

ROBOTICS

# Product specification

## IRB 1520



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## **Product specification**

**IRB 1520**

**Document ID: 3HAC043437-001**

**Revision: J**

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# Overview of this specification

## About this product specification

It 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 requirements
- The load diagrams, mounting of extra equipment, the motion and the robot reach
- The specification of variant and options available

## 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.

## Users

It is intended for:

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

## References

Reference	Document ID
<i>Product specification - Controller IRC5</i> IRC5 with main computer DSQC1000.	3HAC047400-001
<i>Product specification - Controller software IRC5</i> IRC5 with main computer DSQC1000 and RobotWare 5.6x.	3HAC050945-001
<i>Product specification - Controller software IRC5</i> IRC5 with main computer DSQC1000 and RobotWare 6.	3HAC050945-001
<i>Product manual - IRB 1520</i>	3HAC043435-001
<i>Product manual - Arc welding equipment for IRB 1520ID</i>	3HAC043438-001
<i>Product specification - Robot user documentation, IRC5 with RobotWare 6</i>	3HAC052355-001

## Revisions

Revision	Description
-	<ul style="list-style-type: none"> <li>• New product specification</li> </ul>
A	<ul style="list-style-type: none"> <li>• Minor corrections/update</li> </ul>
B	<ul style="list-style-type: none"> <li>• Text for ISO test adjusted</li> <li>• Robot stopping distances and times for category 0 and category 1 stops are moved to a separate document, <i>Product specification - Robot stopping distances according to ISO 10218-1</i></li> </ul>
C	<ul style="list-style-type: none"> <li>• Option 1029-17 added</li> </ul>

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## Overview of this specification

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Continued

Revision	Description
D	<ul style="list-style-type: none"><li>• Minor corrections/update</li></ul>
E	Published in release R17.1. The following updates are done in this revision: <ul style="list-style-type: none"><li>• Restriction of load diagram added.</li></ul>
F	Published in release R17.2. The following updates are done in this revision: <ul style="list-style-type: none"><li>• Updated list of applicable standards.</li></ul>
G	Published in release R18.1. The following updates are done in this revision: <ul style="list-style-type: none"><li>• Minor changes.</li></ul>
H	Published in release R18.2. The following updates are done in this revision: <ul style="list-style-type: none"><li>• Removed the phased out options: option Self cooled torch [878-2], option RPC S-400 [1029-15], option Process cabling [1029-17], and option Marathon Pac Octagon [1033-2]</li></ul>
J	Published in release 19C. The following updates are done in this revision: <ul style="list-style-type: none"><li>• Note added about need to calibrate if the robot is other than floor mounted. See <a href="#">Calibration methods on page 20</a></li></ul>



# 1 Description

## 1.1 Structure

### 1.1.1 Introduction

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**Robot family**

ABB's IRB 1520 robot is a dedicated arc welding robot available in one version. It has a compact process upper arm designed for integrated dressing packages for arc welding. The IRB 1520ID-4/1.5 is a part of the ArcPack Lean concept.

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**Software product range**

We have added a range of software products - all falling under the umbrella designation of Active Safety - to protect not only personnel in the unlikely event of an accident, but also robot tools, peripheral equipment and the robot itself.

---

**Operating system**

The robot is equipped with the IRC5 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 *Product specification - Controller IRC5 with FlexPendant*.

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**Safety**

Safety standards valid for complete robot, manipulator and controller.

---

**Additional functionality**

For additional functionality, the robot can be equipped with optional software for application support - for example welding, communication features - network communication - and advanced functions such as multitasking, sensor control etc. For a complete description on optional software, see the *Product specification - Controller software IRC5*.

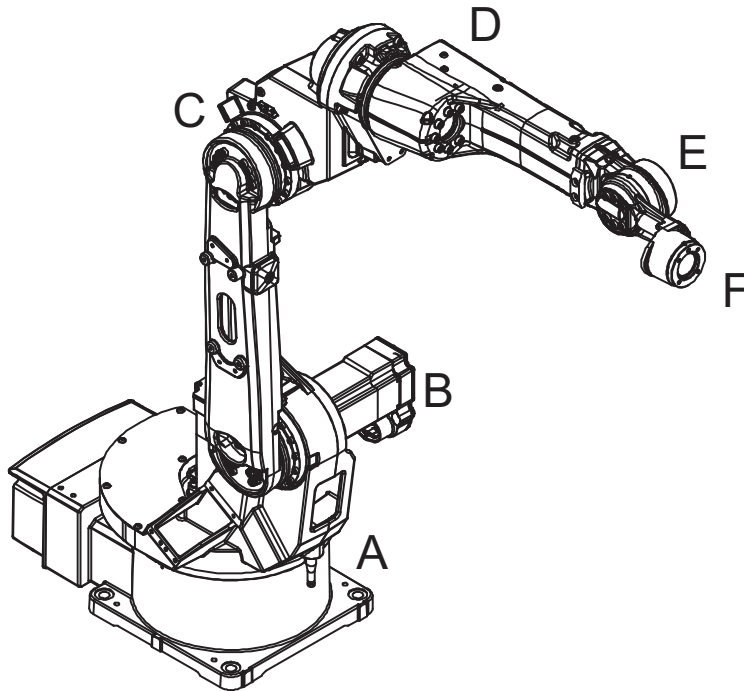
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# 1 Description

## 1.1.1 Introduction

*Continued*

### Manipulator axes



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Pos	Description	Pos	Description
A	Axis 1	B	Axis 2
C	Axis 3	D	Axis 4
E	Axis 5	F	Axis 6

## 1.1.2 Different robot versions

### General

The IRB 1520 is available in one version and can only be mounted on the floor or inverted (no tilting allowed around X-axis or Y-axis). See [Robot motion on page 33](#) for limitations.

Robot type	Handling capacity (kg)	Reach (m)
IRB 1520ID	4 kg	1.5 m

### Manipulator weight

Robot	Weight
IRB 1520ID-4/1.5	170 kg

### Other technical data

Data	Description	Note
Airborne noise level	The sound pressure level outside the working space	< 70 dB (A) Leq (acc. to Machinery directive 2006/42/EG)

### Power consumption at max load

Type of movement	IRB 1520ID-4/1.5
ISO cube Max. velocity	0.75 kW
Robot in calibration position	IRB 1520ID-4/1.5
Brakes engaged	0.206 kW
Brakes disengaged	0.233 kW

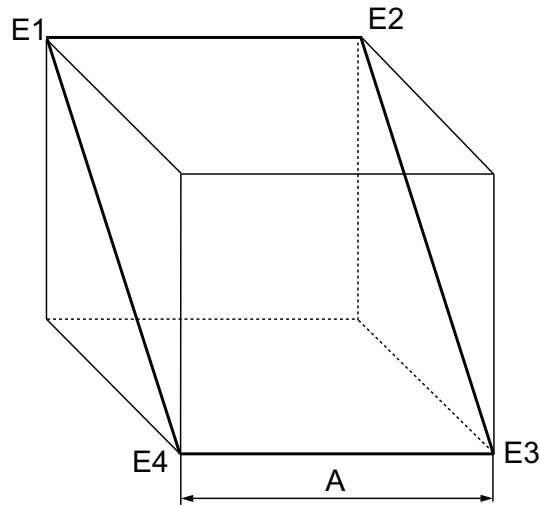
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# 1 Description

