1 Description

1.1 Structure

1.1.1 Introduction

Robot family

A number of new possibilities open up with ABB’s IRB 1600 robot. It is available in five versions, and the latest one is the dedicated AW robot, IRB 1600ID-4/1.5 with an compact AW dressed process upper arm.

The IRB 1600 family is ideal for Arc Welding, Machine Tending, Material Handling, Gluing and Deburring/Grinding applications.

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 operating system RobotWare RW. RobotWare RW controls every aspect of the robot, like motion control, development and execution of application programs, communication etc. see Product specification - Controller IRC5 with FlexPendant.

Additional functionality

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

Protection Foundry

With Protection Foundry, the robot is suitable to operate in harsh environments and has special surface treatment and paint for excellent corrosion protection. The connectors are designed for severe environments and bearings, gears and other sensitive parts are carefully protected. The robot has Foundry Plus protection, which means that the whole manipulator is IP 67 classified and steam washable.

Clean room robots

The Clean room robots are classified for room class 10 according to US Federal Standard 209 or class 4 according to ISO 14644-1.

The performed clean room test has classify the air cleanliness exclusively in terms of concentration of airborne particles generated by the robot. Other aspects of the clean room test or other clean room requirements are not considered.

Manipulator axes

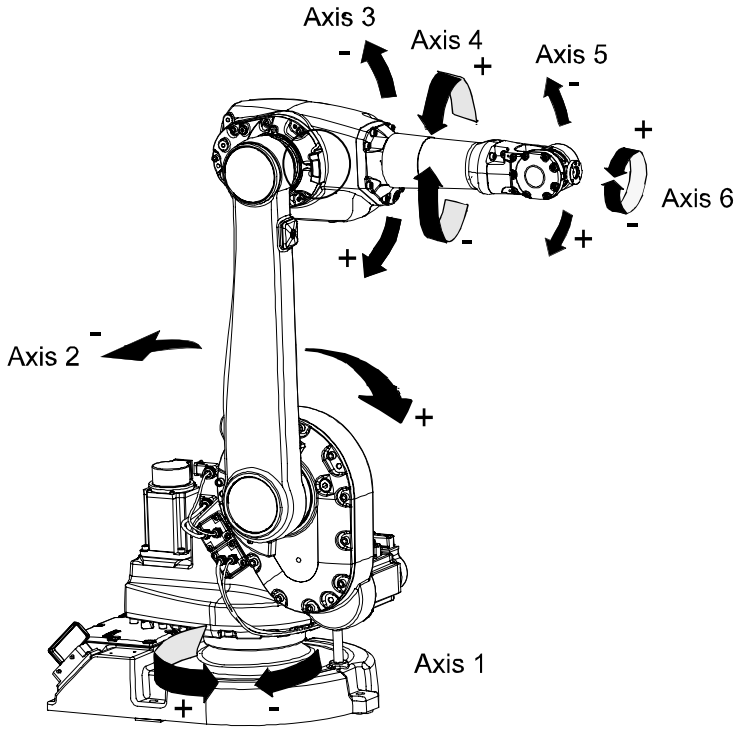

Figure 1 The IRB 1600 manipulator has 6 axes.

1.1.2 Different robot versions

General

The IRB 1600 is available in five versions and four of them can be mounted on the floor, wall or inverted. Tilting of 30º of the robot base is allowed for the floor mounted with a rotation of axis 1 within ± 60º. For wall mounted robot with 6 kg payload the rotation of axis 1 is limited within ± 20º. For wall mounted robot with 8 kg payload the rotation of axis 1 is limited within ± 60°.

The IRB 1600ID-4/1.5 can only be mounted on the floor or inverted.

Robot type	Handling capacity (kg)	Reach (m)
IRB 1600	6 kg	1.2 m
IRB 1600	6 kg	1.45 m
IRB 1600	8 kg	1.2 m
IRB 1600	8 kg	1.45 m
IRB 1600ID	4 kg	1.5 m

Manipulator weight

Robot	Weight
IRB 1600-X/1.2	250 kg
IRB 1600-X/1.45	250 kg
IRB 1600ID-4/1.5	250 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 89/392 EEC)

Power consumption

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

Speed (mm/s)	Power consumption (kW)	
	IRB 1600-x/1.2	IRB 1600(ID)-x/1.45(1.5)
Max.	0.58	0.57
1000	0.49	0.50
500	0.45	0.45
100	0.41	0.43

