Product specification

Articulated robot

IRB 6400RF-200/2.5
IRB 6400RF-200/2.8
M2004

Product specification

Articulated robot
3HAC026552-001
Rev.E
IRB 6400RF-200/2.5
IRB 6400RF-200/2.8
M2004

ABB AB
Robotics Products
SE-721 68 Västerås
Sweden

Table of Contents

Overview

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 integrated auxiliary equipments as that is: Customer connections on to the upper arm
- The specification of variant and options available

Users

It is intended for:

- Product managers and Product personnel
- Sales and Marketing personnel
- Order and Customer Service personnel

Contents

Please see Table of Contents on page 3.

Revisions

Revision	Description
Revision -	New product specification
Revision A	- Footnote added to “Pose accuracy” - Control of load case by “RobotLoad”
Revision B	- Changes in chapter Standards - Directions of forces - Warranty information for load diagrams
Revision C	- Option 29-1 and 29-2
Revision D	- Changes for Calibration data - Work range - Explanation of ISO values (new figure and table) - Stopping distance - User documentation on DVD
Revision E	- General update for 9.1 release

Complementary Product specifications

Product specification	Description
Controller	IRC5 with FlexPendant, 3HAC021785-001
Controller Software IRC5	RobotWare 5.12, 3HAC022349-001

Product specification	Description
Robot User Documentation	IRC5 and M2004, 3HAC024534-001

1 Description

1.1 Structure

1.1.1 Introduction

General

The IRB 6400RF is a robust, high payload robot with a high accuracy, especially designed for harsh environments.

The robot is available in two variants, with a Reach of 2.5 m or 2.8 m, both with a Handling capacity of 200 kg.

The robots have FoundryPlus protection.

All this make the IRB 6400RF ideal for Machine Tending, Material Handling and Pre-Machining applications with high standards.

IRC5 and RobotWare

The IRB 6400RF is equipped with the IRC5 single cabinet controller and robot control software RobotWare, which supports every aspect of the robot system, such as motion control, development and execution of application programs, communication, etc., see Product specification - IRC5 with FlexPendant.

Safety

Safety standards require that the controller is connected to the robot.

Additional functionality

For additional functionality, the robot can be equipped with optional software for Motion performance, Motion coordination and Application support. For instance Advanced shape Tuning, MultiMove Coordinated, Conveyor Tracking, Sensor Synchronization and Collision Detection. For a complete description on optional software, see the Product specification - Controller software IRC5.

Foundry Plus

The Foundry Plus option is designed for harsh environments where the robot is exposed to sprays of coolants, lubricants and metal spits that are typical for die casting applications or other similar applications. The Foundry Plus robot is painted with two-component epoxy on top of a special primer for excellent corrosion protection. To further improve the corrosion protection additional rust preventive are applied to exposed areas. The entire robot is IP67 compliant according to IEC 60529 - from base to wrist, which means that the electrical compartments are virtually sealed against liquid and solid contaminants. Among other things all sensitive parts are highly protected.

Foundry Plus features:

- Improved sealing to prevent damp from penetrating into cavities
- Additional protection of cabling and electronics
- Special covers protecting cavities
- Special connectors

The Foundry Plus robot can be cleaned with adequate washing equipment.

Manipulator axes

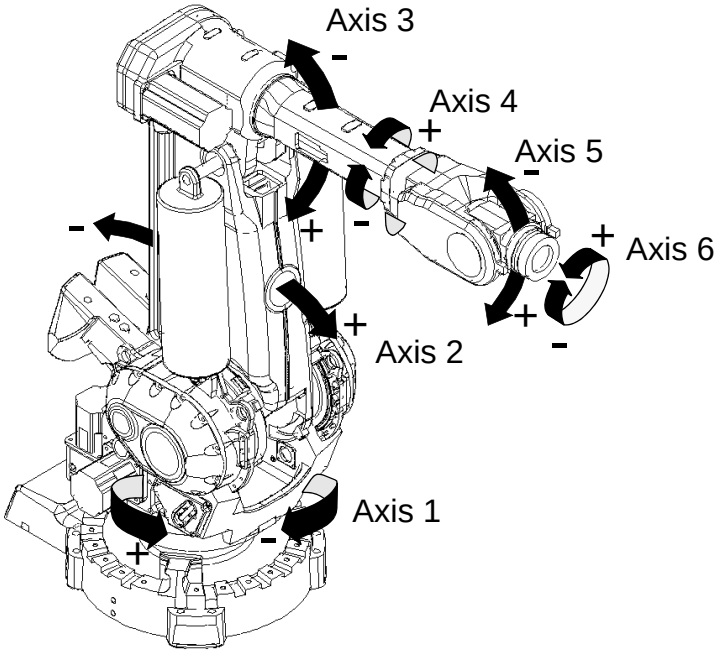

Figure 1 The IRB 6400RF manipulator has 6 axes.

1.1.2 Different robot versions

General

The IRB 6400RF is available in two variants with a Reach of 2.5 m or 2.8 m, both with a Handling capacity of 200 kg.

Robot type	Handling capacity (kg)	Reach (m)
IRB 6400RF	200 kg	2.5 m
IRB 6400RF	200 kg	2.8 m

Manipulator weight

Robot	Weight (kg)
IRB 6400RF-200/2.5	2230 kg
IRB 6400RF-200/2.8	2390 kg

Other technical data

Data	Description	Value
Airborne noise level	The sound pressure level outside the working space	< 70 dB (A) Leq (acc. to Machinery directive 89/392 EEC)

Power consumption

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

Speed [mm/s]	Power consumption (kW)	
	IRB 6400RF-200/2.5	IRB 6400RF-2002.8
Max.	[a]	a
1000	a	a
500	a	a
100	a	a

a. Not yet available.

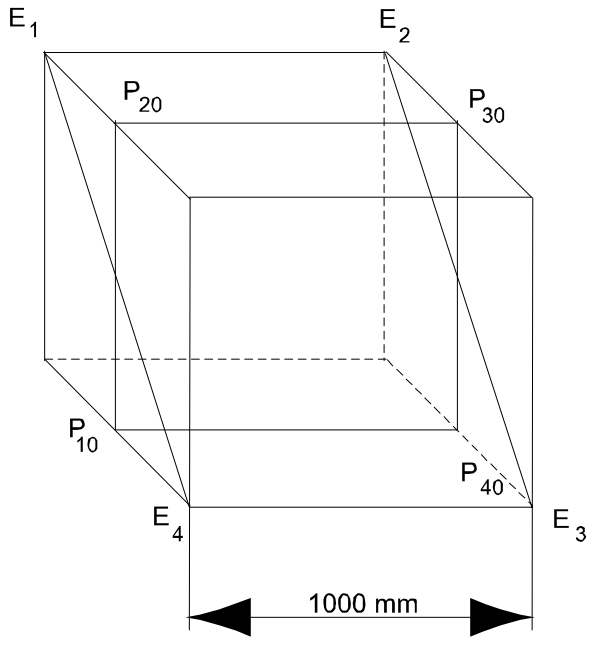

Figure 2 Path E1-E2-E3-E4 in the ISO Cube, maximum load.