## 1.1.2 Different robot versions

Continued

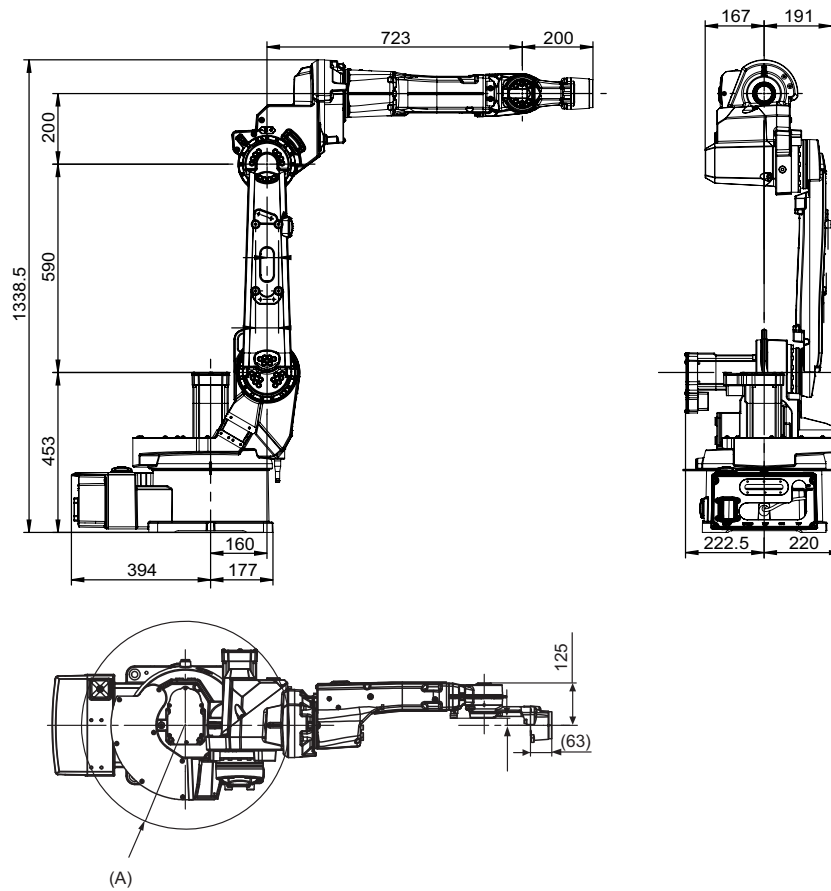
Path E1-E2-E3-E4 in the ISO Cube, max.load.



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Pos	
A	400 mm

## Dimensions IRB 1520ID-4/1.5



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Continues on next page

## 1 Description

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### 1.1.2 Different robot versions

*Continued*

Pos	Description
A	Minimum turning radius R=307 mm

# 1 Description

## 1.2 Applicable standards

## 1.2 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.

### Standards, EN ISO

The product is designed in accordance with the requirements of:

Standard	Description
EN ISO 12100:2010	Safety of machinery - General principles for design - Risk assessment and risk reduction
EN ISO 13849-1:2015	Safety of machinery, safety related parts of control systems - Part 1: General principles for design
EN ISO 13850:2015	Safety of machinery - Emergency stop - Principles for design
EN ISO 10218-1:2011	Robots for industrial environments - Safety requirements -Part 1 Robot
ISO 9787:2013	Robots and robotic devices -- Coordinate systems and motion nomenclatures
ISO 9283:1998	Manipulating industrial robots, performance criteria, and related test methods
EN ISO 14644-1:2015 <sup>i</sup>	Classification of air cleanliness
EN ISO 13732-1:2008	Ergonomics of the thermal environment - Part 1
EN 61000-6-4:2007 + A1:2011 IEC 61000-6-4:2006 + A1:2010 (option 129-1)	EMC, Generic emission
EN 61000-6-2:2005 IEC 61000-6-2:2005	EMC, Generic immunity
EN IEC 60974-1:2012 <sup>ii</sup>	Arc welding equipment - Part 1: Welding power sources
EN IEC 60974-10:2014 <sup>ii</sup>	Arc welding equipment - Part 10: EMC requirements
EN IEC 60204-1:2006	Safety of machinery - Electrical equipment of machines - Part 1 General requirements
IEC 60529:1989 + A2:2013	Degrees of protection provided by enclosures (IP code)

<sup>i</sup> Only robots with protection Clean Room.

<sup>ii</sup> Only valid for arc welding robots. Replaces EN IEC 61000-6-4 for arc welding robots.

### European standards

Standard	Description
EN 614-1:2006 + A1:2009	Safety of machinery - Ergonomic design principles - Part 1: Terminology and general principles
EN 574:1996 + A1:2008	Safety of machinery - Two-hand control devices - Functional aspects - Principles for design

## 1.3 Installation

### 1.3.1 Introduction

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#### General

IRB 1520ID-4/1.5 can only be mounted on the floor or inverted (no tilting allowed around X-axis or Y-axis). An end effector with max. weight of 4 kg including payload, can be mounted on the tool flange. See [Robot load and diagrams on page 23](#).

Extra equipment can be mounted on the upper arm. See [Mounting of equipment on page 29](#).

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#### Extra loads

Extra load, which is included in the load diagrams, can be mounted on the upper arm. See [Robot load and diagrams on page 23](#).

---

#### Working range

Electronic Position Switches can be used on all axes for position indication of the manipulator.

# 1 Description

## 1.3.2 Operating requirements

### 1.3.2 Operating requirements

#### Protection standards

Robot version	Protection Standard IEC60529
IRB 1520ID-4/1.5	IP 40

#### Explosive environments

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

#### Ambient temperature

Description	Standard/Option	Temperature
Manipulator during operation	Standard	+ 5 °C <sup>i</sup> (+ 41 °F) to + 45 °C (+ 113 °F)
For the controller	Standard/Option	See <i>Product specification - Controller IRC5 with FlexPendant</i>
Complete robot (incl. controller) during transportation and storage	Standard	- 25 °C (- 13 °F) to + 55 °C (+ 131 °F)
For short periods (not exceeding 24 hours)	Standard	up to + 70 °C (+ 158 °F)

<sup>i</sup> 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.

#### Relative humidity

Description	Relative humidity
Complete robot during operation, transportation and storage	Max. 95% at constant temperature



1.3.3 Mounting the manipulator

General

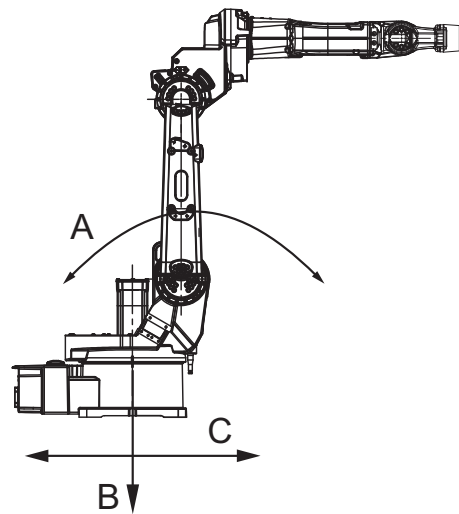
Maximum load in relation to the base coordination system. See Figure below.

