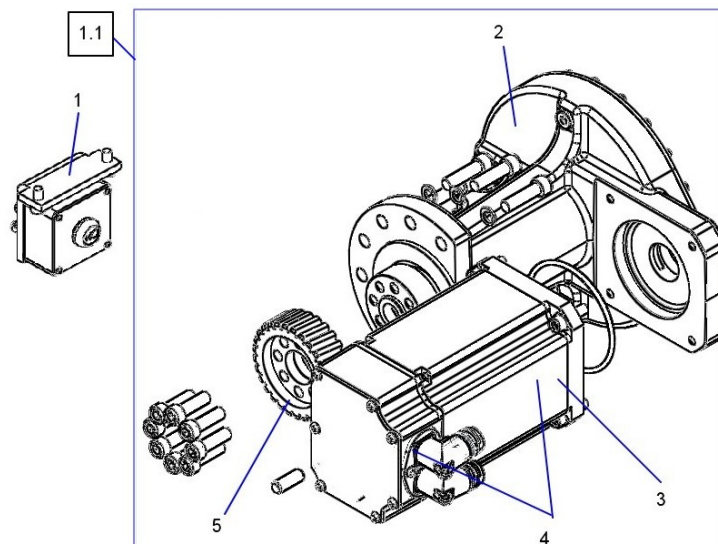
The group of manuals includes (among others):

- *Operating manual - Emergency safety information*
- *Operating manual - General safety information*
- *Operating manual - Getting started, IRC5 and RobotStudio*
- *Operating manual - Introduction to RAPID*
- *Operating manual - IRC5 with FlexPendant*
- *Operating manual - RobotStudio*
- *Operating manual - Trouble shooting IRC5, for the controller and manipulator.*

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# 1 Drive unit

## Illustration



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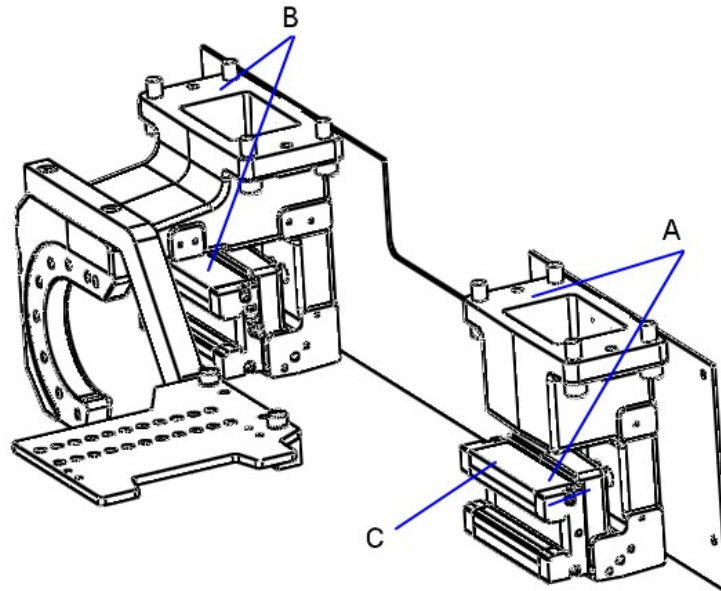
## Spare part list

Item	Quantity	Part number	Description	Dimension/Note
1	1	3HAC051538-002	Brake release unit	
1.1	1	3HAC053121-003	Drive train, MTM	The part number is for either the independent drive train or the complete drive train including motors and gears.
2	1	3HAC047334-002	Gearbox	Including 330 ml lubricating oil XP320 (11712016-604).
3	1	3HAC051522-003	Motor and pinion	
4	1	3HAC051523-003	Motor unit	Including connection box
5	1	3HAC047375-001	Pinion on rack	