1.1.2 Different robot versions

Dimensions IRB 6400RF

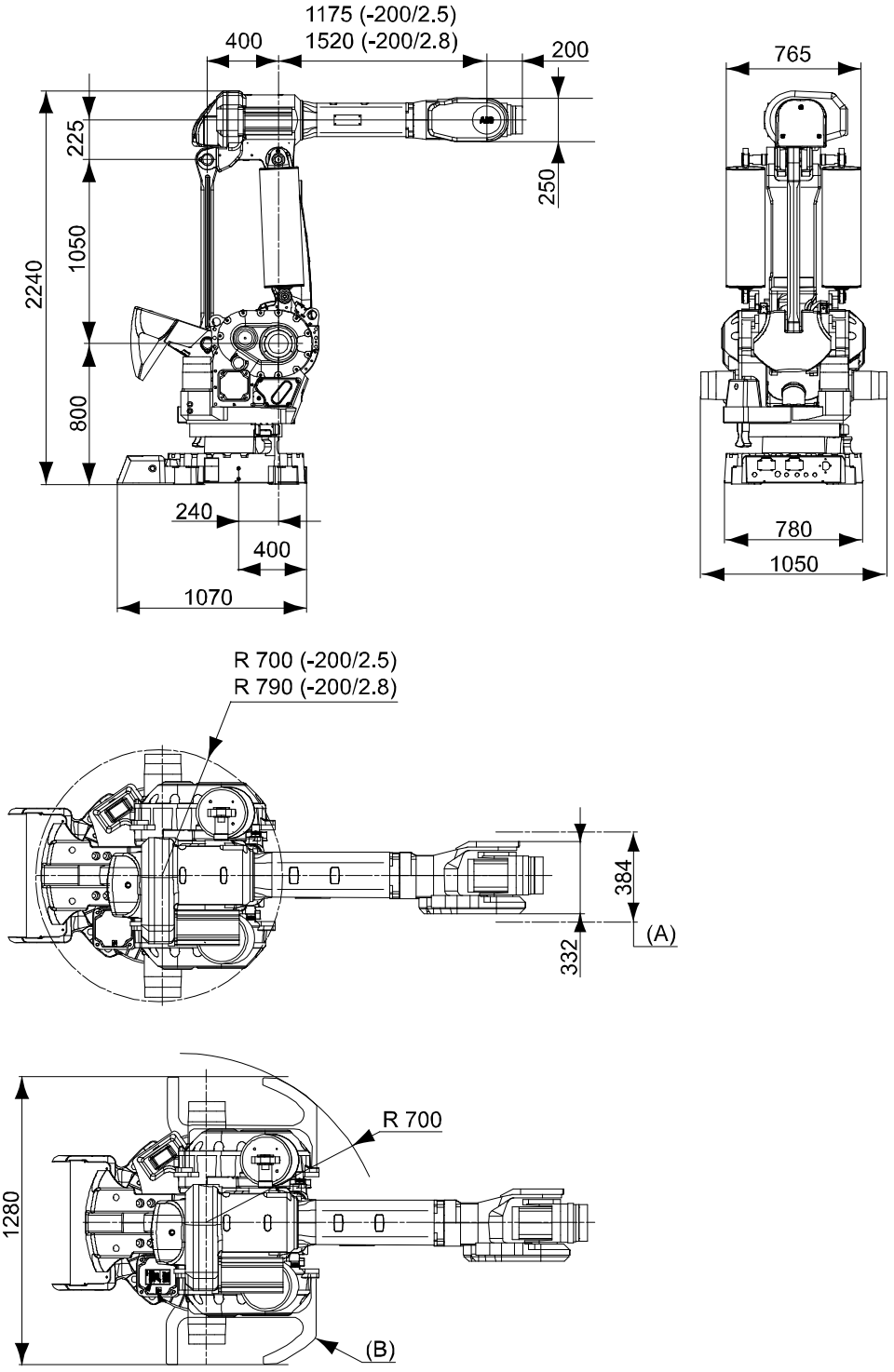

Figure 3 View of the manipulator from the side, rear and above (dimensions in mm).

Pos	Description
A	With wrist protection installed
B	Fork lift device

1.2 Safety/Standards

1.2.1 Standards

Health and safety standards

The robot complies fully with the health and safety standards specified in the EEC's Machinery Directives.

The robot controlled by the IRC5 conforms to the following standards:

Standard	Description
EN ISO 12100-1	Safety of machinery, terminology
EN ISO 12100-2	Safety of machinery, technical specifications
EN 954-1	Safety of machinery, safety related parts of control systems
EN ISO 60204-1:2005	Safety of machinery - Electrical equipment of machines
EN ISO 10218-1:2006[a]	Robots for industrial environments - Safety requirements
EN 60204	Electrical equipment of industrial machines
EN 61000-6-4 (option)	EMC, Generic emission
EN 61000-6-2	EMC, Generic immunity

a. There is a deviation from paragraph 6.2 in that only worst case stop distances and stop times are documented.

Standard	Description
IEC 60529	Degrees of protection provided by enclosures

Standard	Description
ISO 9787	Manipulating industrial robots, coordinate systems and motions

Standard	Description
ANSI/RIA 15.06/1999	Safety Requirements for Industrial Robots and Robot Systems
ANSI/UL 1740-1998 (option)	Safety Standard for Robots and Robotic Equipment
CAN/CSA Z 434-03 (option)	Industrial Robots and Robot Systems - General Safety Requirements

Safety

The robot controller is designed with absolute safety in mind. It has a dedicated safety system based on a two-channel circuit which is continuously monitored. If any component fails, the electrical power supplied to the motors is cut off and the brakes engage.

Safety function	Description
Safety category 3	Malfunction of a single component, such as a sticking relay, will be detected at the next MOTOR OFF/MOTOR ON operation. MOTOR ON is then prevented and the faulty section is indicated. The executing circuits are continuously monitored. This complies with category 3 of EN 954-1, Safety of machinery - safety related parts of control systems - Part 1.
Selecting the operating mode	The robot can be operated either manually or automatically. In manual mode, the robot can only be operated via the FlexPendant, that is not by any external equipment.
Reduced speed	In manual mode, the speed is limited to a maximum of 250 mm/s (600 inch/min.). The speed limitation applies not only to the TCP (Tool Center point), but to all parts of the robot. It is also possible to monitor the speed of equipment mounted on the robot.
Three position enabling device	The enabling device on the FlexPendant must be used to move the robot when in manual mode. The enabling device consists of a switch with three positions, meaning that all robot movements stop when either the enabling device is pushed fully in, or when it is released completely. This makes the robot safer to operate. An additional enabling device can be connected to the safety system, for two operator safety.
Safe manual movement	The robot is moved using a joystick instead of the operator having to look at the FlexPendant to find the right key.
Over-speed protection	The speed of the robot is monitored by two independent computers.
Emergency stop	There is one emergency stop push button on the controller and another one on the FlexPendant. Additional emergency stop buttons can be connected to the robot's safety chain circuit.
Protective stop	The controller has a number of electrical inputs which can be used to connect external safety equipment, such as safety gates and light curtains. This allows the robot's safety functions to be activated both by peripheral equipment and by the robot itself.
Delayed protective stop	A delayed stop gives a smooth stop. The robot stops in the same way as at a normal program stop with no deviation from the programmed path. After approximately 1 second the power supplied to the motors is cut off.
Collision detection	In case of an unexpected mechanical disturbance like a collision, electrode sticking, etc., the robot will stop and then slightly back off from its stop position.
Restricting the working space	Software The movement of each axis can be restricted. Hardware Limit switches can be connected to the robot´s safety chain circuit.