Floor Mounted

Force	Endurance load (in operation)	Max. load (emergency stop)
Force xy	± 1900 N	± 4300 N
Force z	1850 ±900 N	1850 ±2350 N
Torque xy	± 1550 Nm	± 3900 Nm
Torque z	± 390 Nm	± 1200 Nm

Suspended

Force	Endurance load (in operation)	Max. load (emergency stop)
Force xy	± 1900 N	± 4250 N
Force z	- 1850 ±750 N	-1850 ±2350 N
Torque xy	± 1550 Nm	± 3900 Nm
Torque z	± 390 Nm	± 1200 Nm



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Pos	Description
A	Torque <sub>xy</sub> (T <sub>xy</sub> )
B	Force <sub>z</sub> (F <sub>z</sub> )
C	Force <sub>xy</sub> (F <sub>xy</sub> )

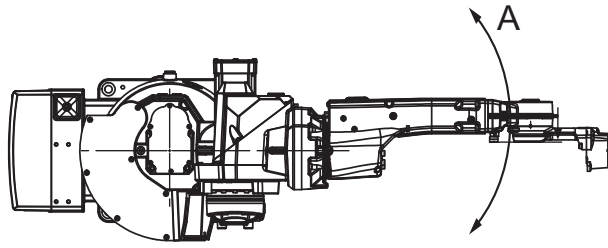
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# 1 Description

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## 1.3.3 Mounting the manipulator

*Continued*



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Pos	Description
A	Torque <sub>z</sub> (T <sub>2</sub> )

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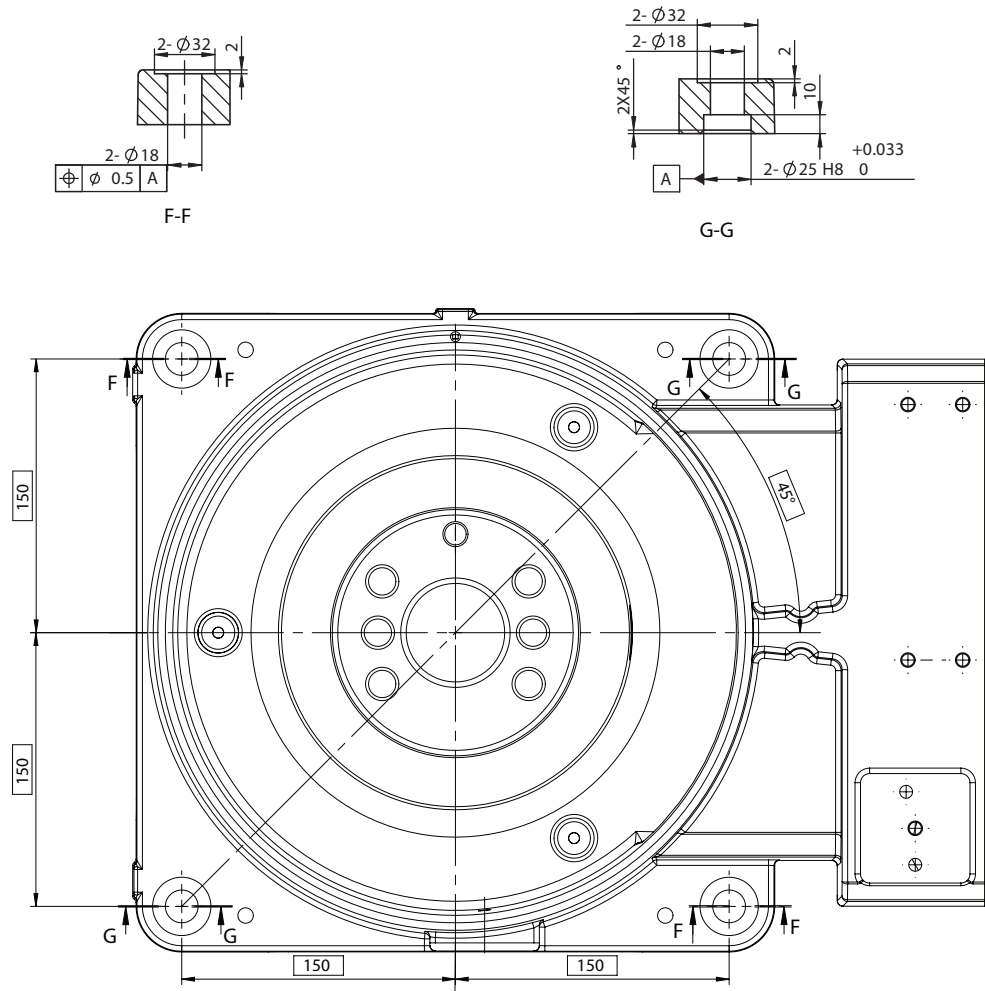
### Note regarding $M_{xy}$ and $F_{xy}$

The bending torque ( $M_{xy}$ ) can occur in any direction in the XY-plane of the base coordinate system.

The same applies to the transverse force ( $F_{xy}$ ).

*Continues on next page*

### Fastening holes robot base



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### Attachment bolts, specification

The table below specifies required bolts and washers for securing the robot at installation site.

Specification	Description
Attachment bolts, 4 pcs	M16 x 60 (installation directly on foundation) M16 x 70/80 (installation on foundation or base plate, using guiding sleeves)
Washers, 4 pcs	17 x 30 x 3
Quality	Quality 8.8
Tightening torque	200 Nm

# 1 Description

## 1.4.1 Calibration methods

## 1.4 Calibration and reference

### 1.4.1 Calibration methods


#### Overview

This section specifies the different types of calibration and the calibration methods that are supplied by ABB.

The original calibration data delivered with the robot is generated when the robot is floor mounted. If the robot is not floor mounted, then the robot accuracy could be affected. The robot needs to be calibrated after it is mounted.

More information is available in the product manual.

#### Types of calibration

Type of calibration	Description	Calibration method
Standard calibration	<p>The calibrated robot is positioned at calibration position.</p> <p>Standard calibration data is found on the SMB (serial measurement board) or EIB in the robot.</p> <p>For robots with RobotWare 5.04 or older, the calibration data is delivered in a file, calib.cfg, supplied with the robot at delivery. The file identifies the correct resolver/motor position corresponding to the robot home position.</p>	Calibration Pendulum
Absolute accuracy calibration (optional)	<p>Based on standard calibration, and besides positioning the robot at synchronization position, the Absolute accuracy calibration also compensates for:</p> <ul style="list-style-type: none"><li>• Mechanical tolerances in the robot structure</li><li>• Deflection due to load</li></ul> <p>Absolute accuracy calibration focuses on positioning accuracy in the Cartesian coordinate system for the robot.</p> <p>Absolute accuracy calibration data is found on the SMB (serial measurement board) in the robot.</p> <p>For robots with RobotWare 5.05 or older, the absolute accuracy calibration data is delivered in a file, absacc.cfg, supplied with the robot at delivery. The file replaces the calib.cfg file and identifies motor positions as well as absolute accuracy compensation parameters.</p> <p>A robot calibrated with Absolute accuracy has a sticker next to the identification plate of the robot.</p> <p>To regain 100% Absolute accuracy performance, the robot must be recalibrated for absolute accuracy after repair or maintenance that affects the mechanical structure.</p> <div data-bbox="651 1868 1145 1989"><p>The sticker features a warning symbol (a triangle with an exclamation mark) on the left and the text 'ABSOLUTE ACCURACY' on the right. Below the text is the reference number '3HAC 14257-1'.</p></div> <p>xx0400001197</p>	CalibWare

Continues on next page

### Brief description of calibration methods

#### Calibration Pendulum method

Calibration Pendulum is a standard calibration method for calibration of all ABB robots (except IRB 6400R, IRB 640, IRB 1400H, and IRB 4400S).