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## 2 Carriage bracket

### Illustration



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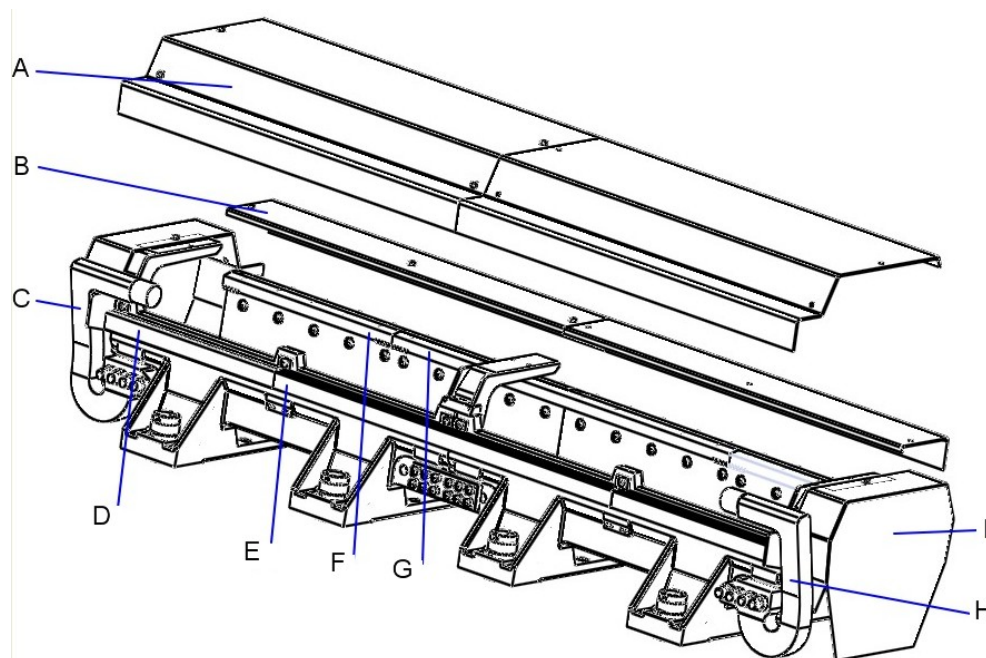
### Spare part list

Item	Quantity	Part number	Description	Dimension/Note
A	1	3HAC051509-001	Linear guide unit	3 pcs, for carriage base with 4 holders.
	1			5 pcs, for carriage base with 6 holders.
B	1	3HAC051510-003	Drive train linear guide unit	The part number for the complete drive train and linear guide unit.
C	1	3HAC042192-001	Runner block size 45	
D	1	3HAC052540-001	Calibration set	

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## 3 Stand unit

### Illustration



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### Spare part list

Item	Quantity	Part number	Description	Dimension/Note
A	1	3HAC047660-001	Top cover	
B	1	3HAC047661-001	Rack cover	
C	1	3HAC052880-003	M-stop, left unit	
D	1	3HAC045755-002	Rail_45, 500 mm	
E	1	3HAC045755-001	Rail_45, 1000 mm	
F	1	3HAC045735-001	Rack 500 mm	
G	1	3HAC045754-001	Rack 1000 mm	
H	1	3HAC052881-003	M-stop, right unit	
I	1	3HAC047829-001	End cover	

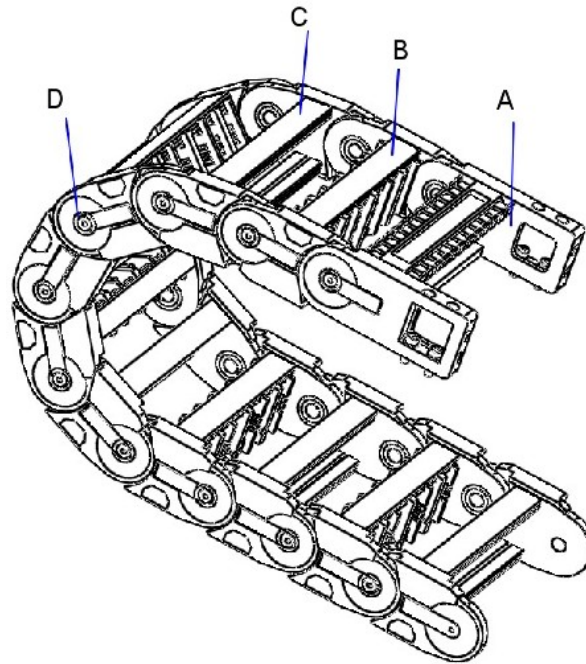
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## 4 Cable chain

