1.8 Robot Motion

1.8.1 Introduction to Robot Motion

IRB 2600

Axis	Type of motion	Range of movement
1	Rotation motion	+ 180° to - 180° [i]
2	Arm motion	+ 155° to - 95°
3	Arm motion	+ 75° to - 180°
4	Rotation motion	+ 400° to - 400° + 251 rev. to - 251 rev. Max.
5	Bend motion	+ 120° to - 120°
6	Turn motion	+ 400° to - 400° + 274 rev. to - 274 rev. Max.

[i] See *Limitations for wall mounted robots on page 60*

For verifying each load case, please contact your local ABB organization.

The default working range for axis 4 and axis 6 can be extended by changing system parameter values in the software. Option *610 - Independent axis* can be used for resetting the revolution counter after the axis has been rotated (no need for "rewinding" the axis).

Limitations for wall mounted robots

The axis 1 working range has the following limitations for wall mounted robots:

Robot variant	Max payload (kg)	Max arm-load (kg)	Working range axis 1, with max payload + max arm load	Max combined pay/arm-load (kg) for ±180° working range axis 1
IRB 2600-20/1.65	20	11	±45°	8
IRB 2600-12/1.65	12	16	±45°	8
IRB 2600-12/1.85	12	11	±40°	-

IRB 2600ID

Axis	Type of motion	Range of movements
1	Rotation motion	+ 180° to - 180° [i]
2	Arm motion	+ 155° to - 95°
3	Arm motion	+ 75° to - 180°
4	Rotation motion	+ 175° to - 175°
5	Bend motion	+ 120° to - 120°
6	Turn motion	+ 400° to - 400° + 191 rev. to - 191 rev. Max.

[i] See *Limitations for tilt and wall mounted robots on page 61*
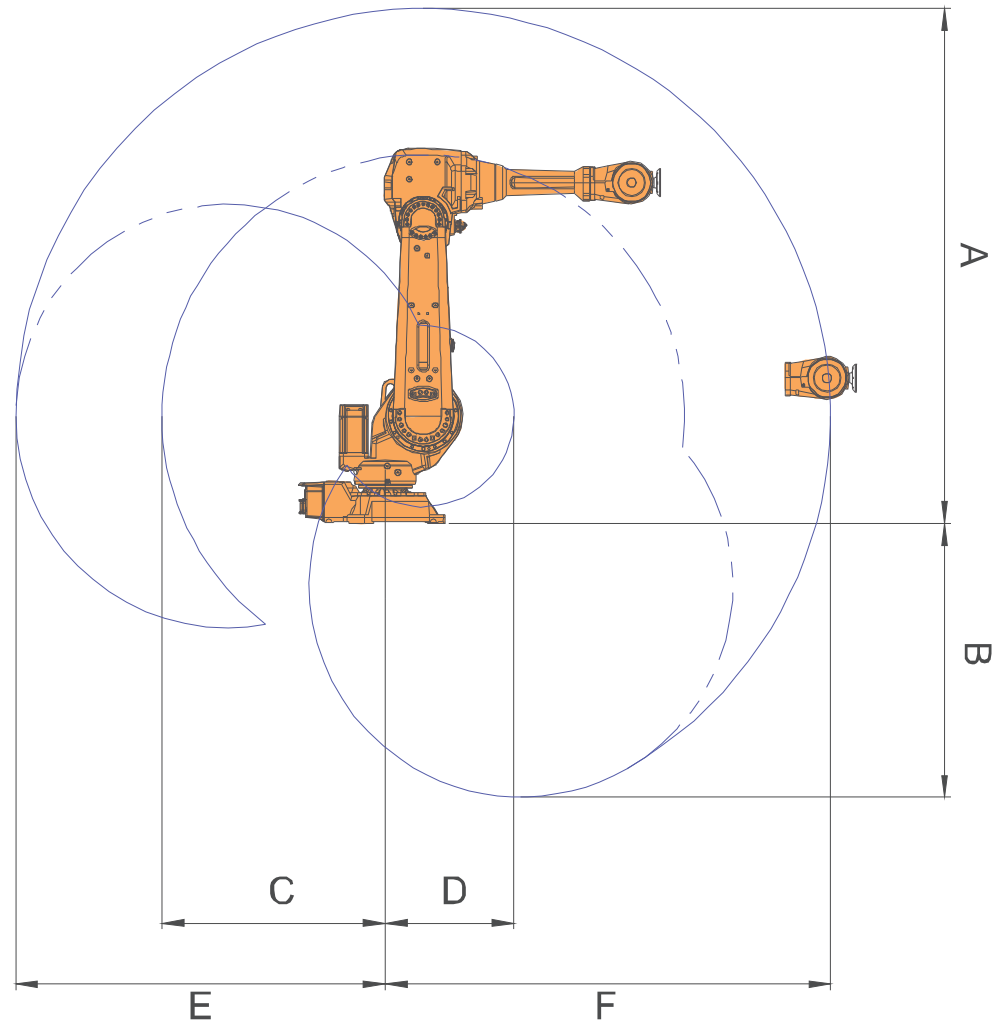
Limitations for tilt and wall mounted robots

