

ROBOTICS

Product specification

CRB 15000



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Product specification

CRB 15000

OmniCore

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Revision: B

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Overview of this manual

About this product specification

This product specification describes the performance of the manipulator or a complete family of manipulators in terms of:

- The structure and dimensional prints
- The fulfilment of standards, safety, and operating equipment
- The load diagrams, mounting or extra equipment, the motion, and the robot reach
- The specification of available variants and options

The specification covers the manipulator using the OmniCore controller.

Usage

Product specifications are used to find data and performance about the product, for example to decide which product to buy. How to handle the product is described in the product manual.

The specification is intended for:

- Product managers and product personnel
- Sales and marketing personnel
- Order and customer service personnel

References

Documentation referred to in the manual, is listed in the table below.

Document name	Document ID
<i>Product manual - CRB 15000</i>	3HAC077389-001
<i>Product manual - OmniCore C30</i>	3HAC060860-001
<i>Circuit diagram - CRB 15000</i>	3HAC074304-003
<i>Technical reference manual - System parameters</i>	3HAC065041-001



Tip

All documents can be found via myABB Business Portal, www.abb.com/myABB.

Revisions

Revision	Description
A	First edition.
B	Published in release 21B. The following updates are made in this revision: <ul style="list-style-type: none"> • Removed axis resolution data. • Added a note to state Base 54 includes IP54. • Updated temperature for operating conditions. • Added information about robot calibration. • New option 3203-7 All regions cable, 5m added.

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1 Description

1.1 Structure

1.1.1 Introduction

General

The CRB 15000 robot is a lightweight, flexible, agile 6-axis articulated robot, with a payload of 5 kg, designed specifically for manufacturing industries that use flexible robot-based automation. The robot has an open structure that is especially adapted for flexible use, and can communicate extensively with external systems.

Intended use

The CRB 15000 robot from ABB is designed for use in industrial applications. For other fields of use, verify whether this robot fulfills the standards required, see [Applicable standards on page 12](#).



CAUTION

The integrator of the robot system is required to perform an assessment of the hazards and risks.

Protection

Manipulator, standard protection is rated IP54.

Operating system

The robot is equipped with the OmniCore C30 controller and robot control software, RobotWare. RobotWare supports every aspect of the robot system, such as motion control, development and execution of application programs, communication etc. See *Operating manual - OmniCore*.



Note

The CRB 15000 can only be used together with OmniCore C30.

Safety

The listed safety standards are valid for the complete robot, that is, manipulator and controller.

Collaborate Safety

Strong yet safe, designed for handling payloads up to 5 kg, the CRB 15000 has integrated torque sensors in each of its six joints, offering superior power and force limiting performance. Together, these prevent the risk of injury by bringing the robot to an immediate stop if it senses any contact with a human worker.

Continues on next page

1 Description

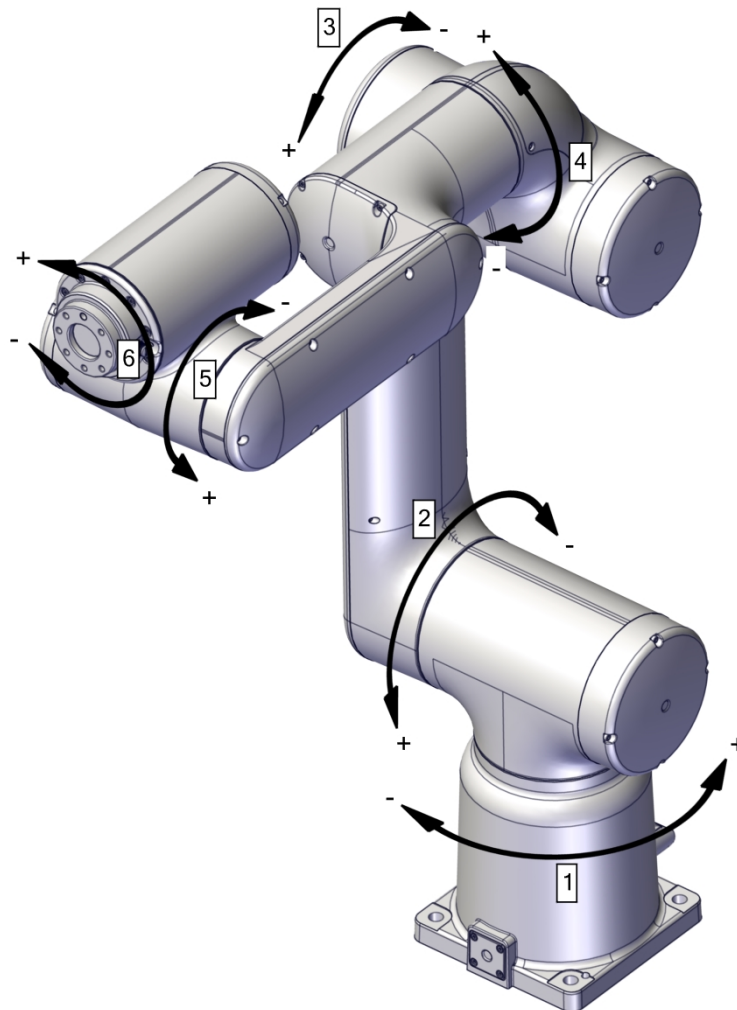
1.1.1 Introduction

Continued

Additional functionality

For additional functionality, the robot can be equipped with optional software for application support, for example, network communication features, and advanced functions such as multitasking, sensor control etc. For a complete description on optional software, see the *Product specification - OmniCore C line*.

Robot axes



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Pos	Description	Pos	Description
1	Axis 1	2	Axis 2
3	Axis 3	4	Axis 4
5	Axis 5	6	Axis 6

1.1.2 Different robot versions

General

The CRB 15000 is available the following versions.

Robot type	Handling capacity (kg)	Reach (m)
CRB 15000-5/0.95	5 kg	0.95 m

1 Description

1.2.1 Applicable standards

1.2 Standards

1.2.1 Applicable standards



Note

The listed standards are valid at the time of the release of this document. Phased out or replaced standards are removed from the list when needed.

General

The product is designed in accordance with ISO 10218-1:2011, Robots for industrial environments - Safety requirements -Part 1 Robots, and applicable parts in the normative references, as referred to from ISO 10218-1:2011. In case of deviations from ISO 10218-1:2011, these are listed in the declaration of incorporation which is part of the product delivery.

Normative standards as referred to from ISO 10218-1

Standard	Description
ISO 9283:1998	Manipulating industrial robots - Performance criteria and related test methods
ISO 10218-2	Robots and robotic devices - Safety requirements for industrial robots - Part 2: Robot systems and integration
ISO 12100	Safety of machinery - General principles for design - Risk assessment and risk reduction
ISO 13849-1:2006	Safety of machinery - Safety related parts of control systems - Part 1: General principles for design
ISO 13850	Safety of machinery - Emergency stop - Principles for design
IEC 60204-1:2005	Safety of machinery - Electrical equipment of machines - Part 1: General requirements
IEC 62061:2005	Safety of machinery - Functional safety of safety-related electrical, electronic and programmable electronic control systems

Region specific standards and regulations

Standard	Description
ANSI/RIA R15.06	Safety requirements for industrial robots and robot systems
ANSI/UL 1740	Safety standard for robots and robotic equipment
CAN/CSA Z 434-14	Industrial robots and robot Systems - General safety requirements

Other standards used in design

Standard	Description
ISO 9787:2013	Robots and robotic devices -- Coordinate systems and motion nomenclatures
IEC 61000-6-2	Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments

Continues on next page

Standard	Description
IEC 61000-6-4 (option 129-1)	Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments
ISO 13732-1:2008	Ergonomics of the thermal environment - Part 1
ISO 14644-1:2015 ⁱ	Classification of air cleanliness
IEC 60529:1989 + A2:2013	Degrees of protection provided by enclosures (IP code)
ISO/TS 15066	Robots and robotic devices - Safety requirements - Industrial collaborative workspace

ⁱ Only robots with protection Clean Room.