### 4.1 Internal cable chain

#### Illustration



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#### Spare part list

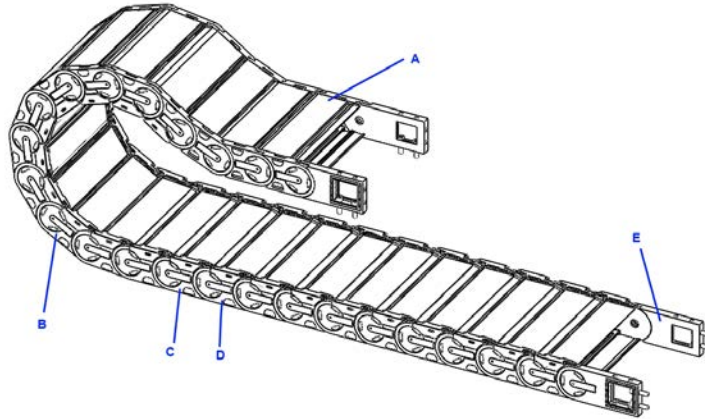
Item	Quantity	Part number	Description	Dimension/Note
A	1	3HAC051561-001	Cable chain end unit	For internal cable chain
B	1	3HAC047832-001	Cable chain pitch, with divider	For internal cable chain
C	1	3HAC047833-001	Cable chain pitch, no divider	For internal cable chain
D	1	3HAC051565-001	Cable chain, 10 links	For internal cable chain

## 4 Cable chain

### 4.2 External cable chain

### 4.2 External cable chain

#### Illustration



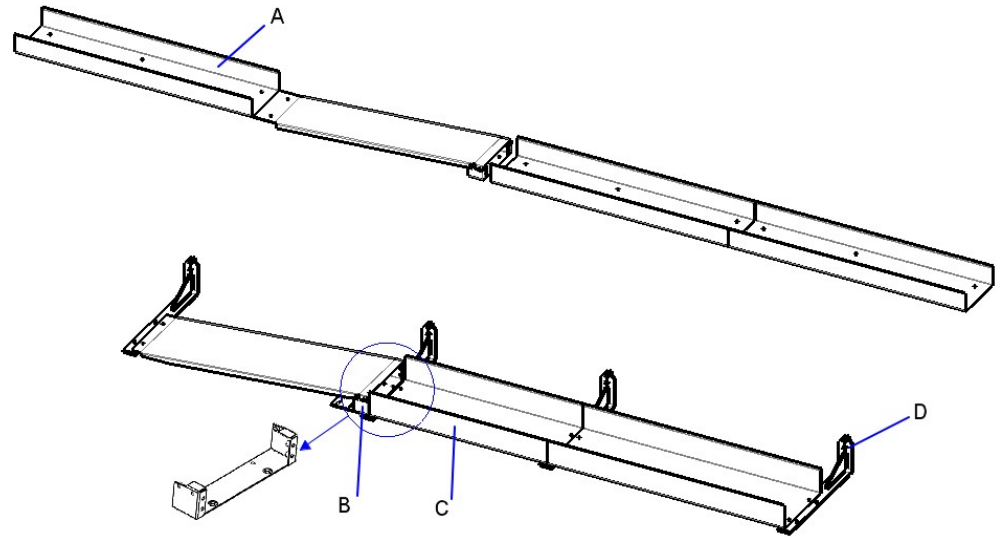
xx1500000757

#### Spare part list

Item	Quantity	Part number	Description	Dimension/Note
A	1	3HAC045110-001	Bracket plastic 246mm moving part	For external cable chain
B	1	3HAC045102-001	Cable chain plastic 246mm 10 links	For external cable chain
C	1	3HAC051431-001	Ext chain pitch, with divider	For external cable chain
D	1	3HAC051432-001	Ext chain pitch, no divider	For external cable chain
E	1	3HAC045816-001	Chain bracket	For external cable chain

## 5 Cable tray

### Illustration



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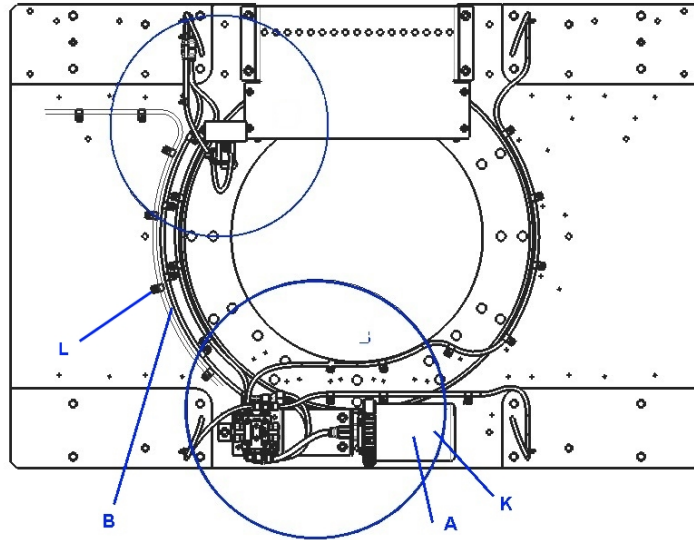
### Spare part list

