

ROBOTICS

# Product specification

## IRB 6710



Trace back information:  
Workspace 23C version a23  
Checked in 2023-10-06  
Skribenta version 5.5.019

## **Product specification**

**IRB 6710**

OmniCore

Document ID: 3HAC085703-001

Revision: B

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# Overview of this specification

## 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

## Usage

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

## References

Documentation referred to in the product specification, is listed in the table below.

| Document name  | Document ID    |
|--|----------------|
| <i>Product manual - IRB 6710</i>                             | 3HAC085695-001 |
| <i>Product manual - DressPack IRB 6710</i>                   | 3HAC088410-001 |
| <i>Circuit diagram - IRB 6710/IRB 6720/IRB 6730/IRB 6740</i> | 3HAC086333-001 |
| <i>Product manual - OmniCore V250XT Type A</i>               | 3HAC084692-001 |



### Tip

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

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## Overview of this specification

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### Revisions

| Revision | Description  |
|----------|--|
| A        | First edition.   |
| B        | Published in release 23C. The following updates are done in this revision: <ul style="list-style-type: none"><li>• Corrected information about available options for forklift device.</li><li>• Corrected information about available options for DressPack.</li></ul> |



# 1 Description of IRB 6710

## 1.1 About the IRB 6710

---

### General introduction

ABB is expanding its large size robot portfolio with IRB 6710, offering faster performance, more accurate, expanded mounting options, and advanced foundry protection than other competing robots in its class.

The IRB 6710 is available in four variants spanning various options for payload from 175 kg to 210 kg, reach from 2.65 m to 2.95 m.

---

### Intended use

IRB 6710 is ideal for use in material handling, machine tending, and high precision assembly applications in the Electric Vehicle (EV), automotive, and the general industries. For Electric Vehicles, robots can handle an array of tasks, including EV battery module picking and placing, high precision assembly and parts handling. For general industries, the robots can be used for a wide range of tasks in die casting, material removal, cleaning, spraying and general high precision applications.

ABB robots are capable of high accelerations and speeds. It is generally recommended to use Robot Studio to find out if a robot model is suitable for a specific application and duty factor. In the case of intense use of robots, optional cooling fans may be required, and the expected component life of gearboxes and motors may be affected. Robot Studio is an excellent tool to help with the assessment of the duty factor and the selection of the most suitable robot variant.

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# 1 Description of IRB 6710

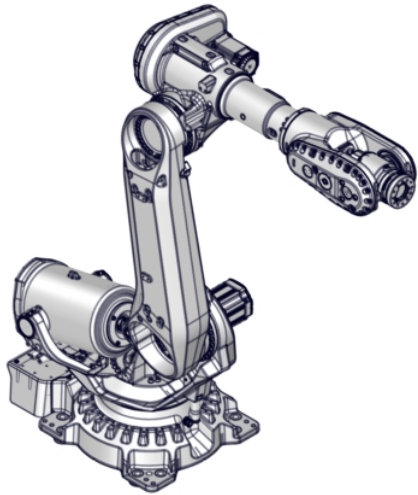
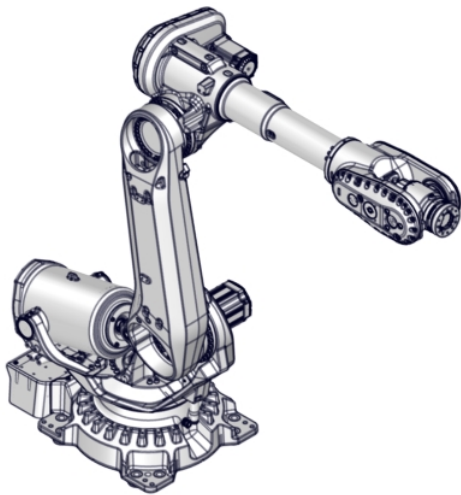
## 1.1 About the IRB 6710

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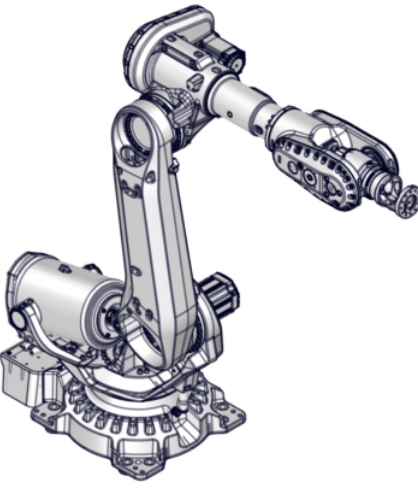
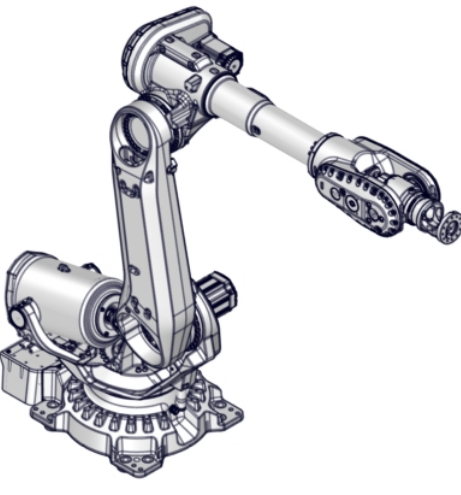
### Available variants

The IRB 6710 is available in the following variants.