1 Description

1.3.1 Introduction to installation

1.3 Installation

1.3.1 Introduction to installation

General

The detailed information for installing the CRB 15000 at the working site is found in *Product manual - CRB 15000* and in *Product manual - OmniCore C30*.

The installation must be done by qualified installation personnel in accordance with the safety requirements set forth in the applicable national and regional standards and regulations.



Tip

All documents can be found via myABB Business Portal, www.abb.com/myABB.

Extra loads

See [Fitting equipment on the robot \(robot dimensions\) on page 22](#).

More information for the arm-side interface

The arm-side interface has configurable buttons and a light ring that indicates status, see [Configuring the arm-side interface on page 24](#). More details on how to configure this is described in *Product manual - CRB 15000*.

It is also possible to configure an external lamp or similar, using I/O signals. This is described in the product manual for the controller (*Product manual - OmniCore C30*), and in the manuals describing I/O configuration.

More information for the safety configuration

How to configure SafeMove is described in *Application manual - SafeMove*.

The integrator of the robot is responsible for calculating, designing, and verifying safety measures as defined in ISO 10218-2 and ISO/TS 15066.



Note

When starting the robot, a connected FlexPendant or RobotStudio client, will indicate if there is no validated safety configuration.

1.3.2 Technical data

Weight, robot

The table shows the weight of the robot.

Robot model	Weight
CRB 15000	28 kg



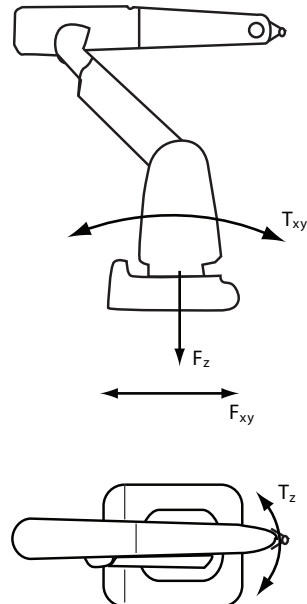
Note

The weight does not include tools and other equipment fitted on the robot!

Loads on foundation, robot

The illustration shows the directions of the robots stress forces.

The directions are valid for all floor mounted, table mounted, wall mounted and suspended robots.



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F_{xy}	Force in any direction in the XY plane
F_z	Force in the Z plane
T_{xy}	Bending torque in any direction in the XY plane
T_z	Bending torque in the Z plane

The table shows the various forces and torques working on the robot during different kinds of operation.



Note

These forces and torques are extreme values that are rarely encountered during operation. The values also never reach their maximum at the same time!

Continues on next page

1 Description

1.3.2 Technical data

Continued



WARNING

The robot installation is restricted to the mounting options given in following load table(s).

Floor mounted

Force	Endurance load (in operation)	Maximum load (emergency stop)
Force xy	±303 N	±1113 N
Force z	+280 ±147 N	+280 ±857 N
Torque xy	±246 Nm	±711 Nm
Torque z	±145 Nm	±334 Nm

Wall mounted

Force	Endurance load (in operation)	Max. load (emergency stop)
Force xy	+280 ±130 N	+280 ±1000 N
Force z	±289 N	±944 N
Torque xy	±275 Nm	±768 Nm
Torque z	±162 Nm	±338 Nm

Suspended


Force	Endurance load (in operation)	Max. load (emergency stop)
Force xy	±303 N	±1113 N
Force z	-280 ±147 N	-280 ±857 N
Torque xy	±246 Nm	±711 Nm
Torque z	±145 Nm	±334 Nm

Requirements, foundation

The table shows the requirements for the foundation where the weight of the installed robot is included:

Requirement	Value	Note
Flatness of foundation surface	0.1/500 mm	The value for levelness aims at the circumstance of the anchoring points in the robot base.
Maximum tilt	No restriction	Wall mounted robot has a work area for axis 1 that depends on payload and the positions of other axes. Simulation in RobotStudio is recommended.

Continues on next page

Requirement	Value	Note
Minimum resonance frequency	22Hz  Note It may affect the manipulator life-time to have a lower resonance frequency than recommended.	The value is recommended for optimal performance. Due to foundation stiffness, consider robot mass including equipment. ⁱ For information about compensating for foundation flexibility, see <i>Application manual - Controller software OmniCore</i> , section <i>Motion Process Mode</i> .

ⁱ The minimum resonance frequency given should be interpreted as the frequency of the robot mass/inertia, robot assumed stiff, when a foundation translational/torsional elasticity is added, i.e., the stiffness of the pedestal where the robot is mounted. The minimum resonance frequency should not be interpreted as the resonance frequency of the building, floor etc. For example, if the equivalent mass of the floor is very high, it will not affect robot movement, even if the frequency is well below the stated frequency. The robot should be mounted as rigid as possible to the floor.

Disturbances from other machinery will affect the robot and the tool accuracy. The robot has resonance frequencies in the region 10 – 20 Hz and disturbances in this region will be amplified, although somewhat damped by the servo control. This might be a problem, depending on the requirements from the applications. If this is a problem, the robot needs to be isolated from the environment.

Storage conditions, robot

The table shows the allowed storage conditions for the robot:

Parameter	Value
Minimum ambient temperature	-40 °C
Maximum ambient temperature	70 °C
Maximum ambient temperature (less than 24 hrs)	70 °C
Maximum ambient humidity	95% at constant temperature (not intended to operate with condensation)
Maximum ambient altitude	0-3,000 m (100-74 kPa)

Operating conditions, robot

The table shows the allowed operating conditions for the robot:

Parameter	Value
Minimum ambient temperature	5 °C ⁱ
Maximum ambient temperature	40 °C
Maximum ambient humidity	95% at constant temperature
Maximum ambient altitude	0-2,000 m (100-84 kPa)

ⁱ At low environmental temperature < 10°C is, as with any other machine, a warm-up phase recommended to be run with the robot. Otherwise there is a risk that the robot stops or run with lower performance due to temperature dependent oil and grease viscosity.

Protection classes, robot

The table shows the available protection types of the robot, with the corresponding protection class.

Protection type	Protection class
Manipulator, protection type Standard	IP54

Continues on next page

1 Description

1.3.2 Technical data

Continued

Joint torques

In collaborative applications, the joint torque must be considered in the risk analysis. The following table shows the maximum torque for each joint. The maximum value can be achieved on one axis at a time.

Axis	Maximum joint torque
1	175.44 Nm
2	175.44 Nm
3	90.6 Nm
4	18.72 Nm
5	21.44 Nm
6	9.2 Nm

Other technical data

Data	Description	Note
Airborne noise level	The sound pressure level outside the working space.	< 50.2 dB(A) Leq (acc. to machinery directive 2006/42/EC) Movement: ISO cube (ISO 9283) TCP velocity: 1500 mm/s

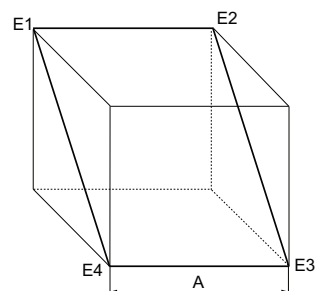
Power consumption at max load



Note

The minimum voltage condition and maximum voltage condition are based on 230V input to the controller.