Safety function	Description
Hold-to-run control	“Hold-to-run” means that you must depress the FlexPendant start button and another button in order to move the robot. When the hold-to-run button is released the robot will stop. The hold-to-run function makes program testing safer. At reduced speed it can be activated/deactivated by a system parameter.
Fire safety	The control system complies with UL’s (Underwriters Laboratories Inc.) requirements for fire safety.
Safety lamp	As an option, a safety lamp mounted on the manipulator can be connected. The lamp is activated when the controller is in the MOTORS ON state.
MultiMove	When several robots are connected to one Control Module, all these robots are regarded as one robot from the safety system’s point of view. When in manual mode all coordinated robots can be jogged simultaneously as well as only one robot or other mechanical unit at a time can be jogged, selected from the FlexPendant.

1.3 Installation

1.3.1 Introduction

General

The IRB 6400RF is designed for floor mounting and has a Handling capacity of max. 200 kg. See Load diagrams in chapter 1.5 Load diagrams.

The Reach is 2.5 m or 2.8 m.

Extra load can be mounted on to the frame or on to the upper arm. See 1.6 Mounting equipment and 1.6.1 Holes for mounting extra equipment.

1.3.2 Operating requirements

Protection standards

Robot version/ Protection standard	IEC60529
All variants, manipulator	IP67

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 (+ 41°F) to + 45°C (+ 113°F)
For the controller	Standard/Option	See Product specification - Controller IRC5 with FlexPendant
Complete robot during transportation and storage	Standard	- 25°C (- 13°F) to + 55°C (+ 131°F)
Complete robot during transportation and storage, for short periods (not exceeding 24 hours)	Standard	up to + 70°C (+ 158°F)

Relative humidity

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

1.3.3 Mounting the manipulator

Maximum load in relation to the base coordinate system.

	Endurance load in operation	Max. load at emergency stop
Force XY	± 1400 N	± 38000 N
Force Z	22000 ± 8000 N	22000 ± 19000 N
Torque XY	± 34000 Nm	± 61000 Nm
Torque Z	± 7000 Nm	± 15000 Nm

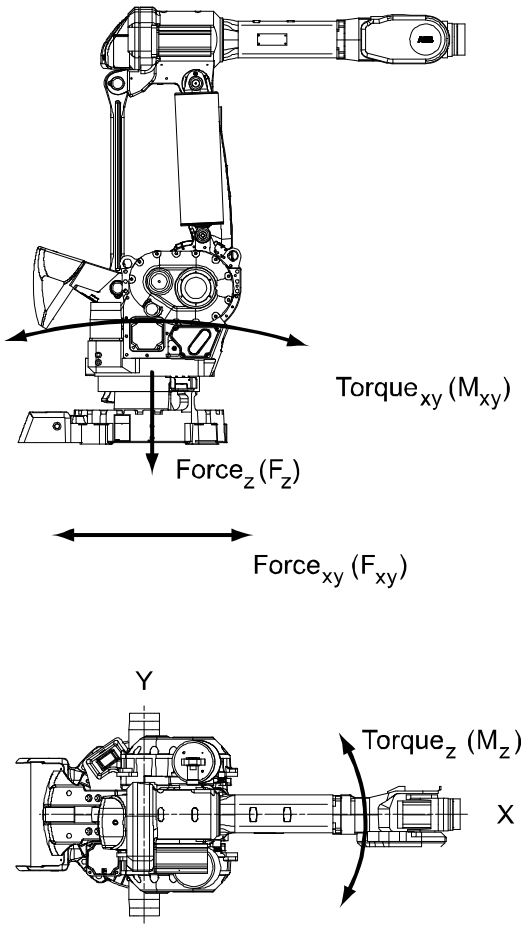

Figure 4 Direction of forces.

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}).

1.3.3 Mounting the manipulator

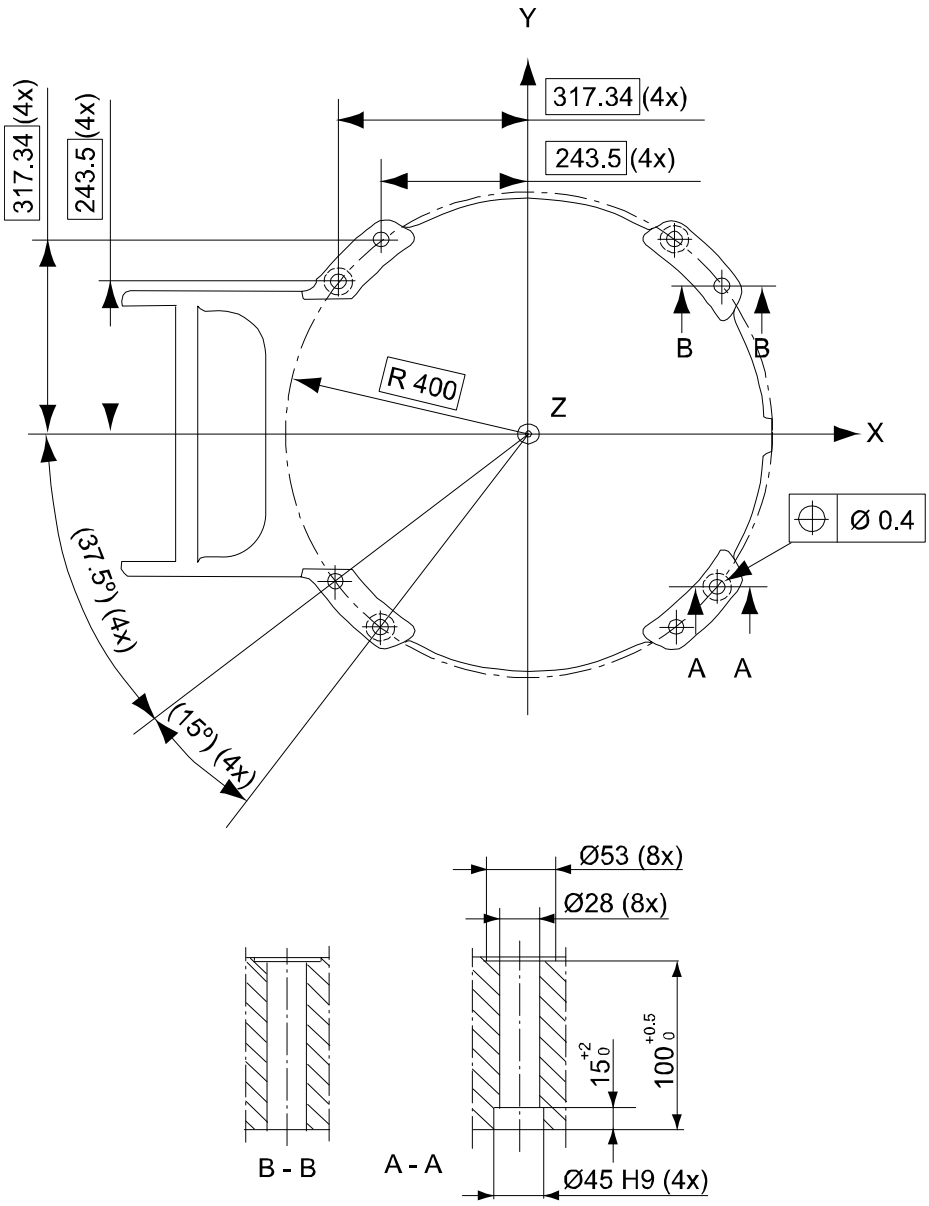

Figure 5 Hole configuration for robot base (dimensions in mm).