Two different routines are available for the Calibration Pendulum method:

- Calibration Pendulum II
- Reference calibration

The calibration equipment for Calibration Pendulum is delivered as a complete toolkit, including the *Operating manual - Calibration Pendulum*, which describes the method and the different routines further.

#### CalibWare - Absolute Accuracy calibration

The CalibWare tool guides through the calibration process and calculates new compensation parameters. This is further detailed in the *Application manual - CalibWare Field*.

If a service operation is done to a robot with the option Absolute Accuracy, a new absolute accuracy calibration is required in order to establish full performance. For most cases after replacements that do not include taking apart the robot structure, standard calibration is sufficient.

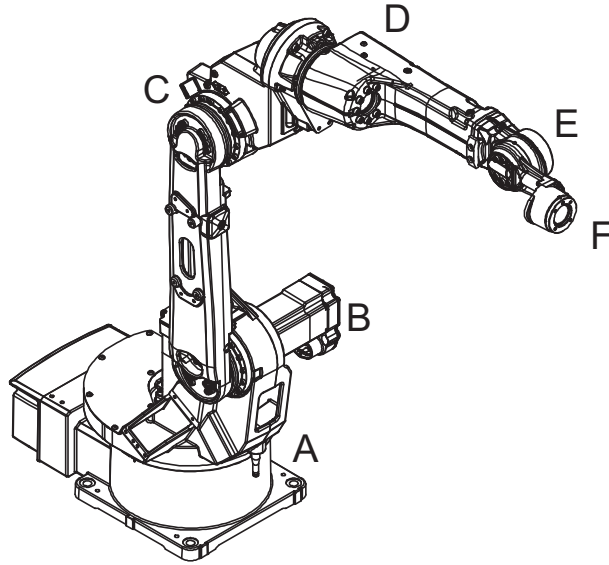
# 1 Description

## 1.4.2 Fine calibration

### 1.4.2 Fine calibration

#### General

Fine calibration is made using the Calibration Pendulum, see *Operating manual - Calibration Pendulum*.



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Pos	Description	Pos	Description
A	Axis 1	B	Axis 2
C	Axis 3	D	Axis 4
E	Axis 5	F	Axis 6

#### Calibration

Calibration	Position
Calibration of all axes	All axes are in zero position
Calibration of axis 1 and 2	Axis 1 and 2 in zero position
	Axis 3 to 6 in any position
Calibration of axis 1	Axis 1 in zero position
	Axis 2 to 6 in any position

## 1.5 Robot load and diagrams

### 1.5.1 Introduction

---

**Information****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

**WARNING**

In the robot system is the service routine LoadIdentify available, which allows the user to make an automatic definition of the tool and load, to determine correct load parameters. Please see *Operating Manual - IRC5 with FlexPendant*, art. No. 3HAC16590-1, 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 pay load inertia,  $J_0$  of  $0.012 \text{ kgm}^2$ , and an extra load of 10 kg (hose package included) at the upper arm housing. 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 and thus it is also possible to use RobotLoad within those tilt and axis limits.

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**Control of load case by “RobotLoad”**

To easily control a specific load case, use the calculation program ABB RobotLoad. Contact your local ABB organization for more information.

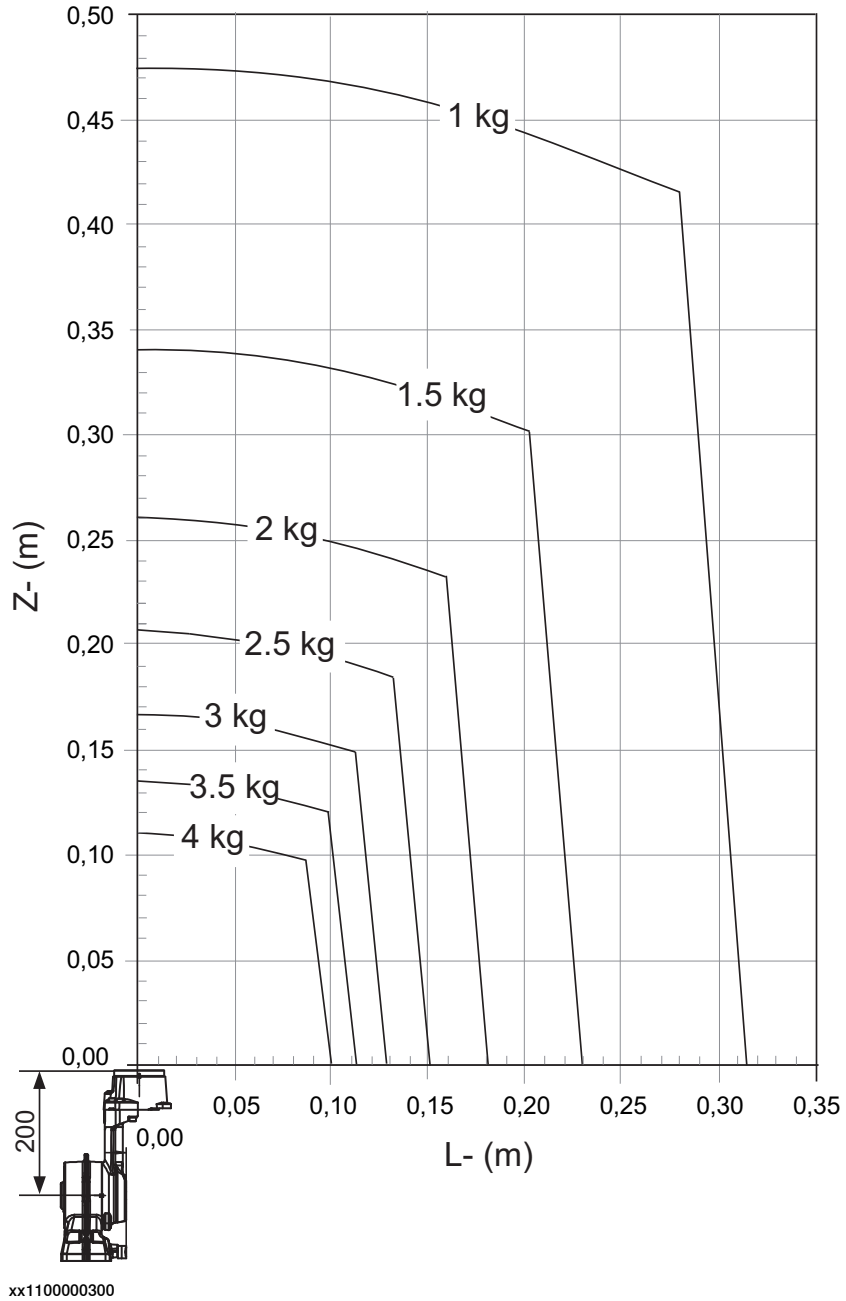
The result from RobotLoad is only valid within the maximum loads and tilt angles. There is no warning if the maximum permitted armload is exceeded. For over load cases and special applications, contact ABB for further analysis.