Type of movement	5/0.95
ISO Cube (ISO 9283) Max. velocity (W)	202
Robot in calibration position	5/0.95
Brakes engaged (W)	98
Brakes disengaged (W)	136



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Continues on next page

Pos	Description
A	400 mm

Explosive environments

The robot must not be located or operated in an explosive environment.

Working range limitations

There is no mechanical limitation available.

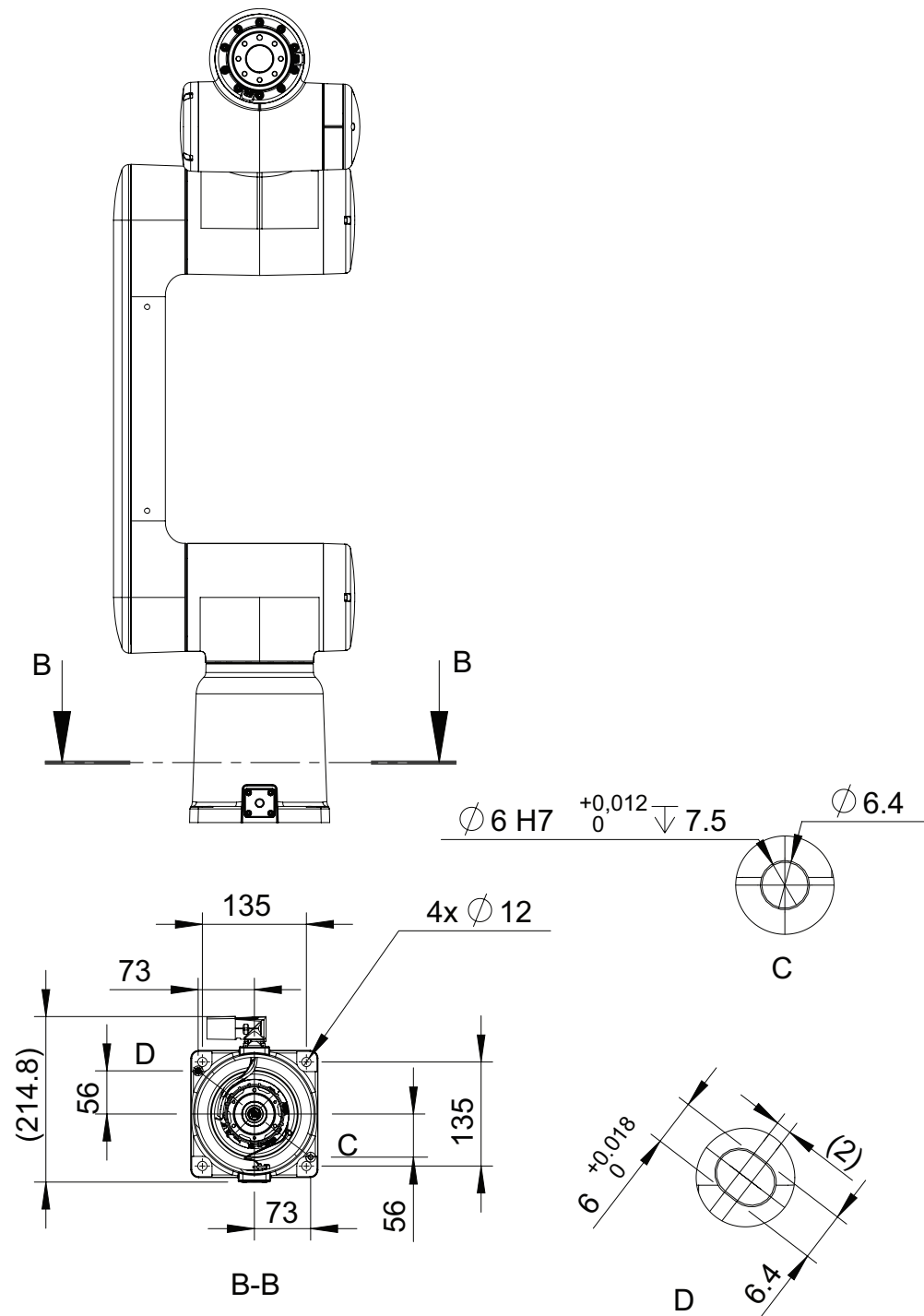
1 Description

1.3.3 Hole configuration and attachment screws

1.3.3 Hole configuration and attachment screws

Hole configuration, base

This illustration shows the hole configuration used when securing the robot.



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C	Circular hole for locating pin
D	Elongated hole for locating pin

Continues on next page

Attachment screws

The table below specifies the type of securing screws and washers to be used for securing the robot to the base plate/foundation.

Suitable screws	M10x35
Quantity	4 pcs
Quality	8.8
Suitable washer	23/10.5/2.5 mm Steel
Guide pins	DIN6325, hardened steel Ø6x24 mm, 2 pcs
Tightening torque	30 Nm ±10%
Level surface requirements	0.1/500 mm

1 Description

1.3.4 Fitting equipment on the robot (robot dimensions)

1.3.4 Fitting equipment on the robot (robot dimensions)

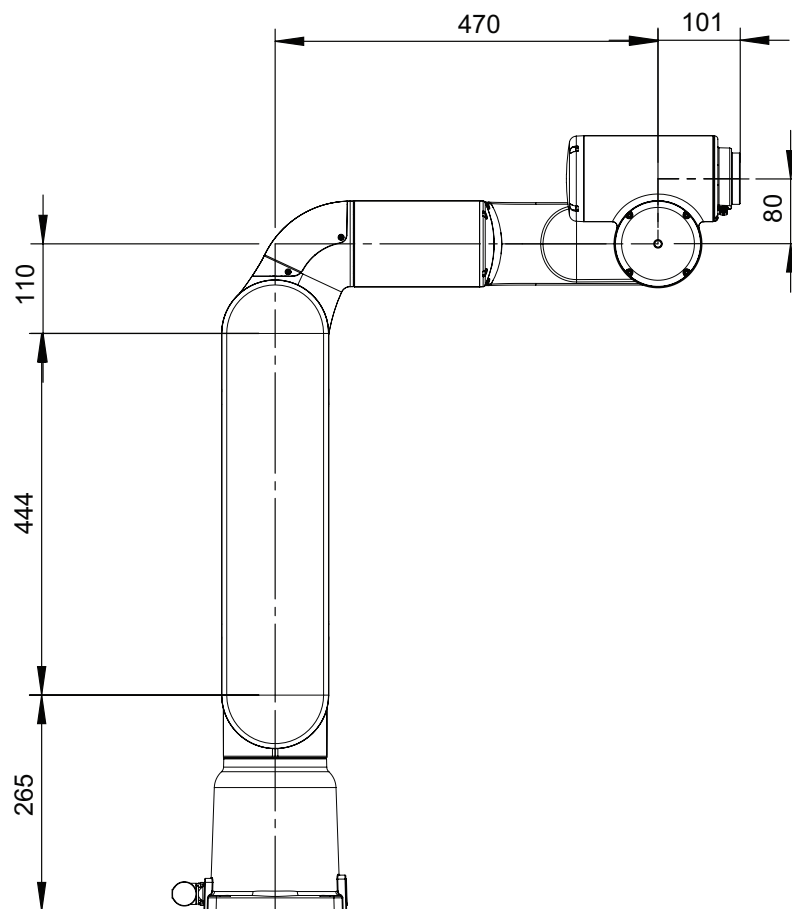


Note

Even after the robot is secured to the foundation, do not lean on it or place loads on it, except what is permitted on the tool flange.