1.4 Calibration and References

1.4.1 Fine calibration

General

Fine calibration is made using the Levelmeter 2000, please see Product manual - Instruction for Levelmeter calibration.

1.4.2 Absolute Accuracy calibration

General

Requires RobotWare option Absolute Accuracy, please see Product specification - Controller software IRC5/RobotWare Options for more details.

The calibration concept

Absolute Accuracy (AbsAcc) is a calibration concept, which ensures a TCP absolute accuracy of better than ± 1 mm in the entire working range.

Absolute accuracy compensates for:

- Mechanical tolerances in the robot structure
- Deflection due to load

Absolute accuracy calibration is focusing on positioning accuracy in the cartesian coordinate system for the robot. It also includes load compensation for deflection caused by the tool and equipment. Tool data from robot program is used for this purpose. The positioning will be within specified performance regardless of load.

Calibration data

The user is supplied with robot calibration data (compensation parameters saved on the manipulator SMB) and a certificate that shows the performance (Birth certificate). The difference between an ideal robot and a real robot without AbsAcc can typically be 8 mm, resulting from mechanical tolerances and deflection in the robot structure.

If there is a difference, at first start-up, between calibration data in controller and the robot SMB, correct by copying data from SMB to controller.

Absolute Accuracy option

Absolute Accuracy option is integrated in the controller algorithms for compensation of this difference and does not need external equipment or calculation.

Absolute Accuracy is a RobotWare option and includes an individual calibration of the robot (mechanical arm).

Absolute Accuracy is a TCP calibration in order to Reach (m) a good positioning in the Cartesian coordinate system.

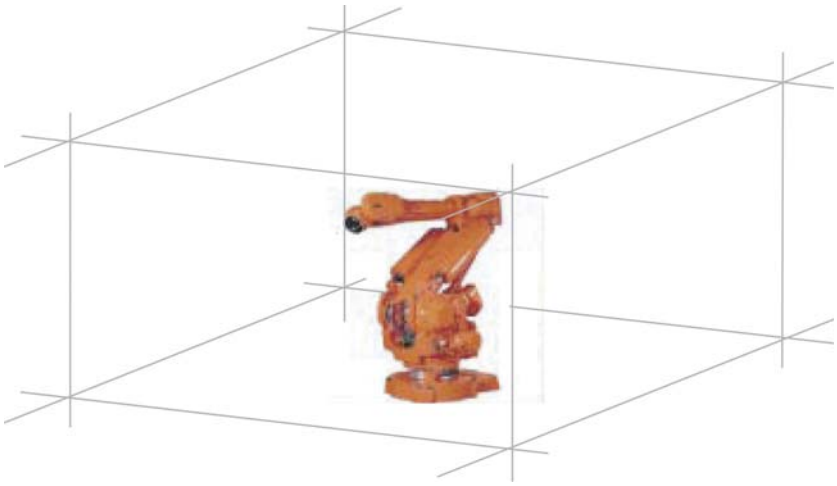

Figure 6 The Cartesian coordinate system.

Production data

Typical production data regarding calibration are:

Robot	Positioning accuracy (mm)		
	Average	Max	% Within 1 mm
IRB 6400RF-200/2.5	0.55 mm	1.20 mm	95%
IRB 6400RF-200/2.8	0.55 mm	1.20 mm	95%

1.5 Load diagrams

1.5.1 Introduction

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 outside load diagram is used the following parts can be damaged due to overload:

- motors
- gearboxes
- mechanical structure

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.

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

General

The load diagrams include a nominal payload inertia of J_0<100 kgm^2.

J_0 is the maximum component (J_{X0}=, J_{Y0}= and J_{Z0}=) of the moment of inertia of the handling weight at is center of gravity.

Control of load case by “RobotLoad”

For an easy check of a specific load case, use the calculation program ABB RobotLoad. Please contact your local ABB organization.