# 1 Description

## 1.5.2 Load diagrams

### 1.5.2 Load diagrams

IRB 1520ID-4/1.5

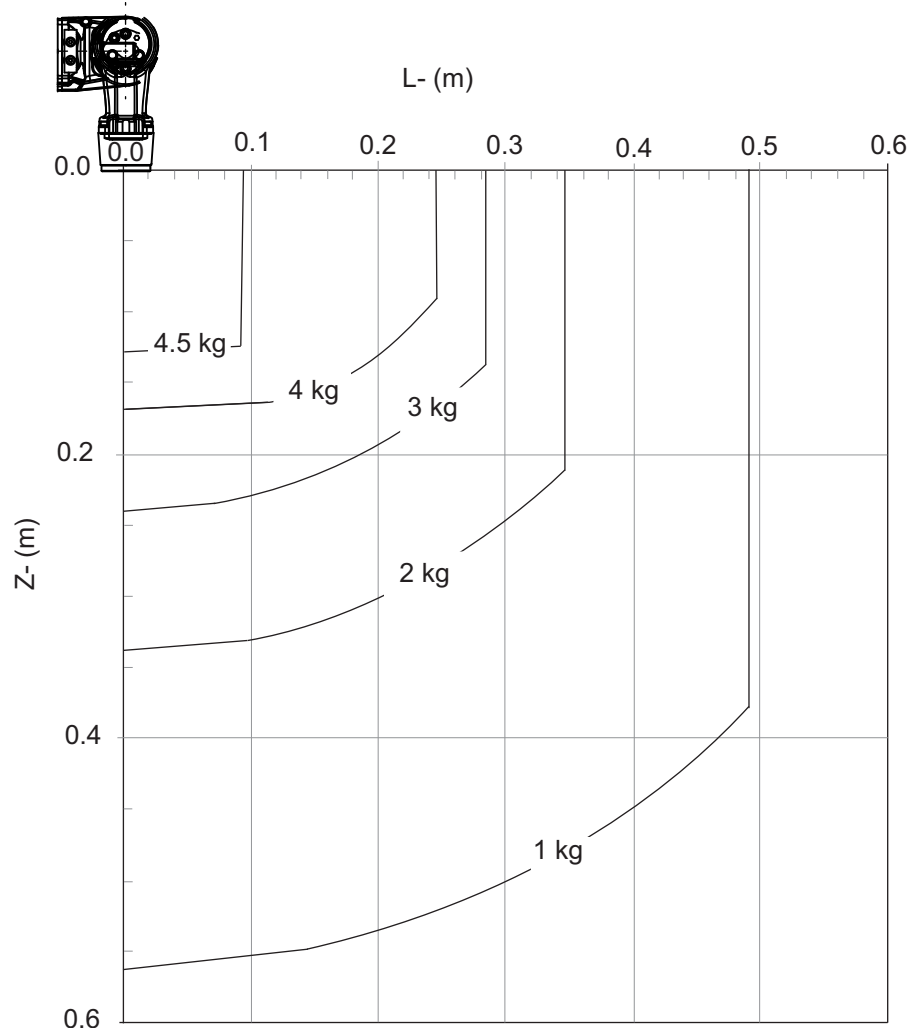


Extra load of 10 kg (hose package included) at the upper arm housing included in the load diagram.

Continues on next page



IRB 1520ID-4/1.5 "Vertical Wrist" ( $\pm 10^\circ$ )



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Extra load of 10 kg (hose package included) at the upper arm housing included in the load diagram.

For wrist down (turning disk faced downwards) with  $\pm 10^\circ$  deviation from vertical line.

	Description
Max load	4.5 kg
Z <sub>max</sub>	0.128 m
L <sub>max</sub>	0.093 m

# 1 Description

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

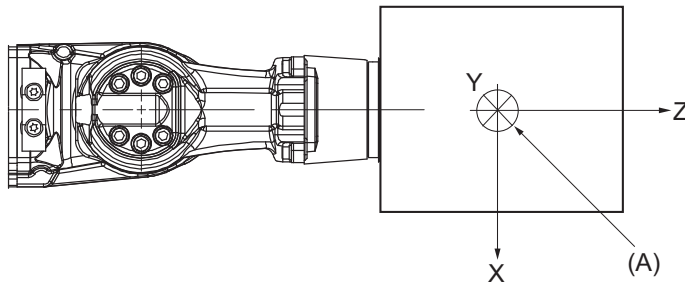
### 1.5.3 Maximum load and moment of inertia for full and limited axis (center line down) movement

#### General

Total load given as: Mass in kg, center of gravity (Z and L) in m and moment of inertia ( $J_{ox}$ ,  $J_{oy}$ ,  $J_{oz}$ ) in  $\text{kgm}^2$ .  $L = \sqrt{X^2 + Y^2}$ , see Figure below.

#### Full movement of axis 5 (+135° to -135°)

Axis	Robot type	Max. value
5	IRB 15620ID-4/1.5	$J_5 = \text{Mass} \times ((Z + 0.200)^2 + L^2) + \max(J_{ox}, J_{oy}) \leq 0.58 \text{ kgm}^2$
6	IRB 1520ID-4/1.5	$J_6 = \text{Mass} \times L^2 + J_{oz} \leq 0.24 \text{ kgm}^2$



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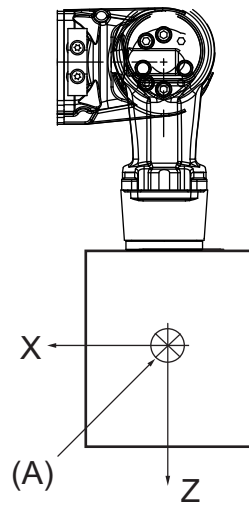
Pos	Description
A	Center of gravity
	Description
$J_{ox}, J_{oy}, J_{oz}$	Max. moment of inertia around the X, Y and Z axes at center of gravity.

#### Limited axis 5, Center line down

Axis	Robot type	Max. value
5	IRB 1520ID-4/1.5	$J_5 = \text{Mass} \times ((Z + 0.200)^2 + L^2) + \max(J_{ox}, J_{oy}) \leq 0.58 \text{ kgm}^2$
6	IRB 1520ID-4/1.5	$J_6 = \text{Mass} \times L^2 + J_{oz} \leq 0.24 \text{ kgm}^2$

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



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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.