Item	Quantity	Part number	Description	Dimension/Note
A	1	3HAC047746-001	Cable tray, 1 m	For internal cable tray
B	1	3HAC051309-001	External chain raiser	For external cable tray
C	1	3HAC051917-001	External tray 1.45 m unit	For external cable tray
D	1	3HAC051914-001	External tray bracket unit	For external cable tray

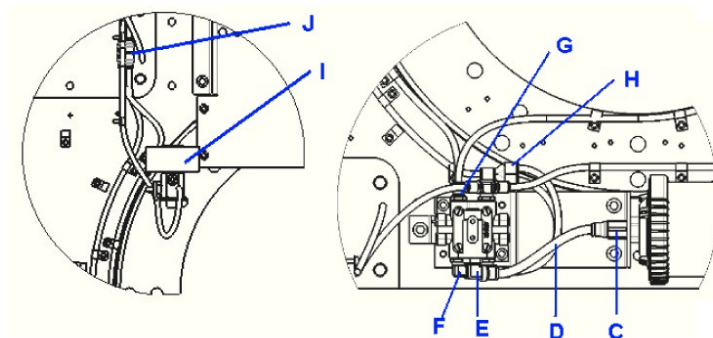
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## 6 Automatic lubrication system

### Illustration



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### Spare part list

Item	Quantity	Part number	Description
A	1	3HAC047758-001	Lubrication pump EPS 240
B	1	3HAWC116981	Polyamide tube 4x6
C	1	3HAC048538-001	Straight adaptor F1/4-Ø8
D	1	3HAWC116982	Polyamide tube 6x8
E	1	3HAWC110551	Male stud elbow (white brass) D8 G1/4
F	1	3HAWC115765	Male stud elbow (white brass) D6 G1/8
G	1	3HAWC116550	Male stud straight (white brass) D6 G1/8
H	1	3HAWC102542	Y fitting Ø6-Ø6

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## 6 Automatic lubrication system

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Item	Quantity	Part number	Description
I	1	3HAC048545-001	Inline fitting Ø6
J	1	3HAC052317-001	Felt gear set
K	1	3HAC048539-001	Grease package 240 CC
L	1	3HAWC107872	Flange

## 7 Cabling

### 7.1 Flexible cables

#### 7.1.1 Overview

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**General**

Flexible cables are mounted in the cable chain of the track. The tables in following sections show the cable lengths required for different connections with different travel lengths. The cables are divided as follows:

- IRB power cables: handles power supply to the motors of the robot.
- IRBT 2005 power cables: handles power supply to the motor of the track.
- IRB/IRBT 2005 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.
- Arc welding cables: handles communication/power with the power source on carriage.

## 7 Cabling

### 7.1.2 Robot track cables

### 7.1.2 Robot track cables

#### IRB power cables

Travel length (m) with no specified robot pedestal	Travel length (m) with specified robot pedestal	Cable length (m)	IRB 1520 3HAC046920-	IRB 1600 3HAC046921-	IRB 2600/4600 3HAC046924-
1-5	1-3	6	006	006	006
6-9	4-7	8	001	001	001
10-13	8-11	10	007	007	007
14-17	12-15	12	002	002	002
18-20	16-20	15	003	003	003

#### IRBT 2005 power cables

Travel length (m)	Cable length (m)	J1.XP7-M7, 3HAC046925-
1-5	6	001
6-10	8.5	006
11-15	11	002
16-20	14	005

#### IRB signal cables

Travel length (m) with no specified robot pedestal	Travel length (m) with specified robot pedestal	Cable length (m)	IRB 1520/1600/2600/4600 3HAC029834-
1-5	1-3	6	001
6-9	4-7	8	003
10-13	8-11	10	005
14-17	12-15	12	007
18-20	16-20	15	010

#### IRBT 2005 signal cables

From	Cable length (m)	R1.FB7-FB	FB Cable Box-Motor (FB7-M7)
IRB 1520 FB7	3	3HAC046926-001	-
IRB 1600/2600/4600 FB7	3	-	3HAC039602-001

#### Grounding cables

Travel length (m)	Cable length (m)	Cable grounding 3HAC046927-
1-5	6	001

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Travel length (m)	Cable length (m)	Cable grounding 3HAC046927-
6-10	8.5	005
11-15	11	002
16-20	14	003

## 7 Cabling

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### 7.1.3 Transfer track cables

### 7.1.3 Transfer track cables

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#### IRBT 2005 power cables

Travel length (m)	Cable length (m)	Box-Motor 3HAC039603-
1-5	6	015
6-10	8.5	016
11-15	11	013
16-20	14	014