1.5.2 Diagram

IRB 6400RF-200/2.5 and IRB 6400RF-200/2.8

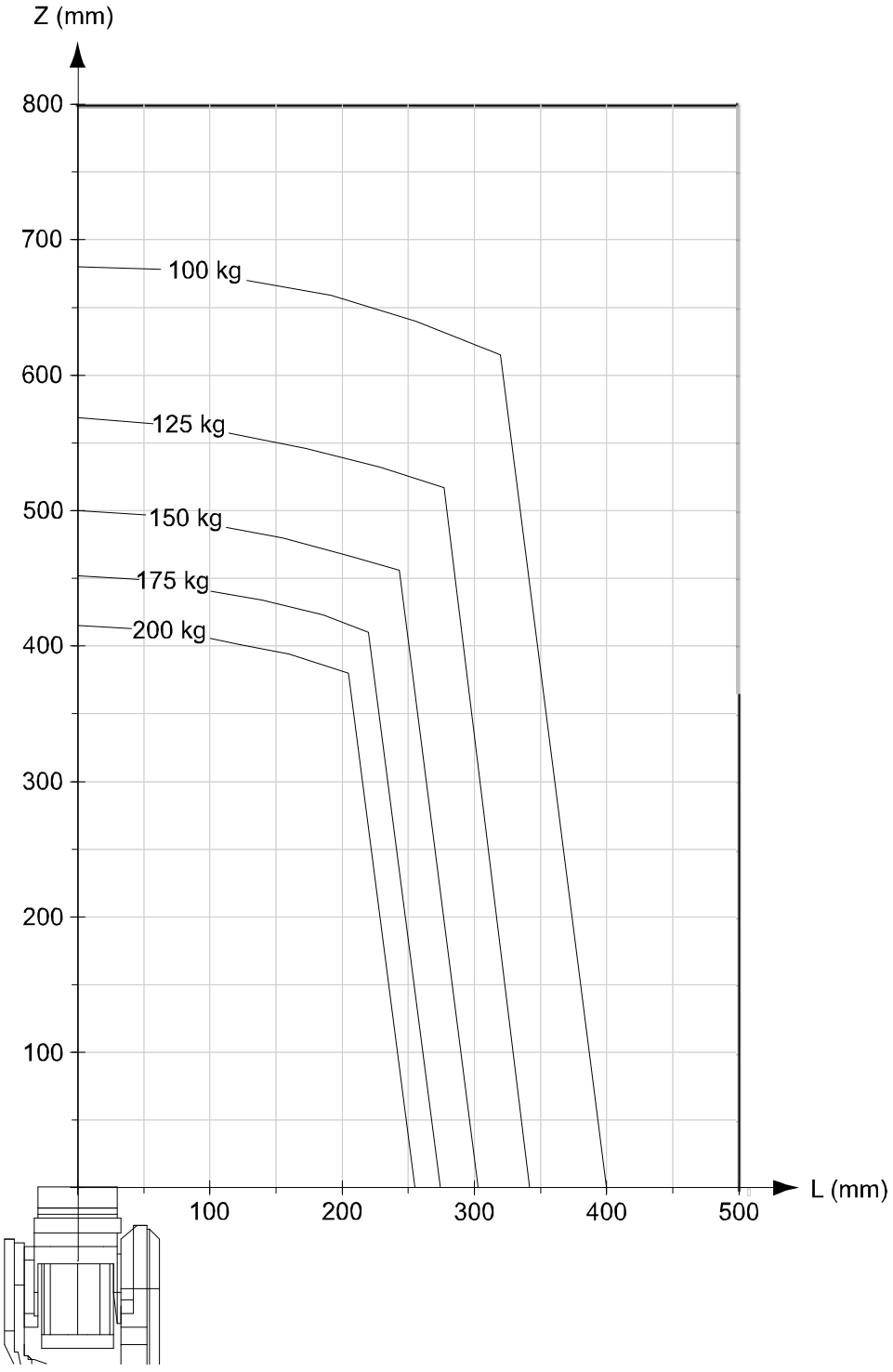

Figure 7 Maximum permitted load mounted on the robot tool flange at different positions (center of gravity).

1.6 Mounting equipment

General

Extra loads can be mounted on the upper arm and on the robot base. Definitions of distances and masses are shown in Figure 8. The robot is supplied with holes for mounting of extra equipment. See Figure 10. Maximum permitted load depends on center of gravity of arm load and robot payload.

Upper arm

For permitted extra load on upper arm and the maximum handling capacity see Figure 8:

- M1 $\leq$ 50 kg with distance a $\leq$ 500 mm for center of gravity in axis 3 extension

or

- M2 $\leq$ 50 kg with distance b $\leq$ 400 mm

or

- M3 $\leq$ 15 kg with distance c $\geq$ 300 mm

When the handling weight is lower than the max. handling capacity (200 kg), M1 or M2 can be increased with the difference.

For instance, with a handling weight of 150 kg the extra load for M1 or M2 can be 100 kg.

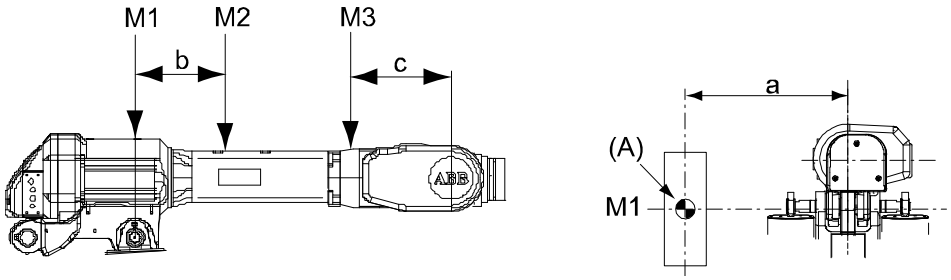

Figure 8 Permitted extra load on the upper arm.

Pos	Description
A	Mass center

1.5.2 Diagram

Robot base

For permitted extra load on the robot base, use the formula:

- $J_H = J_{H0} + M4 \times R^2$

Quantity	Description
$J_H = 120$ kgm^2	Permitted moment of inertia for the robot base
J_{H0} (kgm^2)	Moment of inertia for the extra load
R (m)	Radius from center of axis 1
M4 (kg)	Total mass of the extra load

For recommended position of extra load, see Figure 9.

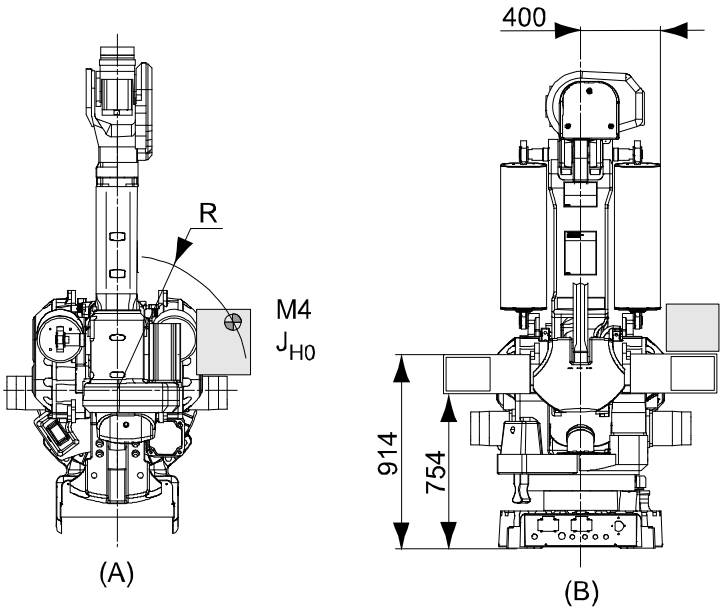

Figure 9 Permitted extra load for the robot base.