# 1 Description

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## 1.5.4 Wrist torque

### 1.5.4 Wrist torque

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#### General

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



#### Note

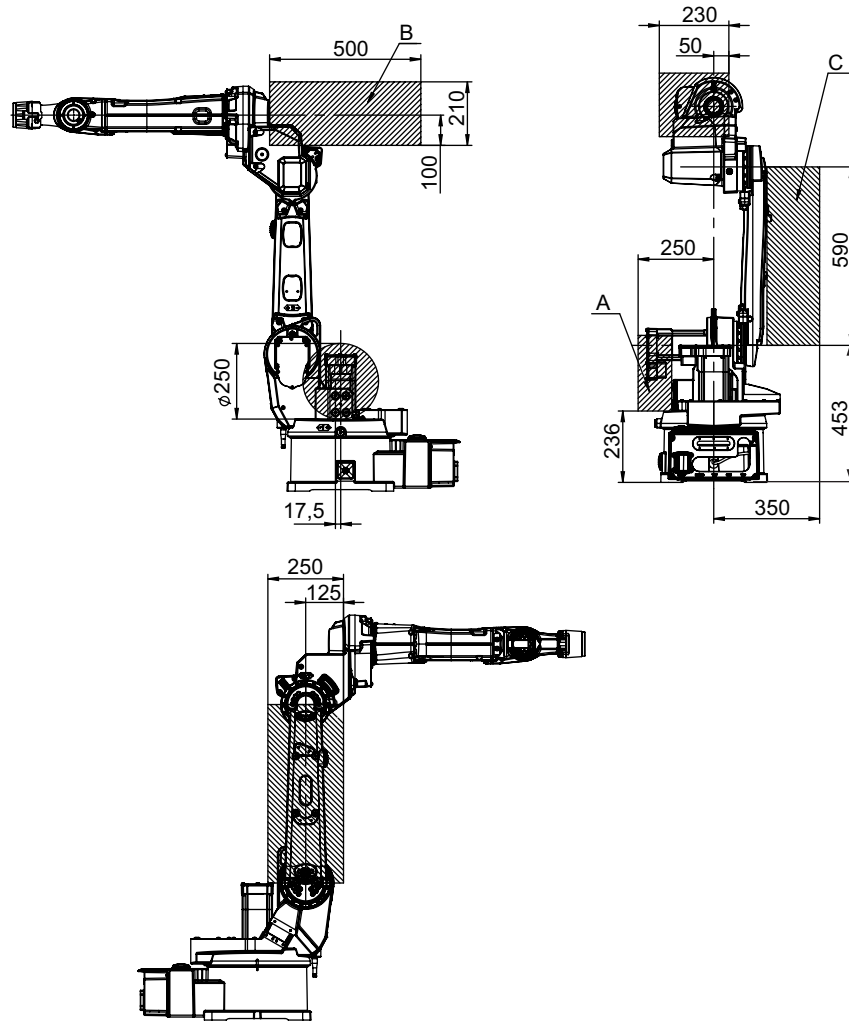
Note! The values are for reference only, and should not be used for calculating permitted load offset (position of center of gravity) within the load diagram, since those also are limited by main axes torques as well as dynamic loads. Also arm loads will influence the permitted load diagram. For finding the absolute limits of the load diagram, please use the ABB RobotLoad. Please contact your local ABB organization.

Robot type	Max wrist torque axis 4 and 5	Max wrist torque axis 6	Max torque valid at load
IRB 1520ID-4/1.5	12.2 Nm	3.9 Nm	4 kg

1.6 Mounting of equipment

Load areas

Extra loads can be mounted on the wrist, the upper arm housing, and on the frame. Load areas and permitted loads are shown in graphic below. The center of gravity of the extra load shall be within the marked load areas.



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Load area Robot	Max. load			
	A	B	C	B+C
IRB 1520ID-4/1.5	20 kg	10 kg	15 kg	25 kg

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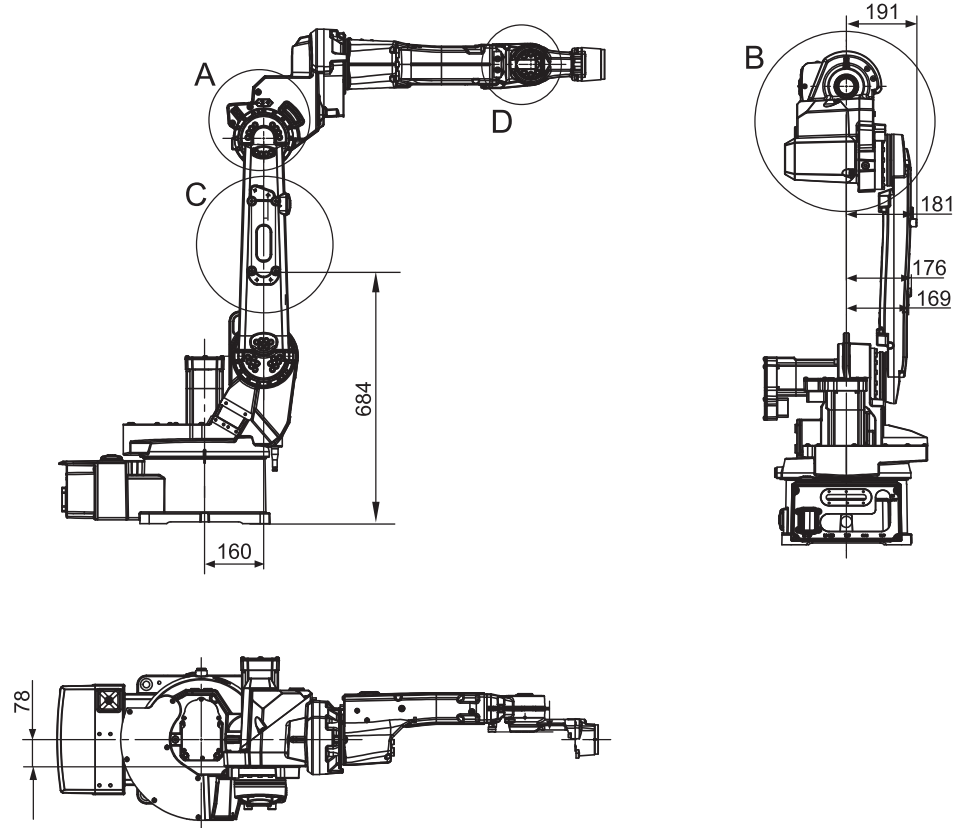
# 1 Description

## 1.6 Mounting of equipment

*Continued*

### Holes for mounting of extra equipment

The robot has holes for mounting extra equipment.



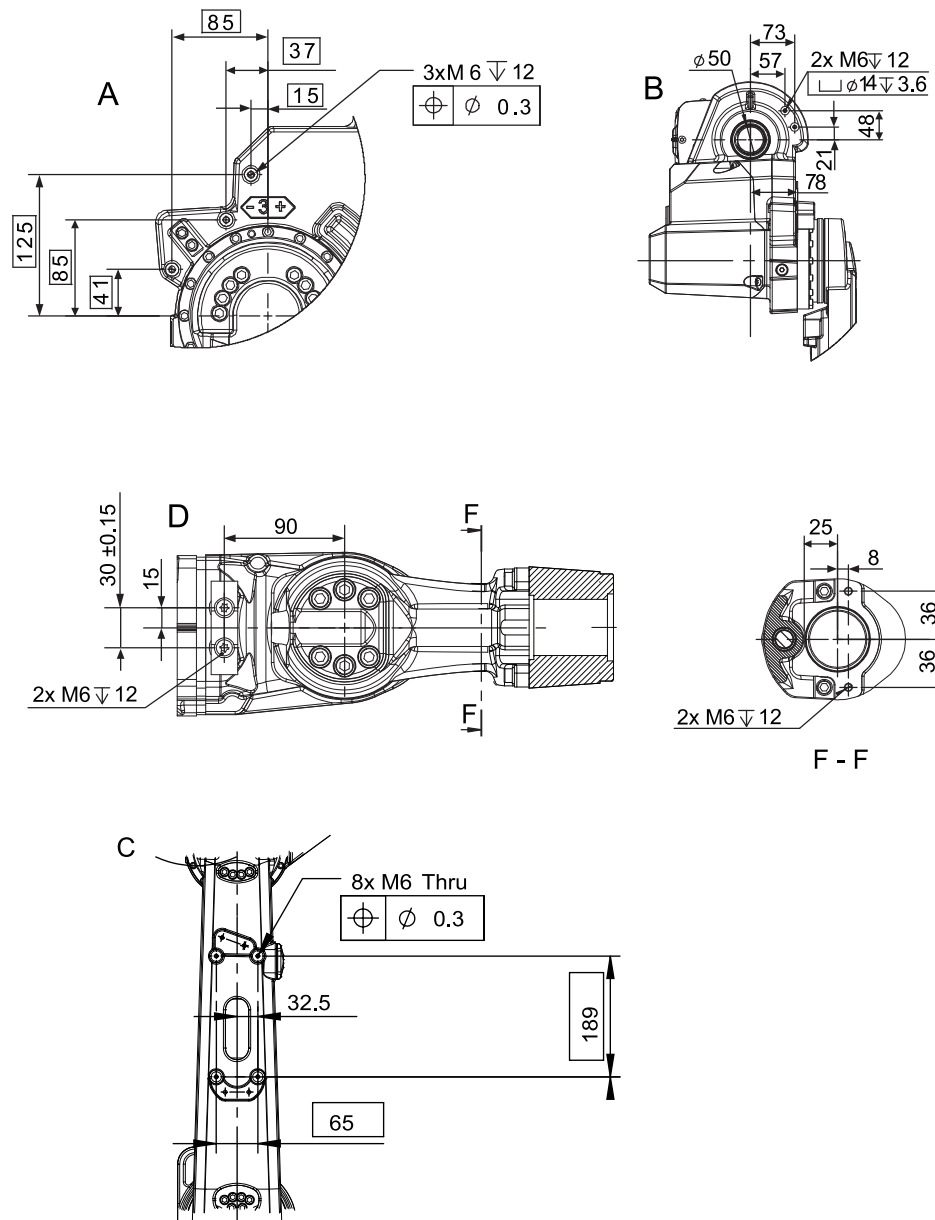
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# 1 Description