Robot dimensions

The figure shows the dimension of the robot.



Fitting equipment on the robot

Load from equipment on robot arms

The robot arm is not designed with attachment holes for any arm load. However, for light loads such as cables, it is possible to mount them directly on the arm.

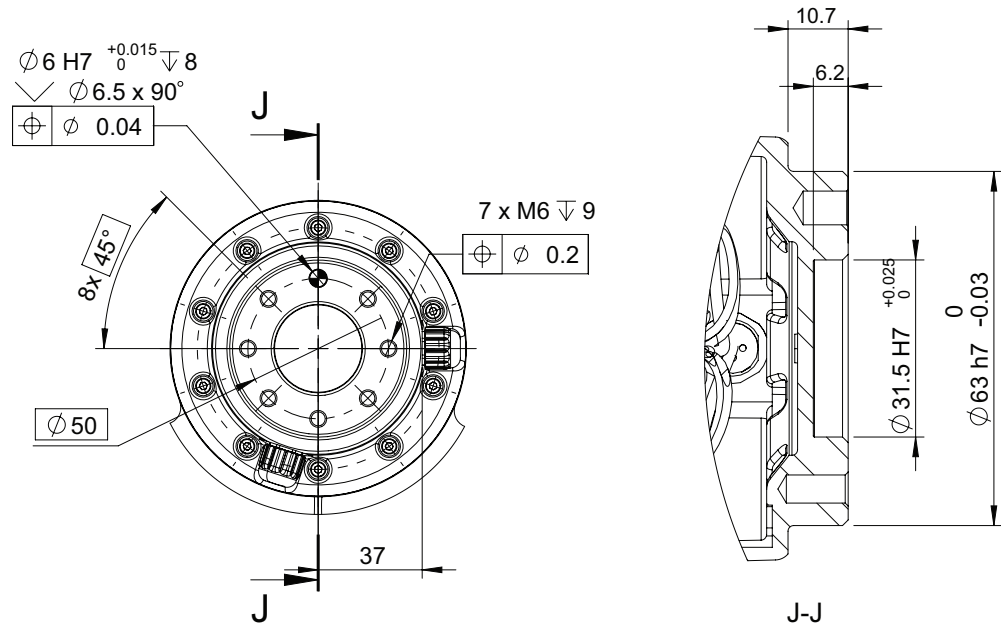
Considerations:

- Any external cable routing along the robot arm shall be done in a flexible way allowing for robot motion and taking hazards associated with entanglement into account.
- The brake release points on each axis must be accessible in the end application.

Continues on next page

- The upper arm can handle a load of 5 kg. This includes the weight of the cabling, tools, and workpiece (if lifted).

Tool flange



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Fastener quality on tool flange

Use screws with suitable length and tightening torque for your application.
Screws with quality class 12.9 are recommended.

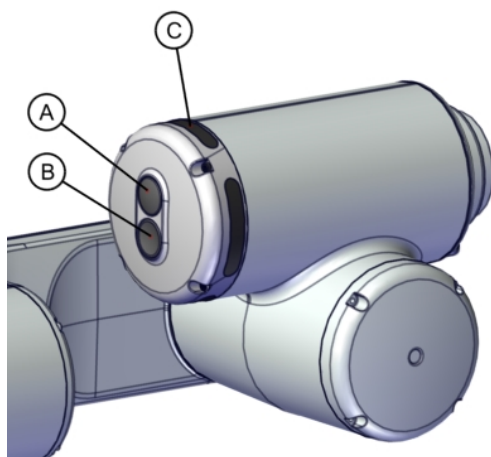
1 Description

1.3.5 Configuring the arm-side interface

1.3.5 Configuring the arm-side interface

Introduction

The arm-side interface is located on axis 5, opposite to the tool flange. The configuration of the arm-side interface is done using the application **ASI Setting** on the FlexPendant.



xx2000002420

A	Up button (convex button)
B	Down button (concave button)
C	Light ring

Prerequisites

A validated safety configuration must be set up before using the arm-side interface. This must be based on a risk assessment of the application. Particular attention should be paid to the risks of impact, crushing and shearing.

The tool and payload must be configured before configuring the arm-side interface. See *Operating manual - OmniCore*.

The application **ASI Setting** on the FlexPendant must be open when using the buttons.

1.4 Calibrating the robot

1.4.1 Calibration method and when to calibrate

Calibration method

The CRB 15000 torque sensors are calibrated with the routine TorqueSensorCal which is available in the **System Module** TorqueSensorCalib. No external calibration tools are required.

The calibration method for the robot consists of calibrating the motor torque sensors, which are installed to monitor and measure the motor torque.

When to calibrate

The torque sensor in an axis motor must be calibrated if any of the following situations occur:

- A drift in the sensor values has occurred.
This is shown on the FlexPendant as error code 90549 **Torque sensor check failure** or 34334 **Arm side torque sensor error**.
- A joint unit has been replaced.
- Repair work that involves removal and refitting of the joint units, has been performed.

No calibration is needed at site at robot installation.