Pos	Description
A	View from above
B	View from the rear

1.6.1 Holes for mounting extra equipment

Upper arm

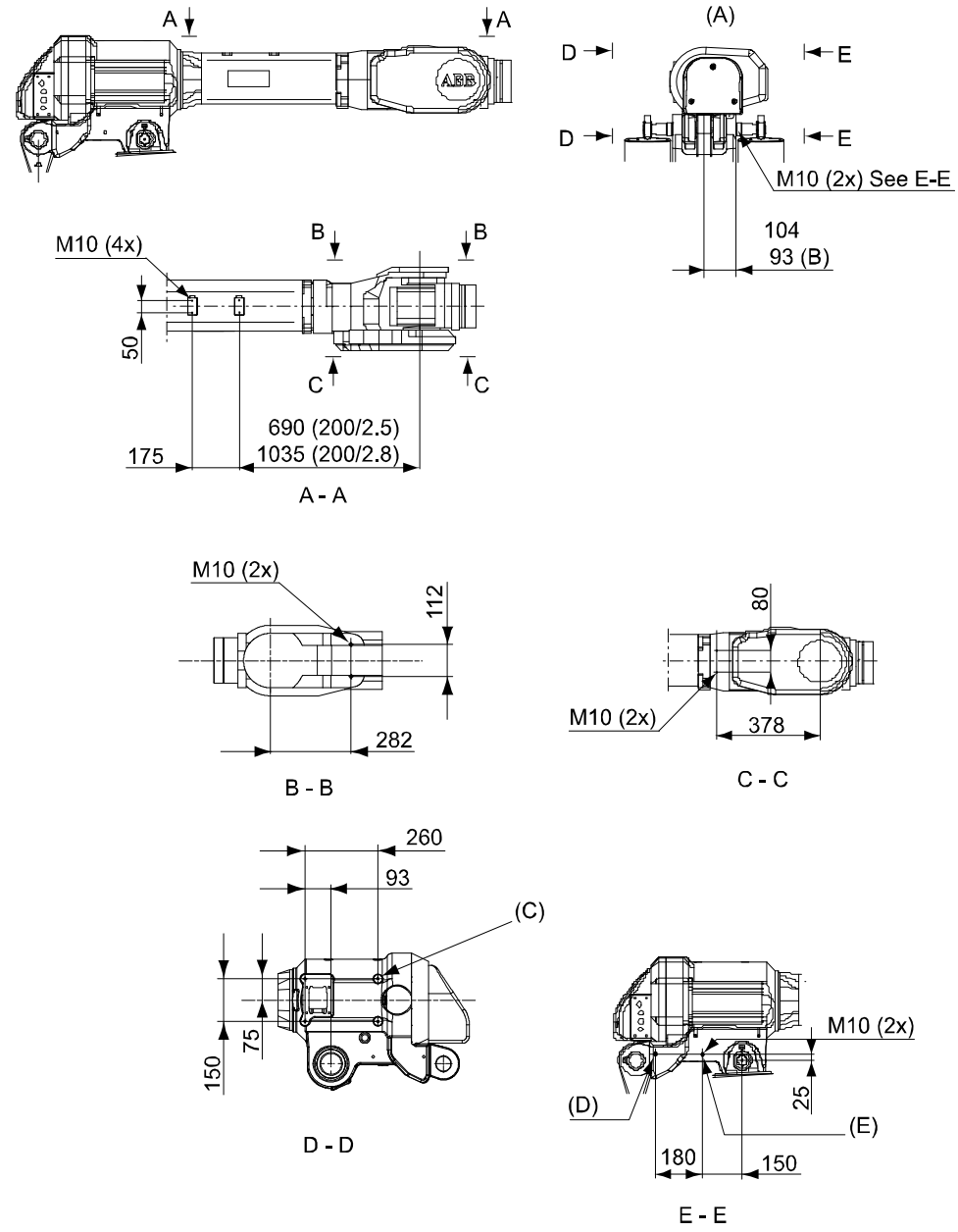

Figure 10 Holes for mounting of extra equipment on to the upper arm (dimensions in mm).

Pos	Description
A	From the rear
B	104 for “Hole 1” 93 for “Hole 2”
C	M10 (4x) Depth 20
D	“Hole 1”
E	“Hole 2”

1.6.1 Holes for mounting extra equipment

Robot base

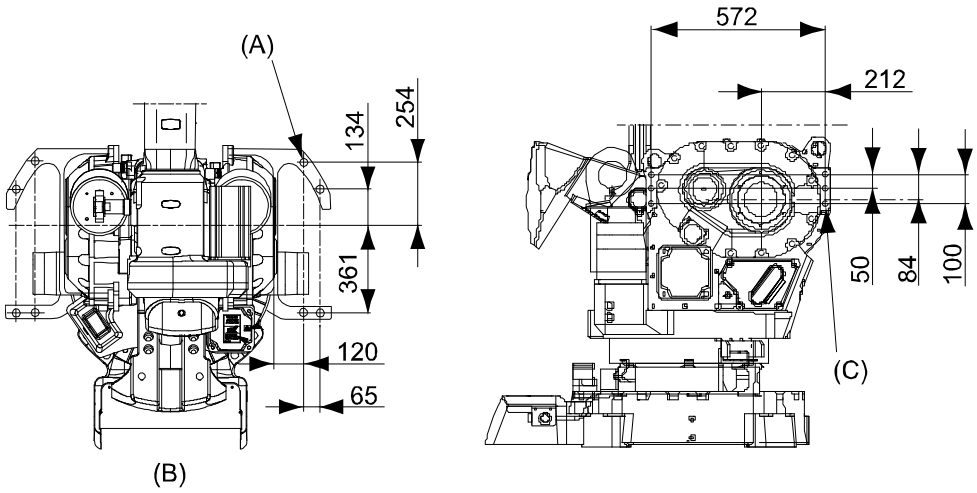

Figure 11 Holes for mounting of equipment on to the robot base (dimensions in mm).

Pos	Description
A	M10 (8x) on both sides, depth min. 20
B	View from above
C	Ø 18 (2x3) on both sides (use a 170 mm long bolt when mounting additional equipment)

Robot tool flange

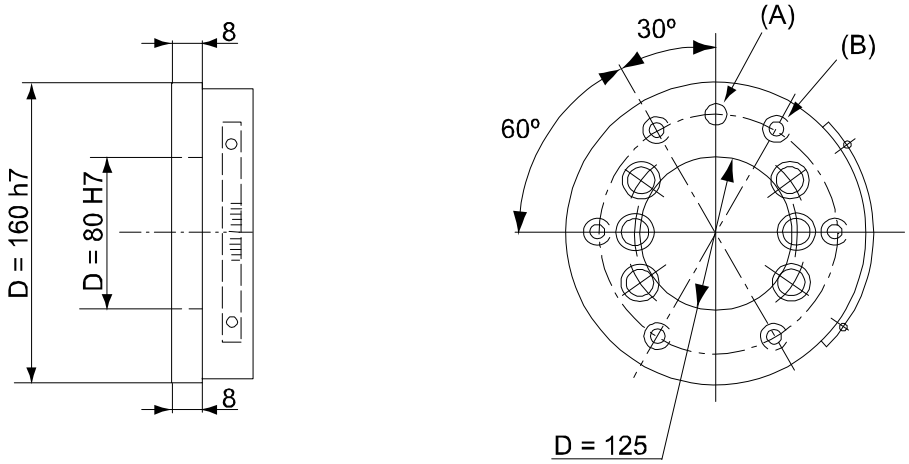

Figure 12 The robot tool flange, ISO 9409-1-A125 (dimensions in mm).

Pos	Description
A	D = 10 H7 depth 10
B	M10 (6x) depth 18

1.7 Robot Motion

1.7.1 Introduction

IRB 6400RF

Axis	Type of motion	Range of movement	
		from	to
1	Rotation motion	+180°	-180°
2	Arm motion	+85°	-70°
3	Arm motion	+110°	-28°
4	Wrist motion	+300°	-300°
5	Bend motion	+120°	-120°
6	Turn motion	+300°	-300° +150 rev.[a] to -150 rev. Max.[b]

a. rev. = Revolutions
b. The default working range for axis 6 can be extended by changing parameter values in the software.
Option 610-1 “Independent axis” can be used for resetting the revolution counter after the axis has been rotated (no need for “rewinding” the axis).