The axis 1 working range has the following limitation for tilt and wall mounting.

Mounting position	Description
Max tilting angle for full axis 1 working range	40 degrees
Max working range for axis 1 at wall mounting	± 40 degrees

Working range

xx0800000267

Variant	Pos. A	Pos. B	Pos. C	Pos. D	Pos. E	Pos. F
IRB 2600-20/1.65 IRB 2600-12/1.65	1948 mm	993 mm	837 mm	469 mm	1353 mm	1653 mm
IRB 2600-12/1.85	2148 mm	1174 mm	967 mm	506 mm	1553 mm	1853 mm

Working range IRB 2600ID
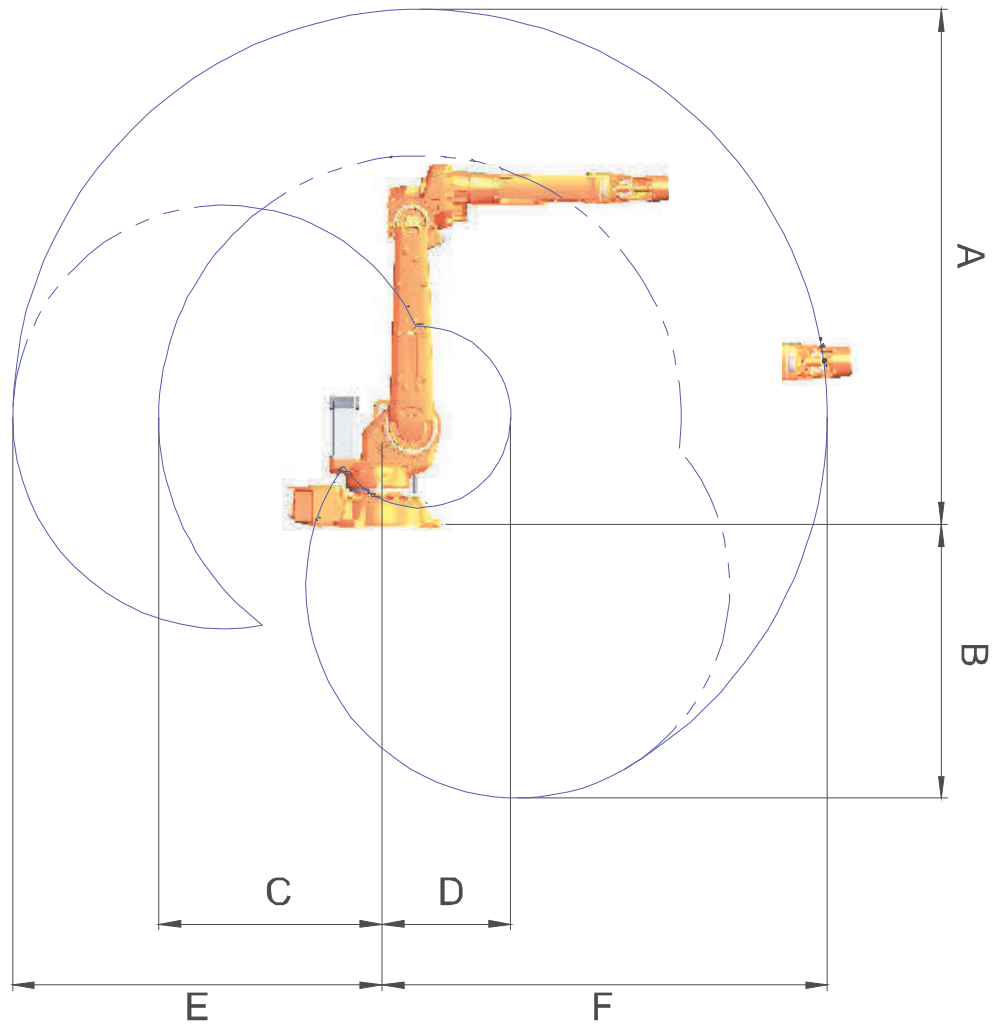
xx1000000970

Variant	Pos. A	Pos. B	Pos. C	Pos. D	Pos. E	Pos. F
IRB 2600ID-15/1.85	2145 mm	1171 mm	936 mm	542 mm	1550 mm	1850 mm
IRB 2600ID-8/2.00	2295 mm	1321 mm	1051 mm	539 mm	1700 mm	2000 mm

1.8.2 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.
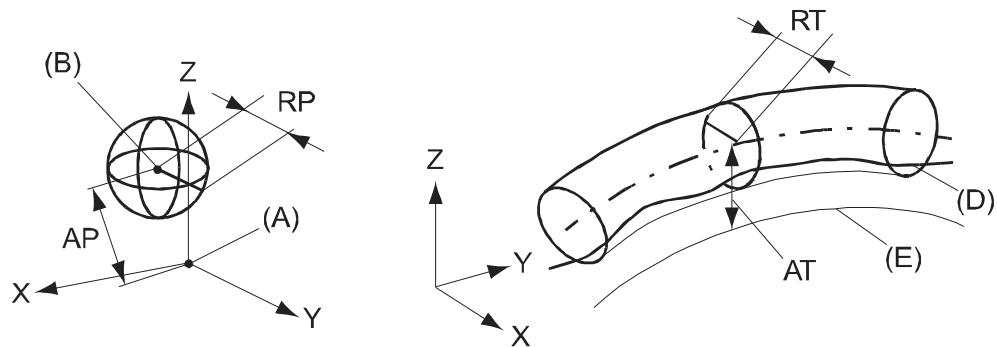
xx0800000424

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 2600			IRB 2600ID	
	-20/1.65 -20/1.65	-12/1.65 -12/1.65	-12/1.85	-15/1.85	-8/2.00
Pose repeatability, RP (mm)	0.04	0.04	0.04	0.026	0.023