## 1.6 Mounting of equipment

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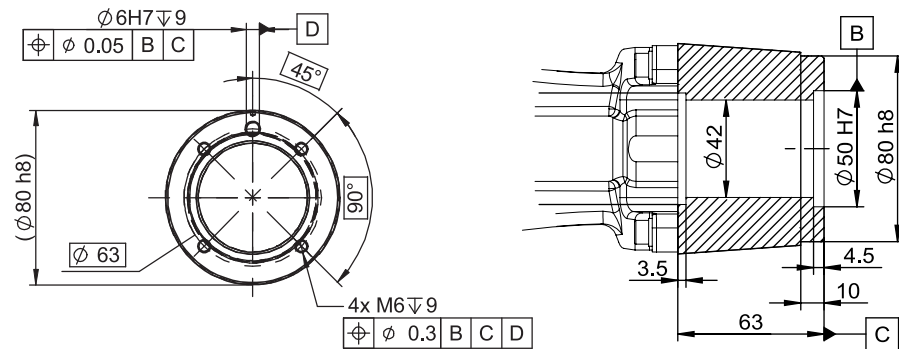
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# 1 Description

## 1.6 Mounting of equipment

Continued

### Robot tool flange



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1.7 Robot motion

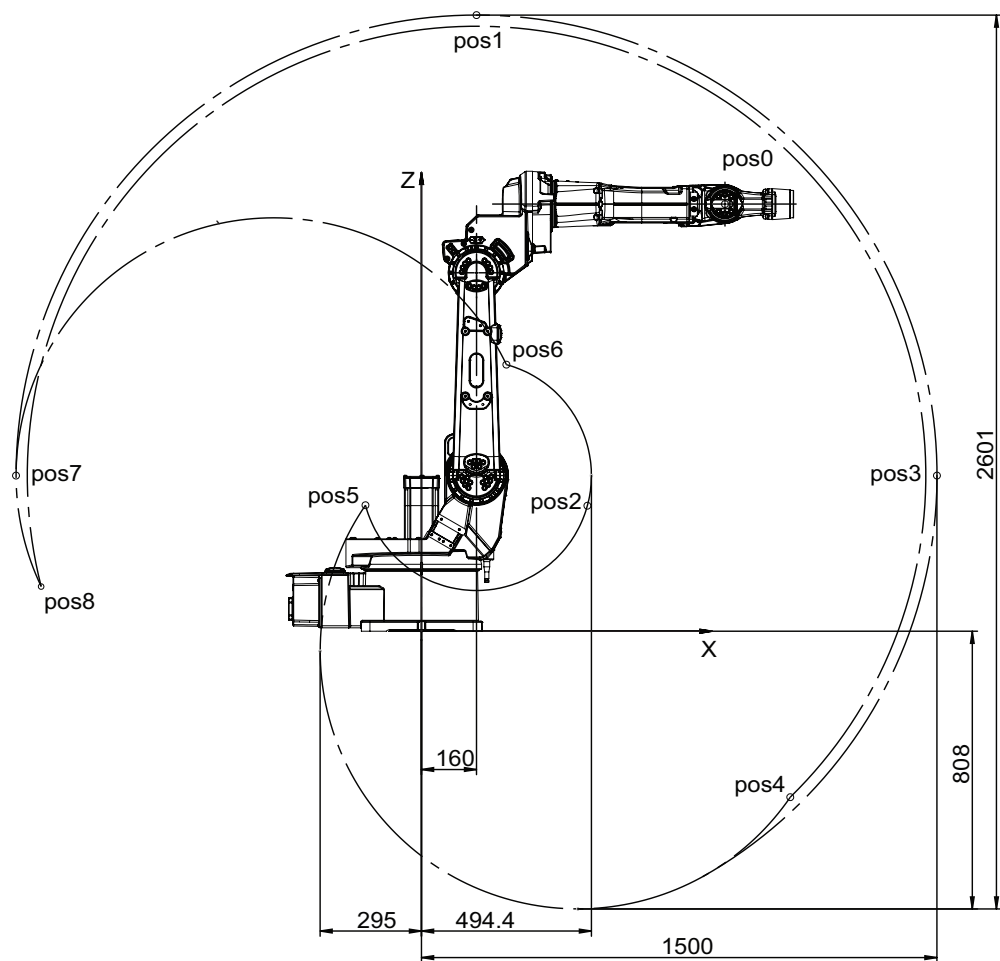
1.7.1 Introduction

IRB 1520ID-4/1.5

Axis	Type of motion	Range of movement
1	Rotation motion	+170° to -170°
2	Arm motion	+150° to -90°
3	Arm motion	+80° to -100°
4	Rotation motion	+155° to -155°
5	Bend motion	+135° to -135°
6	Turn motion	+200° to -200°

Positions at wrist center IRB 1520ID-4/1.5

Working range with extra mechanical stop on axis 3.