1.1.2 Different robot versions

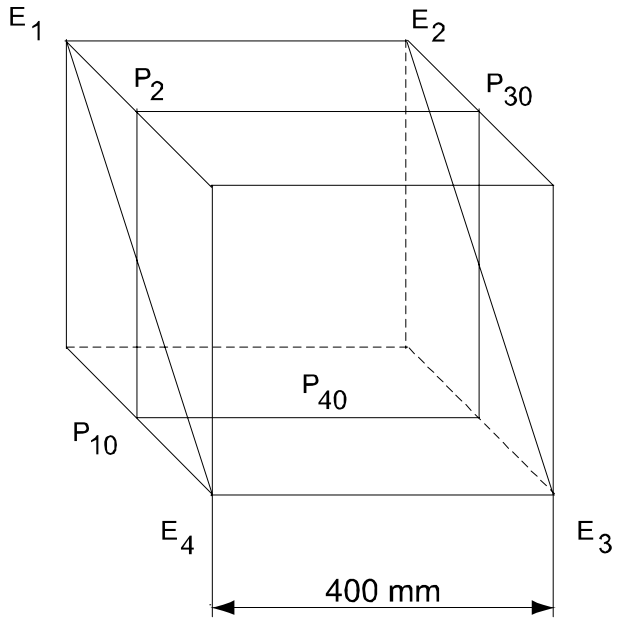

Figure 2 Path E-E2-E3-E4 in the ISO Cube, maximum load.

Dimensions IRB 1600-X/1.2 (1.45)