Pose accuracy, AP[i] (mm)	0.03	0.03	0.03	0.014	0.033
Linear path repeatability, RT (mm)	0,13	0.14	0,16	0.30	0.27
Linear path accuracy, AT (mm)	0.55	0.60	0.68	0.80	0.70
Pose stabilization time, (PSt) to within 0.2 mm of the position (s)	0.00	0.02	0.03	0.05	0.063

[i]   AP according to the ISO test above, is the difference between the reached position (position manually modified in the cell) and the average position obtained during program execution.

1.8.3 Velocity

Maximum axis speed

Robot type	Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6
IRB 2600-20/1.65	175 °/s	175 °/s	175 °/s	360 °/s	360 °/s	500 °/s
IRB 2600-12/1.65	175 °/s	175 °/s	175 °/s	360 °/s	360 °/s	500 °/s
IRB 2600-12/1.85	175 °/s	175 °/s	175 °/s	360 °/s	360 °/s	500 °/s
IRB 2600ID-15/1.85	175 °/s	175 °/s	175 °/s	360 °/s	360 °/s	500 °/s
IRB 2600ID-8/2.00	175 °/s	175 °/s	175 °/s	360 °/s	360 °/s	500 °/s

There is a supervision function to prevent overheating in applications with intensive and frequent movements.

Axis resolution

0.001° to 0.005°.