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# 1 Description

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## 1.7.1 Introduction

*Continued*

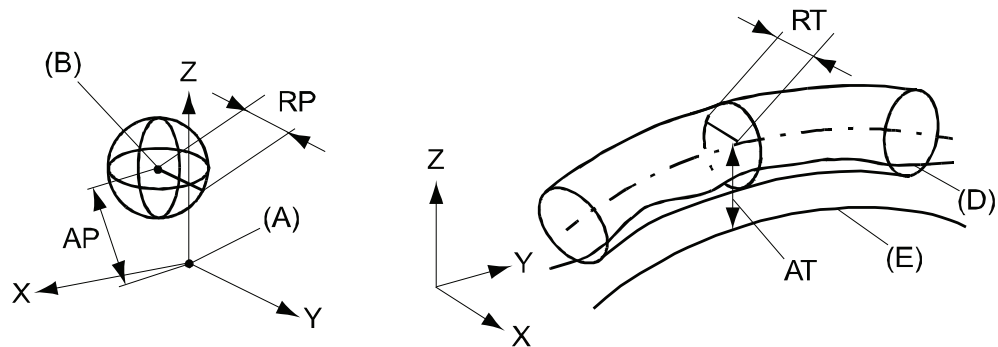
Pos No. see Figure above	X Position (mm)	Z Position (mm)	Axis 2 Angle (degrees)	Axis 3 Angle (degrees)
Pos 0	883	1243	0	0
Pos 1	160	1793	0	-74,5
Pos 2	483	365	0	+80
Pos 3	1500	453	+90	-74,5
Pos 4	1073	-483	+150	-100
Pos 5	-163	367	+150	+80
Pos 6	247	776	-90	+80
Pos 7	-1180	453	-90	-74,5
Pos 8	-1107	130	-90	-100

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.



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Pos	Description	Pos	Description
A	Programmed position	E	Programmed path
B	Mean position at program execution	D	Actual path at program execution
AP	Mean distance from programmed position	AT	Max deviation from E to average path
RP	Tolerance of position B at repeated positioning	RT	Tolerance of the path at repeated program execution

Description	IRB 1520ID-4/1.5
Pose repeatability, RP (mm)	0.05
Pose accuracy, AP <sup>i</sup> (mm)	0.05
Linear path repeatability, RT (mm)	0.35
Linear path accuracy, AT (mm)	1.3
Pose stabilization time, (PSt) to within 0.2 mm of the position (s)	0.1

<sup>i</sup> AP according to the ISO test above, is the difference between the taught position (position manually modified in the cell) and the average position obtained during program execution.

The above values are the range of average test results from a number of robots.

# 1 Description

---

## 1.7.3 Velocity

### 1.7.3 Velocity

---

#### Maximum axis speed

Axis No.	IRB 1520ID-4/1.5
1	130°/s
2	140°/s
3	140°/s
4	320°/s
5	380°/s
6	460°/s

---

#### Axis resolution

Approx. 0.001° on each axis.

### 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

### 1.8 Customer connections



#### Note

No customer/application connections available for IRB 1520ID-4/1.5.

### 1.9 Maintenance and troubleshooting

---

#### General

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

- Maintenance free AC motors are used.
- Oil and grease are used for the gear boxes.
- The cabling is routed for longevity, and in the unlikely event of a failure, its modular design makes it easy to change.
- It has a program memory “battery low” alarm.

---

#### Maintenance

The maintenance intervals depend on the use of the robot, the required maintenance activities also depends on selected options. For detailed information on maintenance procedures, see Product Manual - IRB 1520.

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## 2 Specification of variants and options

### 2.1 Introduction to variants and options

---

#### General

The different variants and options for the IRB 1520 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

#### Variants

Option	IRB Type	Handling capacity (kg)/Reach (m)
435-110	1520ID	4/1.5

#### Manipulator color

Option	Name	Note
209-1	ABB Orange standard	
209-2	ABB White standard	
209-202	ABB Graphite White standard	Standard color
209-4--192	Painted with the chosen RAL-color	



#### Note

Notice that delivery time for painted spare parts will increase for none standard colors.

#### Protection

Option	Name	Description
287-4	Standard	IP 40

#### Mounting position

Option	Name	Description
224-2	Inverted mounting	For inverted mounting of the manipulator.

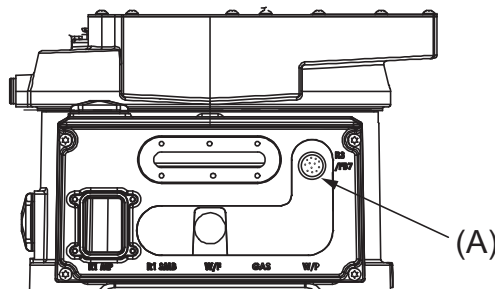


#### Note

Manipulators delivered for floor mounting must have the option added before changing mounting position to inverted.

#### Resolver connection, axis 7

A connection for resolver signals axis 7 located on the base.



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Pos	Description
A	Resolver connection on base, option 864-1.


### Application interface connection type

Option	Name	Description
17-7	No application interface	

### Electronic Position Switches (EPS)

The mechanical position switches indicating the position of the three main axes are replaced with electronic position switches for up to 7 axes, for increased flexibility and robustness. For more detailed information, see *Product specification - Controller IRC5* and *Application manual - Electronic Position Switches*.

### Warranty

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.
438-4	Standard warranty + 18 months	Standard warranty extended with 18 months from end date of the standard warranty. Warranty terms and conditions apply. Contact Customer Service in case of other requirements.
438-5	Standard warranty + 24 months	Standard warranty extended with 24 months from end date of the standard warranty. Warranty terms and conditions apply. Contact Customer Service in case of other requirements.
438-6	Standard warranty + 6 months	Standard warranty extended with 6 months from end date of the standard warranty. Warranty terms and conditions apply.
438-7	Standard warranty + 30 months	Standard warranty extended with 30 months from end date of the standard warranty. Warranty terms and conditions apply.
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> <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;">  </div> <div> <p><b>Note</b></p> <p>Special conditions are applicable, see <i>Robotics Warranty Directives</i>.</p> </div> </div>

## 2 Specification of variants and options

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### 2.3 Floor cables

### 2.3 Floor cables

---

#### Manipulator cable length

Option	Lengths
210-2	7 m
210-3	15 m

## 2.4 Process

### 2.4.1 DressPack

#### Process module

Option	Type	Description
768-1	Empty cabinet small	See <i>Product specification - Controller IRC5 with FlexPendant</i> , see chapter 2.2.1
768-2	Empty cabinet large	See <i>Product specification - Controller IRC5 with FlexPendant</i> , chapter 2.2.1

#### WeldGuide III

Option	Type	Description
958-1	Basic	Only together with ArsitoMig 4000i/5000i, MigRob and TPS power sources. Digital I/O or AD Combi I/O is needed for WeldGuide functions. Requires option WeldGuide MultiPass [815-2].
958-2	Advanced	Only together with ArsitoMig 4000i/5000i, MigRob and TPS power sources. Digital I/O or AD Combi I/O is needed for WeldGuide functions. Requires option WeldGuide MultiPass [815-2].

#### Installation kit

Option	Type	Description
715-1	Installation kit	See <i>Product specification - Controller IRC5 with FlexPendant</i> , chapter 2.2.1

## 2 Specification of variants and options

---

### 2.4.2 Process equipment

### 2.4.2 Process equipment

---

#### Torch service

Option	Type	Description
1037-1	ABB TSC	ABB Torch Service Center.
1037-2	ABB TC96	ABB Torch cleaner.
1037-5	BullsEye	BullsEye stand alone.

## 2.5 User documentation

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### User documentation

The user documentation describes the robot in detail, including service and safety instructions.

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

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## 3 Accessories

### 3.1 Introduction to accessories

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#### General

There is a range of tools and equipment available, especially designed for the manipulator.

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#### Basic software and software options for robot and PC

For more information, see *Product specification - Controller IRC5 with FlexPendant* and *Product specification - Controller software IRC5*.

---

#### Robot peripherals

- Track Motion
- Motor Units
- Positioners

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