1.7.1 Introduction

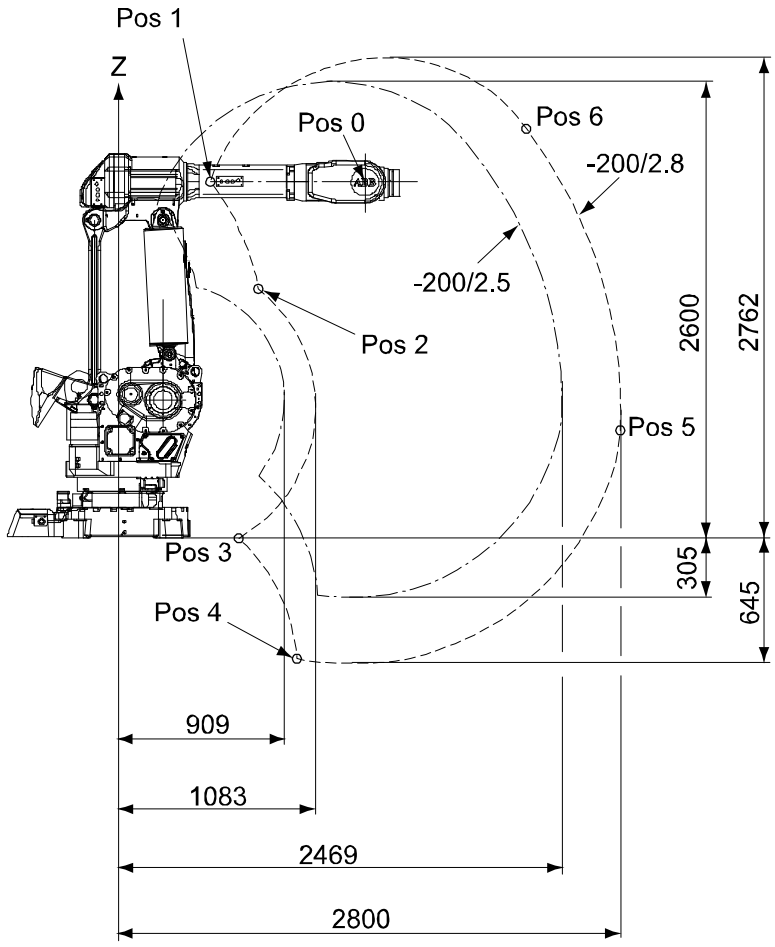

Figure 13 The extreme positions of the robot arms.

Positions and angles IRB 6400RF-200/2.5

Pos No. (see Figure 13)	X Position (mm)	Z Position (mm)
0	1415	2075
1	185	1909
2	415	1445
3	766	387
4	1096	-290
5	2467	701
6	1804	2389

Positions and angles IRB 6400RF-200/2.8

Pos No. (see Figure 13)	X Position (mm)	Z Position (mm)
0	1760	2075
1	490	2071
2	760	1463
3	648	63
4	978	-614
5	2791	583
6	2108	2551

1.7.2 Performance according to ISO 9283

General

At rated maximum load, maximum offset and 1 m/s velocity on the inclined ISO test plane, 1 m cube with all axes in motion.

The figures for AP, RP, AT and RT are mesured according to Figure 14.

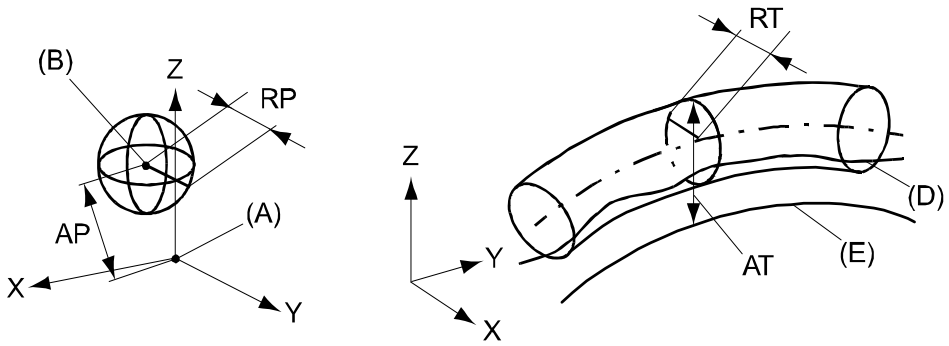

Figure 14 Explanation of ISO values.

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
RP	Tolerance of posiotion B at repeated positioning	RT	Tolerance of the path at repeated program execution

Description	IRB 6400RF-200/2.5 and -200/2.8
Pose accuracy, AP[a] (mm)	Not yet available
Pose repeatability, RP (mm)	0.1
Pose stabilization time, Pst (s)	0.35
Path accuracy, AT (mm)	2.1
Path repeatability, RT (mm)	1.0

a. AP according to the ISO test above, is the difference between the teached 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.

1.7.3 Velocity

Maximum axis speeds

Axis No.	IRB 6400RF-200/2.5	IRB 6400RF-200/2.8
1	100°/s	90°/s
2	90°/s	70°/s
3	90°/s	70°/s
4	120°/s	110°/s
5	120°/s	110°/s
6	190°/s	110°/s

Axis Resolution

Approx. 0.01º on each axis.

1.7.4 Stopping distance/time

Stopping distance/time for emergency stop (category 0), program stop (category 1) and at mains power supply failure at max speed, max streched out and max load, categories according to EN 60204-1. All results are from tests on one moving axis. All stop distances are valid for floor mounted robot, without any tilting.

Robot Type		Category 0		Category 1		Main power failure	
	Axis	A	B	A	B	A	B
IRB 6400RF-200/2.5	1	45	0.9	144	1.9	46	1.4
	2	13	0.3	79	1.2	24	0.4
	3	18	0.3	73	1.2	39	0.7

Robot Type		Category 0		Category 1		Main power failure	
	Axis	A	B	A	B	A	B
IRB 6400RF-200/2.8	1	46	0.9	n.a.	n.a.	n.a.	n.a.
	2	9	0.3	n.a.	n.a.	n.a.	n.a.
	3	15	0.4	n.a.	n.a.	n.a.	n.a.

	Description
A	Distance in degrees
B	Stop time (s)

1.8 Customer connections

1.8.1 Introduction

General

Customer connection in terms of Customer Power (CP), Customer Signals (CS) and Air are integrated in the robot and starts on the robot base and ends on the upper arm at axis 4.

For the specification of the customer connection, see Specification of Variants and Options, Media outlet.

1.9 Maintenance and Troubleshooting

1.9.1 Introduction

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.
- Liquid grease and oil is 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.

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 Maintenance section in the Product Manual.

2 Specification of Variants and Options

2.1 Introduction

2.1.1 General

The different variants and options for the IRB 6400RF are described below.

The same numbers are used here as in the Specification form.

For controller options, see Product specification - Controller IRC5 with FlexPendant, and for software options, see Product specification - Controller software IRC5/ RobotWare Options.

2.1.2 Manipulator

Variants

Option	Robot type	Handling capacity (kg)	Reach (m)
435-15	IRB 6400RF-200/2.5	200 kg	2.5 m
435-23	IRB 6400RF-200/2.8	200 kg	2.8 m

Manipulator color

Option	Name	Description
209-1	ABB Orange standard	The robot is painted in color ABB Orange.
209-4--192	RAL code	The manipulator is painted with chosen RAL-color

Safety lamp

Option	Name	Description
213-1	Safety lamp	A safety lamp with an orange fixed light can be mounted on the manipulator. The safety lamp is active in MOTORS ON mode. The safety lamp is required on a UL/UR approved robot.