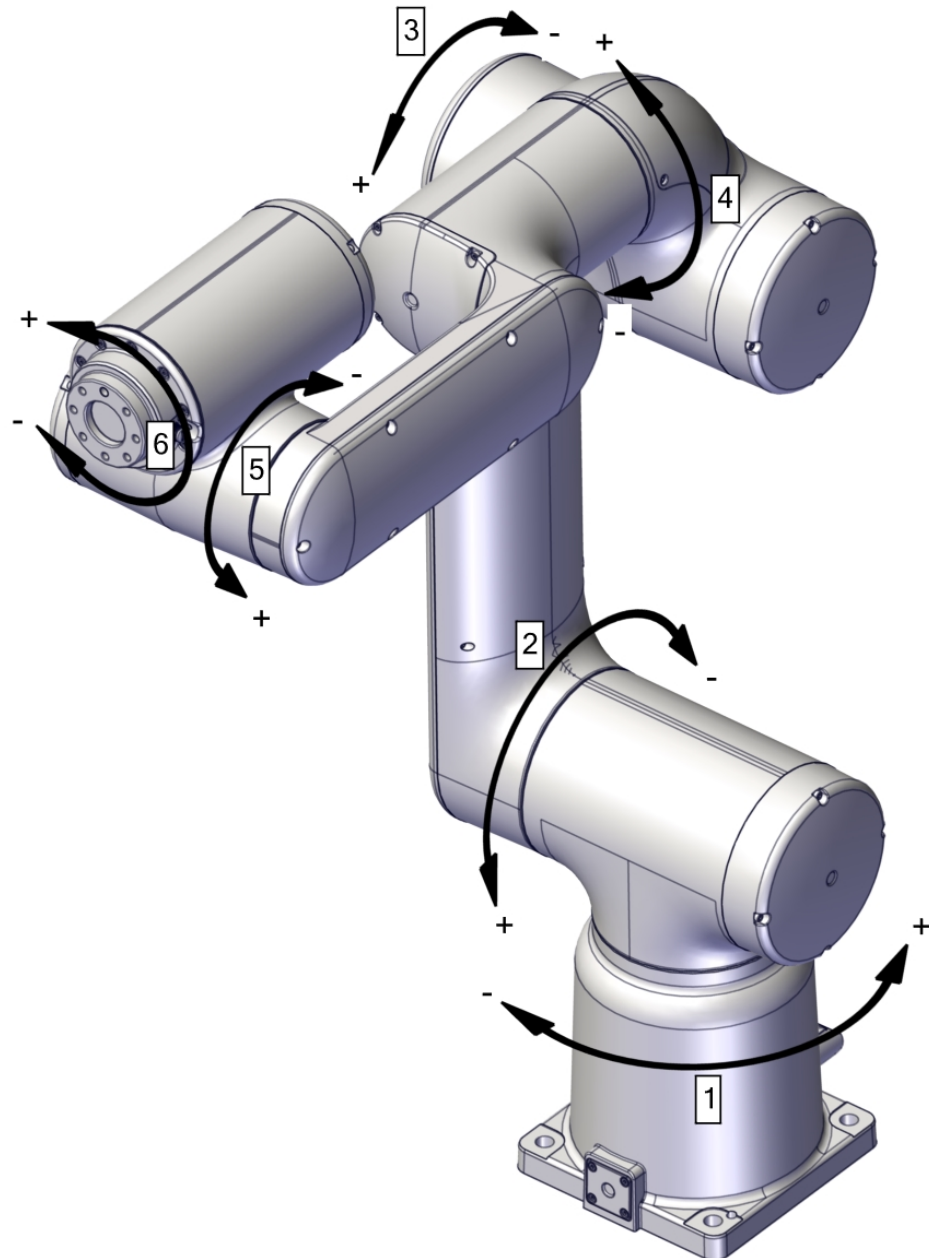
1 Description

1.4.2 Jogging directions

1.4.2 Jogging directions

Illustration of axis jogging directions

The figure shows the positive and negative directions for each axis when jogging the robot in the base coordinate system.



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1.5 Load diagrams

1.5.1 Introduction



WARNING

It is very important to always define correct actual load data and correct payload of the robot. Incorrect definitions of load data can result in overloading of the robot.

If incorrect load data and/or loads are outside load diagram is used the following parts can be damaged due to overload:

- motors
- gearboxes
- mechanical structure



Note

In the robot system the service routine LoadIdentify is available, which allows the user to make an automatic definition of the tool and load, to determine correct load parameters.

See *Operating manual - OmniCore*, for detailed information.



WARNING

Robots running with incorrect load data and/or with loads outside diagram, will not be covered by robot warranty.

General

The load diagrams include a nominal payload inertia, J_0 of 0.012 kgm^2 .

At different moment of inertia the load diagram will be changed. For robots that are allowed tilted, wall or inverted mounted, the load diagrams as given are valid.

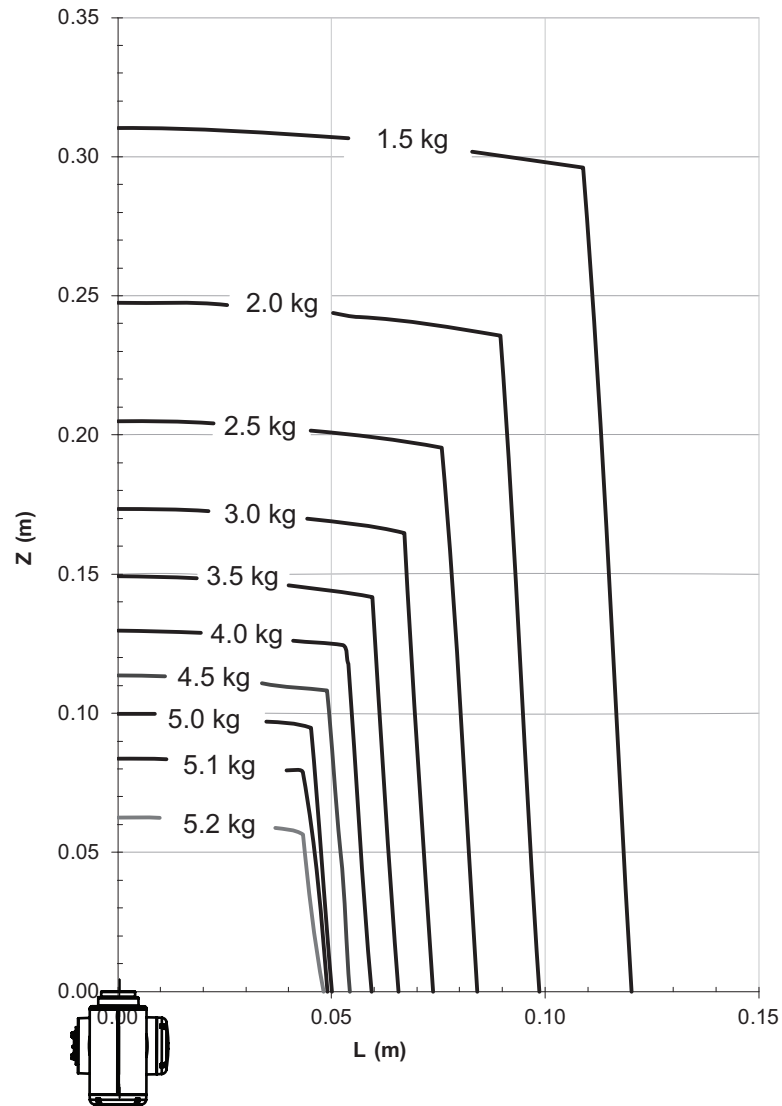
The accuracy of the power and force limiting safety functions require that the payload is correctly defined.

1 Description

1.5.2 Diagrams

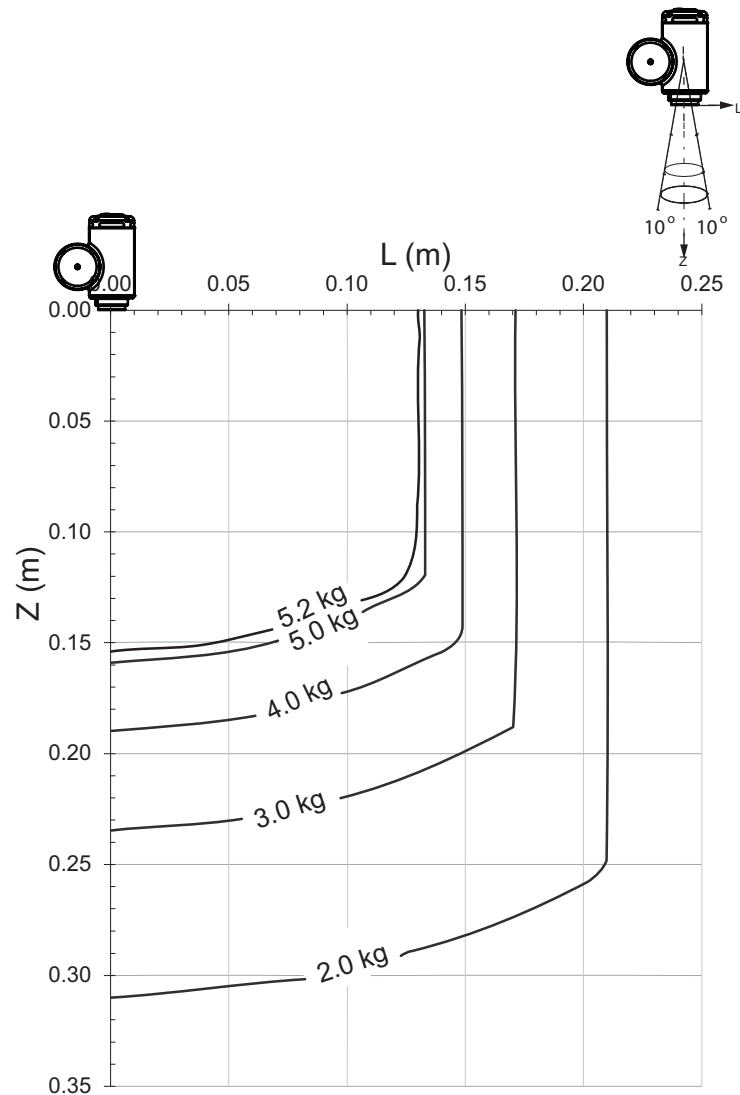
1.5.2 Diagrams

CRB 15000-5/0.95



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CRB 15000-5/0.95 "Vertical wrist" ($\pm 10^\circ$)



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For wrist down (0° deviation from the vertical line).