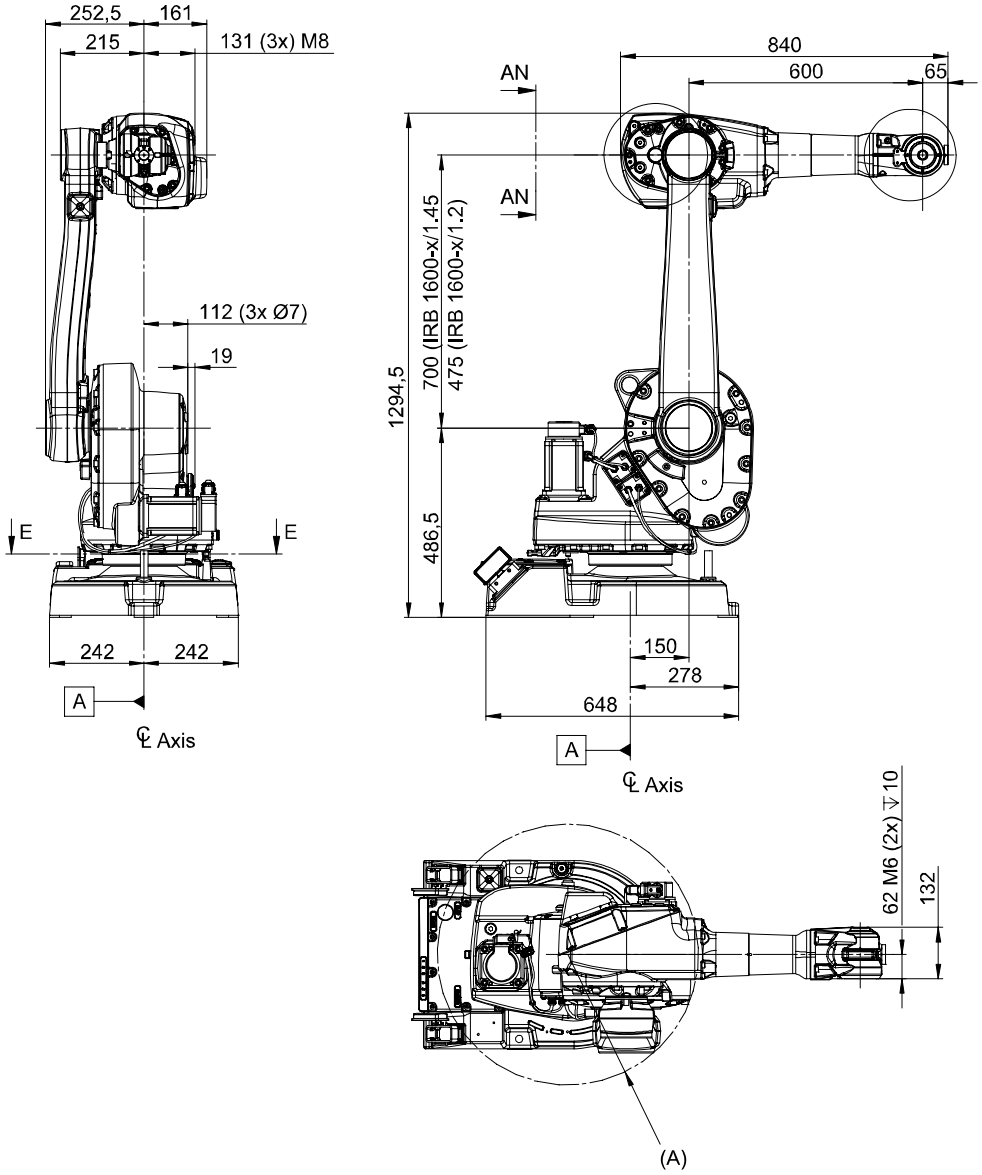

Figure 3 View of the manipulator from the back, side and above (dimensions in mm).

Pos	Description
A	R335 Minimum turning radius

1.1.2 Different robot versions

Dimensions IRB 1600ID-4/1.5

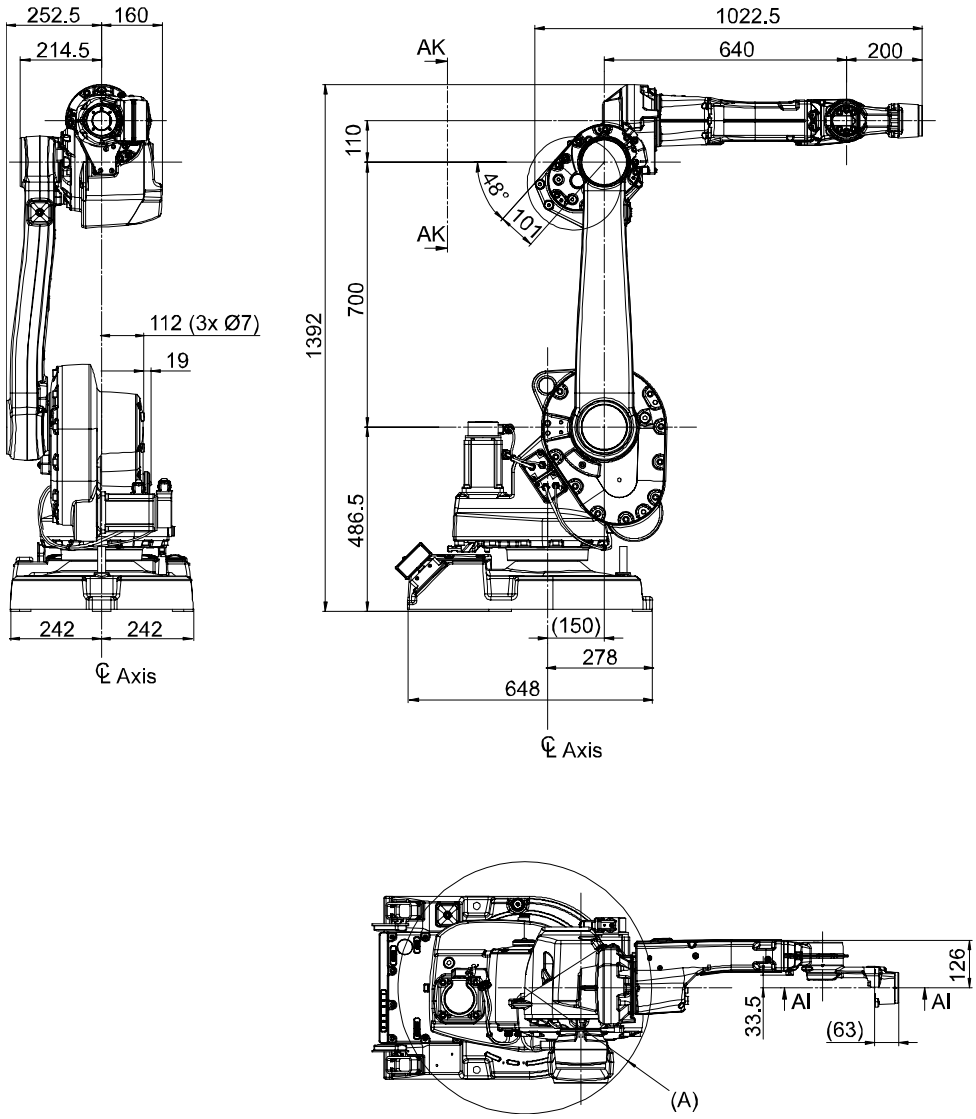

Figure 4 View of the manipulator from the back, side and above (dimensions in mm).

Pos	Description
A	R335 Minimum turning radius