---

#### IRBT 2005 signal cables

Travel length (m)	Cable length (m)	FB Cable Box-Motor (FB7-M7) 3HAC039602-
1-5	6	013
6-10	8.5	014
11-15	11	011
16-20	14	012

---

#### Grounding cables

Travel length (m)	Cable length (m)	3HAC046927-
1-5	6	001
6-10	8.5	005
11-15	11	002
16-20	14	003

## 7.1.4 STD customer cables and hoses

## Customer cables, IRB 1600

Travel length (m) with no specified robot pedestal	Travel length (m) with specified ro- bot pedestal	Cable length (m)	CP/CS 3HAC046922-
1-5	1-3	6	006
6-9	4-7	8	001
10-13	8-11	10	007
14-17	12-15	12	002
18-20	16-20	15	003

## Customer cables, IRB 2600/4600

Travel length (m) with no speci- fied robot pedes- tal	Travel length (m) with spe- cified robot pedes- tal	Cable length (m)	CP/CS/Parallel 3HEA801277-	CP/CS/Devi- ceNet/Can 3HEA801279-	CP/CS/ProfiB- us 3HEA801280-	ProfiNet cable flex 3HAC032951-
1-5	1-3	6	002	002	002	001
6-9	4-7	8	004	004	004	003
10-13	8-11	10	006	006	006	005
14-17	12-15	12	009	009	008	007
18-20	16-20	15	012	012	011	010

## Customer hoses, IRB 1600/2600/4600

Travel length (m)	Cable length (m)	CP/CS-AIR 3HAC046923-
1-5	6	001
6-10	8.5	005
11-15	11	002
16-20	14	003

## Customer hose floor, IRB 1600/2600/4600

Cable length (m)	CP/CS-AIR floor 3HAC046933-
3	001

## 7 Cabling

### 7.1.5 Arc welding package cables and hoses

### 7.1.5 Arc welding package cables and hoses

#### Arc welding package cables

Travel length (m)	Cable length (m)	DeviceNet cable 3HAC046928-	Welding current cable 3HAC050223-	Welder power cable 3HAC046929-	TSC cable 3HAC046932-
1-5	6	001	001	001	001
6-10	8.5	006	004	005	006
11-15	11	002	002	002	002
16-20	14	003	003	003	003

#### Arc welding package hoses

Travel length (m)	Cable length (m)	Gas hose 3HAC046930-	Air hose 3HAC046931-
1-5	6	001	001
6-10	8.5	005	005
11-15	11	002	002
16-20	14	003	003

## 7.1.6 Arc welding cables and hoses

## Arc welding package cables

Cable length (m)	DeviceNet cable_ RPC 3HAC046939-	Welding current cable 3HAC046940-	TSC cable 3HAC046941-
3	001	001	-
5	-	-	001

## Arc welding package hoses

Cable length (m)	Air and gas hose_ RPC 3HAC051850-	Air hose 3HAC046937-	Gas hose 3HAC046936-	TSC hose 3HAC046942-
3	001	005	005	-
5	-	-	-	001

## 7 Cabling

### 7.2 Floor cables

### 7.2 Floor 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.

#### Robot track power cables

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

#### Transfer track cables IRC5 to SMB (floor)

Cable length (m)	3-SMB box XP7-XS50 3HAC054112-	Control cable 66/7600 3HAC026787-	Control cable signal 3HAC2493-	Control cable signal 3HAC2530-	Control cable signal 3HAC2540-	MU/SMB box 3axis with brake release 3HAC040106-	6 Axis SMB box 3HAC049479-
7	001	001	1	-	-	-	-
15	002	002	-	1	-	-	-
22	003	003	-	-	1	-	-
3AX-IS	-	-			-	001	-
6AX-IS	-	-			-	-	001

#### Transfer track cables SMB to track (floor)

Cable length (m)	Extension Power Cable Box-Motor 3HAC052872-	Extension FB Cable Box-Motor 3HAC052873-
5	001	001
10	002	002
15	003	003

#### STD customer cables and hoses

Cable length (m)	CP/CS-AIR (floor) 3HAC046933-
7	002
15	003
22	004

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**Arc welding package cables and hoses**

Cable length (m)	DeviceNet cable (floor) 3HAC046934-	Welding current cable (floor) 3HAC053948-	Welder power cable (floor) 3HAC046935-	TSC cable (floor) 3HAC046938-	Gas hose (floor) 3HAC046936-	Air hose (floor) 3HAC046937-
7	001	001	001	001	001	001
15	002	002	002	002	002	002
22	003	003	003	003	003	003

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