	Description
Max load	5.2 kg
Z_{\max}	0.154 m
L_{\max}	0.130 m

1 Description

1.5.3 Maximum load and moment of inertia for full and limited axis 5 (center line down) movement

1.5.3 Maximum load and moment of inertia for full and limited axis 5 (center line down) movement

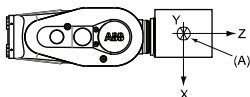


Note

Total load given as: mass in kg, center of gravity (Z and L) in meters and moment of inertia (J_{ox} , J_{oy} , J_{oz}) in kgm^2 . $L = \sqrt{X^2 + Y^2}$, see the following figure.

Full movement of axis 5 (-180°/+180°)

Axis	Robot type	Maximum moment of inertia
5	CRB 15000-5/0.95	$Ja_5 = \text{Load} \times ((Z+0.101)^2 + (L+0.08)^2) + \max(J_{ox}, J_{oy}) \leq 0.236 \text{ kgm}^2$
6	CRB 15000-5/0.95	$Ja_6 = \text{Load} \times L^2 + J_{oz} \leq 0.021 \text{ kgm}^2$



xx1400002028

Pos	Description
A	Center of gravity

	Description
J_{ox} , J_{oy} , J_{oz}	Max. moment of inertia around the X, Y and Z axes at center of gravity.

Continues on next page

1.5.4 Wrist torque



Note

The values are for reference only, and should not be used for calculating permitted load offset (position of center of gravity) within the load diagram, since those also are limited by main axes torques as well as dynamic loads. Also arm loads will influence the permitted load diagram.

Torque

The table below shows the maximum permissible torque due to payload.

Robot type	Max wrist torque axis 4 and 5	Max wrist torque axis 6	Max torque valid at load
CRB 15000-5/0.95	9.86 Nm	2.45 Nm	5 kg

1 Description

1.5.5 Maximum TCP acceleration

1.5.5 Maximum TCP acceleration

General

Higher values can be reached with lower loads than the nominal because of our dynamical motion control QuickMove2. For specific values in the unique customer cycle, or for robots not listed in the table below, we recommend then to use RobotStudio.

Maximum Cartesian design acceleration for nominal loads

Robot type	Emergency stop	Controlled motion
	Max acceleration at nominal load COG [m/s ²] (absolute value)	Max acceleration at nominal load COG [m/s ²] (absolute value)
CRB 15000	61.6	36.9



Note

Acceleration levels for emergency stop and controlled motion includes acceleration due to gravitational forces. Nominal load is defined with nominal mass and cog with max offset in Z and L (see the load diagram).

1.6 Maintenance and troubleshooting

General

The robot requires only minimum maintenance during operation. It has been designed to make it as easy to service as possible:

- Maintenance-free AC motors are used.
- Grease is used for the gearboxes.
- The cabling is routed for longevity, and in the unlikely event of a failure, its modular design makes it easy to change.

Maintenance

The maintenance intervals depend on the use of the robot. The required maintenance activities also depend on the selected options. For detailed information on maintenance procedures, see the maintenance section in *Product manual - CRB 15000*.

1 Description

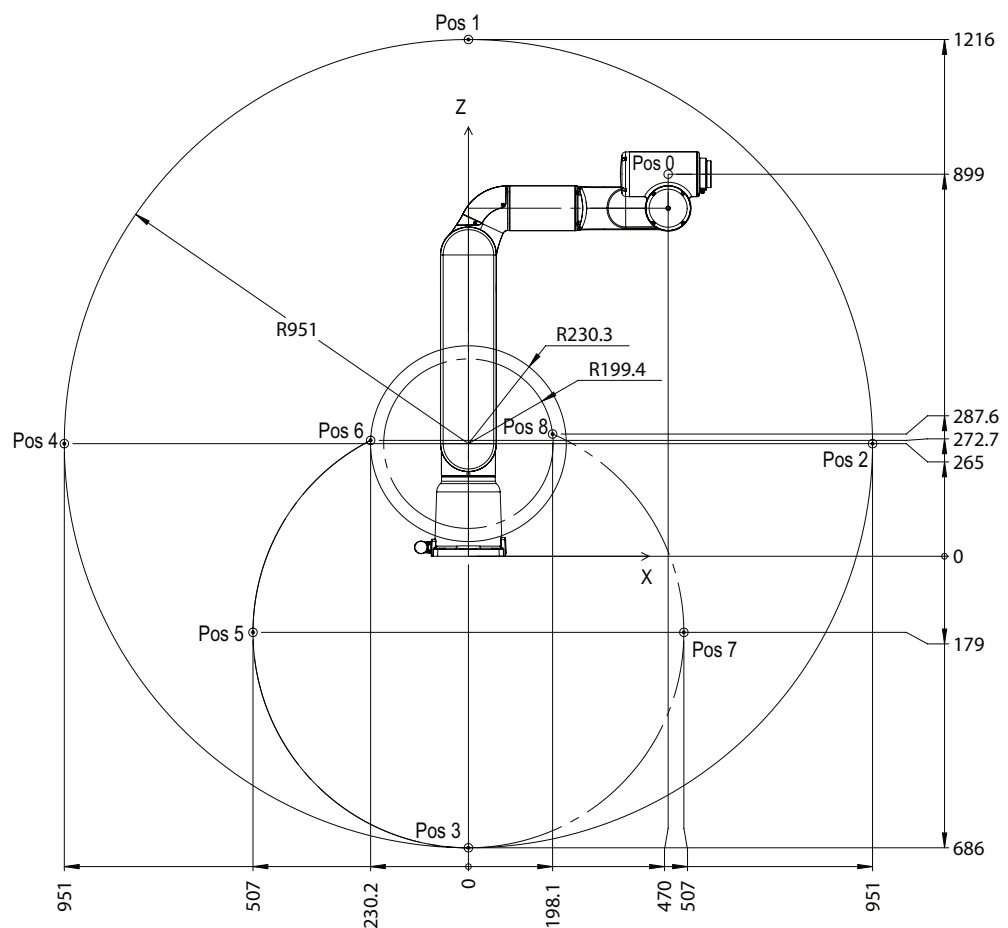
1.7.1 Working range

1.7 Robot motion

1.7.1 Working range

Illustration, working range CRB 15000-5/0.95

This illustration shows the unrestricted working range of the robot.



xx2000002410

Positions at intersection point of axes 4-5-6 and angle of axes 2 and 3

Position in the figure	Positions at wrist center (mm)		Angle (degrees)	
	X	Z	axis 2	axis 3
pos0	470	899	0°	0°
pos1	0	1216	0°	-68°
pos2	951	265	90°	-68°
pos3	0	-686	180°	-68°
pos4	-951	265	-90°	-68°
pos5	-507	-179	180°	22°
pos6	-230.2	272.7	180°	85°
pos7	507	-179	180°	-158°