Fork lift device

Option	Name	Description
159-1	Fork lift device	Lifting device on the manipulator for fork-lift handling is mounted at delivery. Lifting eyes for use with an overhead crane is integrated as standard.

Brake release cover

Option	Name	Description
50-1	Brake release cover	Protective cover overpush-buttons on brake release unit.

The brake release cover (option 50-1) is always included in the IRB 6400RF.

Position switches axis 1

Option	Name	Description
25-3	Three	Three redundant position zones are available, each with two independent switches and cams. Two plus one zone.

Position switches connected to

Option	Name	Description
271-1	Cabinet	Connection on the cabinet wall. Cables inside the cabinet are included.

Working range limit

To increase the safety of the robot, the working range of axis 1, 2 and 3 can be restricted by extra mechanical stops.

Option	Name	Description
29-1	Axis 1, 15 degrees	Two stops which allow the working range to be restricted in increments of 15°.
29-2	Axis 1, 7.5 degrees	Two stops, which allow the working range to be restricted in increments of 7.5°.
32-1	Axis 2	Six stops which allow the working range to be restricted in increments of 15º at both end positions. Each stop decreases the motion by 15°.
34-1	Axis 3	Six stops which allow the working range to be restricted in increments of 15º at both end positions. Each stop decreases the motion by 15°.

2.1.3 Floor cables

General

Additional floor cable options for Process DressPack, see chapter 2.1.5 DressPack Floor.

Manipulator cable length

Option	Lengths
210-2	7 m
210-3	15 m
210-4	22 m
210-5	30 m

Cable length, Position switches axis 1

Option	Lengths
273-1	7 m
273-2	15 m
273-3	22 m
273-4	30 m

2.1.4 Process DressPack

Media outlet

Option	Name
218-6	At upper arm axis 4

Type	At terminals in cabinet	At connection point	Cable part area	Allowed capacity
Customer Power (CP)				
Utility Power	2	2	1.0 mm^2	250V AC, 8 A
Protective earth		1	1.0 mm^2	250V AC, 8 A
Customer Signals (CS)	10	10	0.24 mm^2	50V AC/DC 250 mA
Customer bus				
CAN/DeviceNet Power	2	2	0.24 mm^2	50V AC/DC, 2 A
CAN/DeviceNet Signals separate shielded	2+1	2+1	0.24 mm^2	5V AC/DC, 250 mA
Media				
Air (PROC 1)		1	13 mm inner diameter	Max. 10 bar

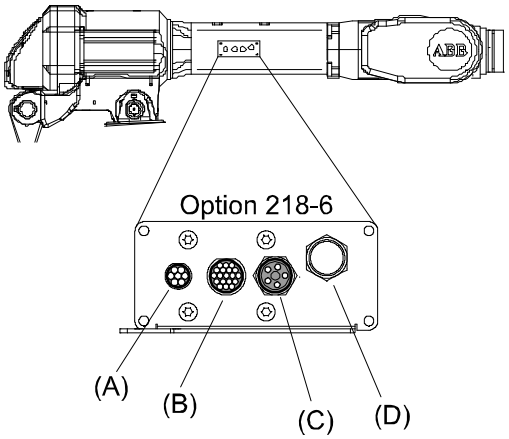

Figure 15 Customer connections at the upper arm axis 4.

Pos	Connection type	Description
A	R2.CP	Customer power
B	R2.CS	Customer signal
C	R2.CANBUS	CAN/DeviceNet signal
D	R2.CAIR	Customer air

Connected to

Option	Name	Description
16-1	Cabinet[a]	The signals are connected to 12-pole screw terminals, Phoenix MSTB 2.5/12-ST-5.08 to the Control module.

a. Note! In a MultiMove application additional robots have no Control module. The screw terminals with internal cabling are then delivered separately to be mounted in the main robot Control module or in another encapsulation.

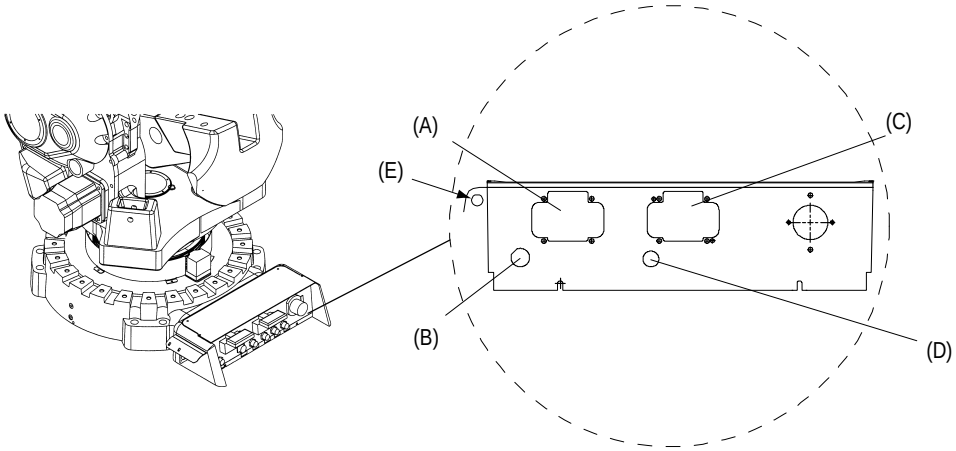

Figure 16 Connections at the robot base.

Pos	Connection type	Description
A	R1.MP	Motor power
B	R1.SMB	Serial measurement board signal
C	R1.CP/CS	Customer power and Customer signal
D	R1.CAIR	Customer air
E	R1.SW1	Position switches axis 1

2.1.4 Process DressPack

Connection type

Option	Name	Description
17-1	CAN/DeviceNet On upper arm	5-pin “Mini” style female connector with 7/8-16 UN-2A THD female connection thread. Meets ANSI/B93.55M-1981 design.

Empty cabinet

Option	Name	Description
768-1	Empty cabinet small	See product specification - Controller IRC5 with FlexPendant, Chapter 2.2.1

Connector kits, upper arm

Option	Name	Description
431-1	Upper arm	Connector for customer power, customer signal, CAN/DeviceNet signal and air at axis 4 tool side.

2.1.5 DressPack Floor

Connection of Media outlet and CAN/DeviceNet

Option	Lengths
90-2	7 m
90-3	15 m
90-4	22 m
90-5	30 m

Connection to First drive

Option	Lengths
786-1	7 m
786-2	15 m
786-3	22 m
786-4	30 m

Connection to First and Second drive

Option	Lengths
787-1	7 m
787-2	15 m
787-3	22 m
787-4	30 m

2.1.6 Documentation

DVD User Documentation

Option	Type	Description
808-1	Documentation on DVD	See Product specification Robot User Documentation

2.1.6 Documentation

3 Accessories

There is a range of tools and equipment available, specially designed for the robot.

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/RobotWare Options.

Robot Peripherals

- Track Motion
- Motor Units

W

3HAC 026552-001, Revision E, en

ABB AB
Robotics Products
S-721 68 VÄSTERÅS
SWEDEN
Telephone: +46 (0) 21 344000
Telefax: +46 (0) 21 132592