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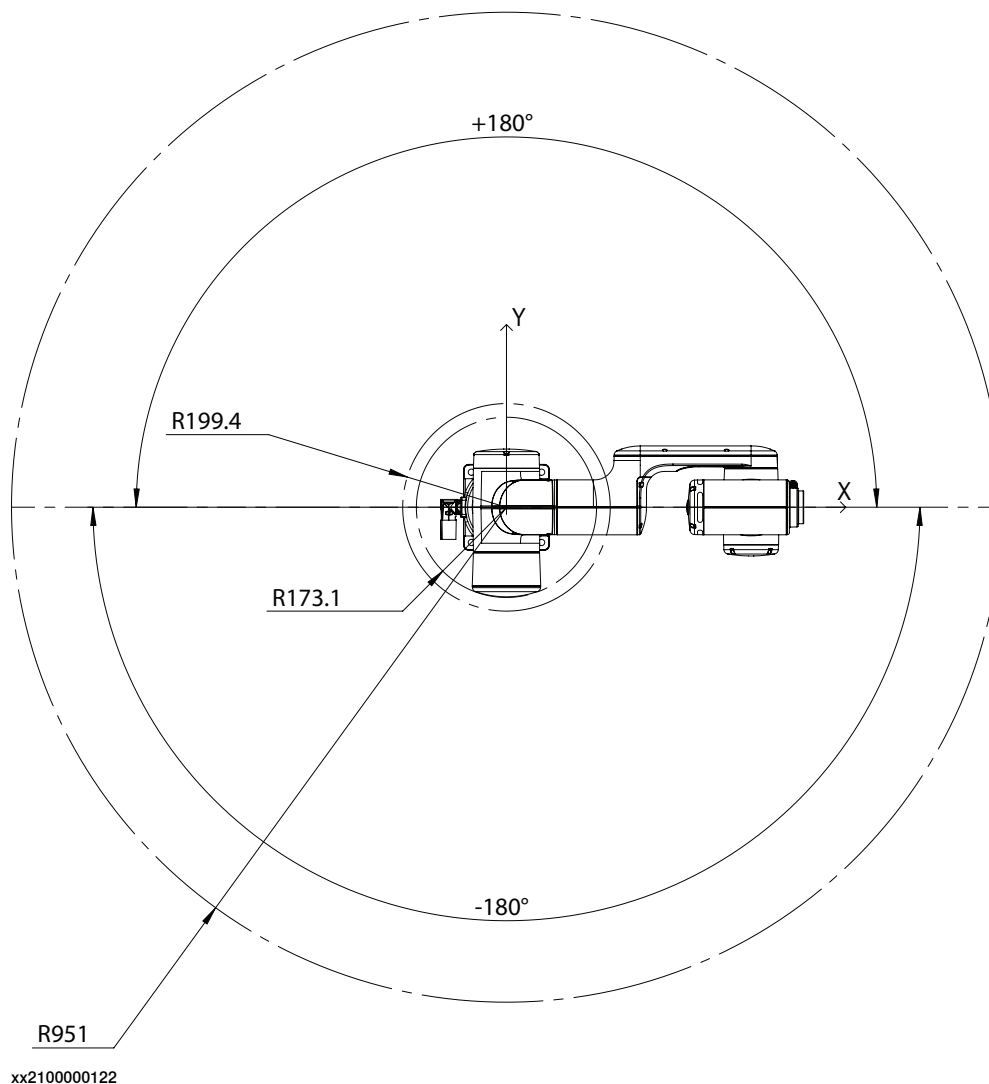
1 Description

1.7.1 Working range

Continued

Position in the figure	Positions at wrist center (mm)		Angle (degrees)	
	X	Z	axis 2	axis 3
pos8	198.1	287.6	180°	-225°

Turning radius



A	Minimum turning radius of axis 1
---	----------------------------------

Working range

Axis	Working range	Note
Axis 1	$\pm 180^\circ$	Wall mounted robot has a work area for axis 1 that depends on payload and the positions of other axes. Simulation in RobotStudio is recommended.
Axis 2	$\pm 180^\circ$	
Axis 3	$-225^\circ / +85^\circ$	
Axis 4	$\pm 180^\circ$	

Continues on next page

1 Description

1.7.1 Working range

Continued

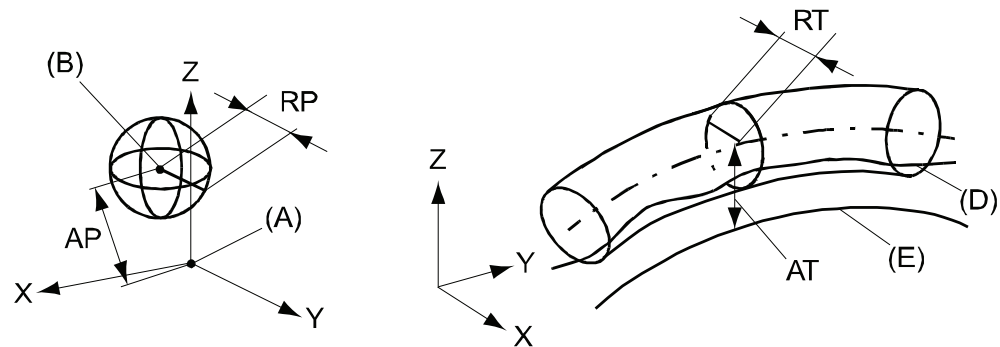
Axis	Working range	Note
Axis 5	$\pm 180^\circ$	
Axis 6	$\pm 180^\circ$	

1.7.2 Performance according to ISO 9283

General

At rated maximum load, maximum offset and 1.6 m/s velocity on the inclined ISO test plane, with all six axes in motion. Values in the table below are the average result of measurements on a small number of robots. The result may differ depending on where in the working range the robot is positioning, velocity, arm configuration, from which direction the position is approached, the load direction of the arm system. Backlashes in gearboxes also affect the result.

The figures for AP, RP, AT and RT are measured according to figure below.



xx080000424

A	Programmed position
B	Mean position at program execution
AP	Mean distance from programmed position
RP	Tolerance of position B at repeated positioning
D	Actual path at program execution
E	Programmed path
AT	Max deviation from E to average path
RT	Tolerance of the path at repeated program execution
CRB 15000	
5/0.95	
Pose repeatability, RP (mm)	0.05

1 Description

1.7.3 Velocity

1.7.3 Velocity

Maximum axis speed

Robot type	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6
CRB 15000-5/0.95	125 °/s	125 °/s	140 °/s	200 °/s	200 °/s	200 °/s

There is a supervision function to prevent overheating in applications with intensive and frequent movements (high duty cycle).

1.7.4 Robot stopping distances and times

Introduction

The stopping distances and times for category 0 and category 1 stops, as required by EN ISO 10218-1 Annex B, are listed in *Product specification - Robot stopping distances according to ISO 10218-1 (3HAC048645-001)*.

1 Description

1.8 Customer connections on the manipulator

1.8 Customer connections on the manipulator

Introduction

The customer cables are routed internally with the manipulator cable harness.

Customer cabling

Customer connection	Cable specification	Article number	Rating in each wire ⁱ	Note
Customer power (CP)	Raw cable is twisted pair 1x2xAWG24	See <i>Product manual, spare parts - CRB 15000</i>	24V ⁱⁱ 2A	Routed internally with the manipulator cable harness.
Customer signal (CS)	2x2xAWG26 in 4x2XAWG26 cable	See <i>Product manual, spare parts - CRB 15000</i>	24V ⁱⁱⁱ 500mA	Routed internally with the manipulator cable harness.

ⁱ Stresses above the limitation may cause permanent damage to the manipulator.

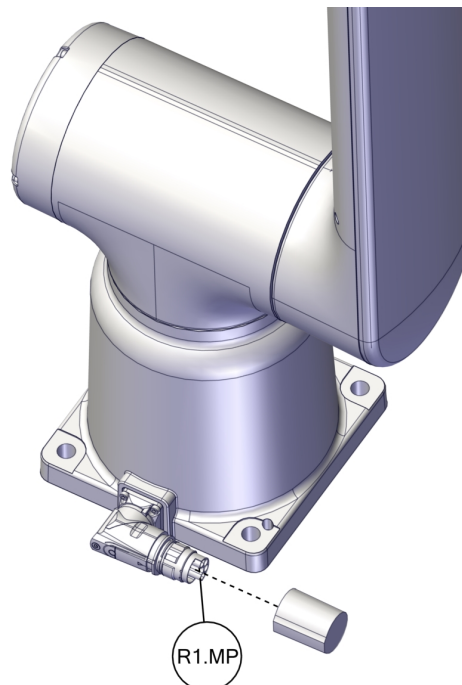
ⁱⁱ Rated 24V, max 30V

ⁱⁱⁱ Rated 24V, max 30V

Customer connectors on the manipulator

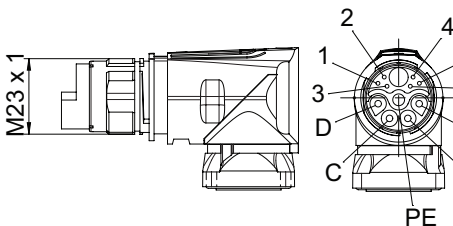
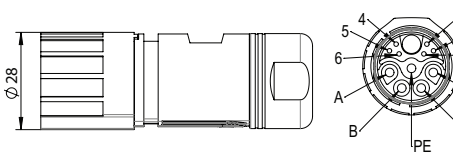
Connectors at the base

The R1.MP on the base is used for transferring DC bus, EtherCat and customer signals (CP/CS).

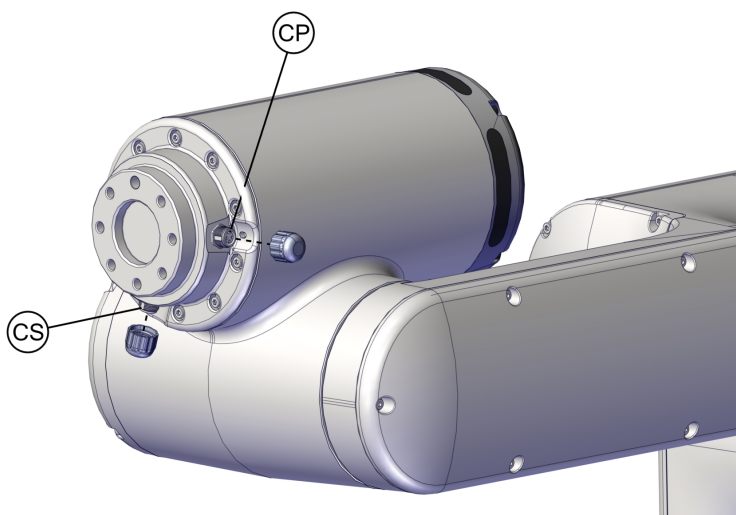


xx2100000228

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Pos	Connector type	Layout
R1.MP	Receptacle angled rotatable male connector with housing and insert.	 <p>xx2100000221</p>
-	Plug with female connector includes housing and insert.	 <p>xx2100000229</p>

Connectors at the tool flange



xx2100000125



CAUTION

Always use protective caps on unused customer connectors to protect the connector and to cover sharp connector edges.



Note

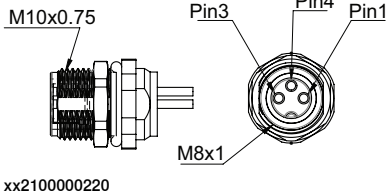
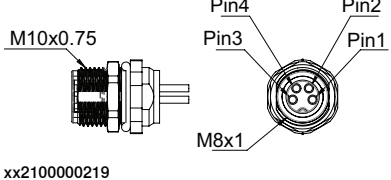
Always inspect the connector for dirt or damage before connecting it. Clean or replace any damaged parts.

Continues on next page

1 Description

1.8 Customer connections on the manipulator

Continued

Pos	Connector type	Torque for mating/unmating	Layout
CP	M8 3 pin female, 200 mm wire, straight (two pins for use, one pin is spare)	0.4 Nm	 xx2100000220
CS	M8 4 pin female, 200 mm wire, straight	0.4 Nm	 xx2100000219

2 Specification of variants and options

2.1 Introduction to variants and options

General

The different variants and options for the CRB 15000 are described in the following sections. The same option numbers are used here as in the specification form.

The variants and options related to the robot controller are described in the product specification for the controller.

2 Specification of variants and options

2.2 Manipulator

2.2 Manipulator

Manipulator variants

Option	Variant	Handling capacity (kg)	Reach (m)
3300-19	CRB 15000-5/0.95	5	0.95

Manipulator protection

Option	Description
3350-540	Base 54, IP54



Note

Base 54 includes IP54, according to standard IEC 60529.

Warranty

For the selected period of time, ABB will provide spare parts and labour to repair or replace the non-conforming portion of the equipment without additional charges. During that period, it is required to have a yearly Preventative Maintenance according to ABB manuals to be performed by ABB. If due to customer restrains no data can be analyzed in the ABB Ability service *Condition Monitoring & Diagnostics* for robots with OmniCore controllers, and ABB has to travel to site, travel expenses are not covered. The Extended Warranty period always starts on the day of warranty expiration. Warranty Conditions apply as defined in the Terms & Conditions.




Note

This description above is not applicable for option *Stock warranty* [438-8]

Option	Type	Description
438-1	Standard warranty	Standard warranty is 12 months from <i>Customer Delivery Date</i> or latest 18 months after <i>Factory Shipment Date</i> , whichever occurs first. Warranty terms and conditions apply.
438-2	Standard warranty + 12 months	Standard warranty extended with 12 months from end date of the standard warranty. Warranty terms and conditions apply. Contact Customer Service in case of other requirements.

Continues on next page

Option	Type	Description
438-8	Stock warranty	<p>Maximum 6 months postponed start of standard warranty, starting from factory shipment date. Note that no claims will be accepted for warranties that occurred before the end of stock warranty. Standard warranty commences automatically after 6 months from <i>Factory Shipment Date</i> or from activation date of standard warranty in WebConfig.</p> <p> Note</p> <p>Special conditions are applicable, see <i>Robotics Warranty Directives</i>.</p>

2 Specification of variants and options

2.3 Floor cables

2.3 Floor cables

Manipulator cable length

Option	Lengths
3200-2	7 m

Mains cable

Option	Lengths	Description
3203-1	EU mains cable, 3 m	Cable assembly with CEE7/VII line-side plug
3203-5	CN mains cable, 3 m	Cable assembly with CPCS-CCC line-side plug
3203-6	AU mains cable, 3 m	Cable assembly with AS/NZS 3112 line-side
3203-7	All regions cable, 5 m	Cable assembly without line-side plug

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