#### Variants with standard wrist

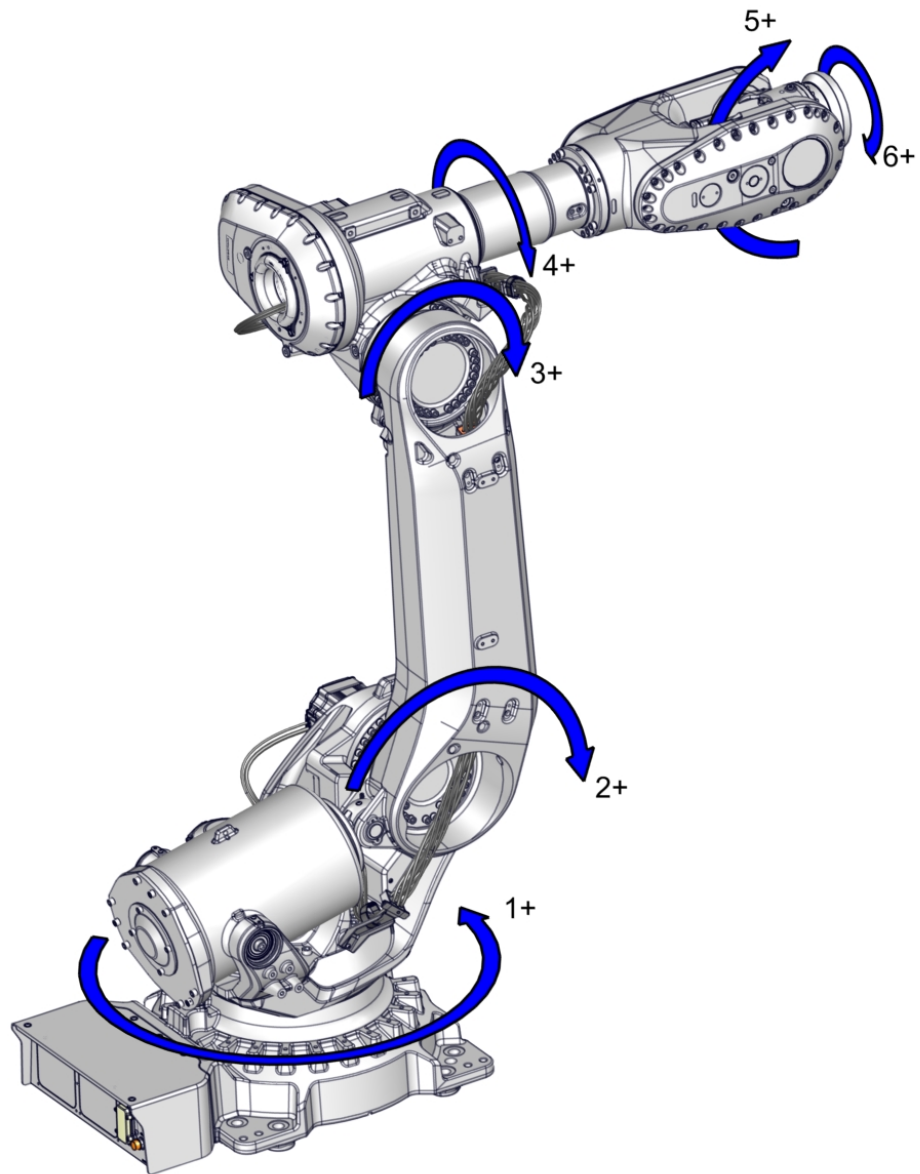
|                   |   |  |
|-------------------|---|--|
|                   | <br>xx2200002091 | <br>xx2200002092 |
| Robot variant     | IRB 6710-210/2.65   | IRB 6710-200/2.95  |
| Handling capacity | 210 kg  | 200 kg   |
| Reach             | 2.65 m  | 2.95 m   |

#### Variants with LeanID

|                   |   |  |
|-------------------|---|--|
|                   | <br>xx2200002093 | <br>xx2200002094 |
| Robot variant     | IRB 6710-175/2.65 LID   | IRB 6710-175/2.95 LID  |
| Handling capacity | 175 kg  | 175 kg   |
| Reach             | 2.65 m  | 2.95 m   |

*Continues on next page*

### Robot axes



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### Control system

The robot is equipped with the OmniCore 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*.

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.

The IRB 6710 manipulator can be connected to the following robot controllers:

- OmniCore V250XT Type A

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# 1 Description of IRB 6710

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## 1.1 About the IRB 6710

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### Safety

Safety standards valid for complete robot, manipulator and controller.

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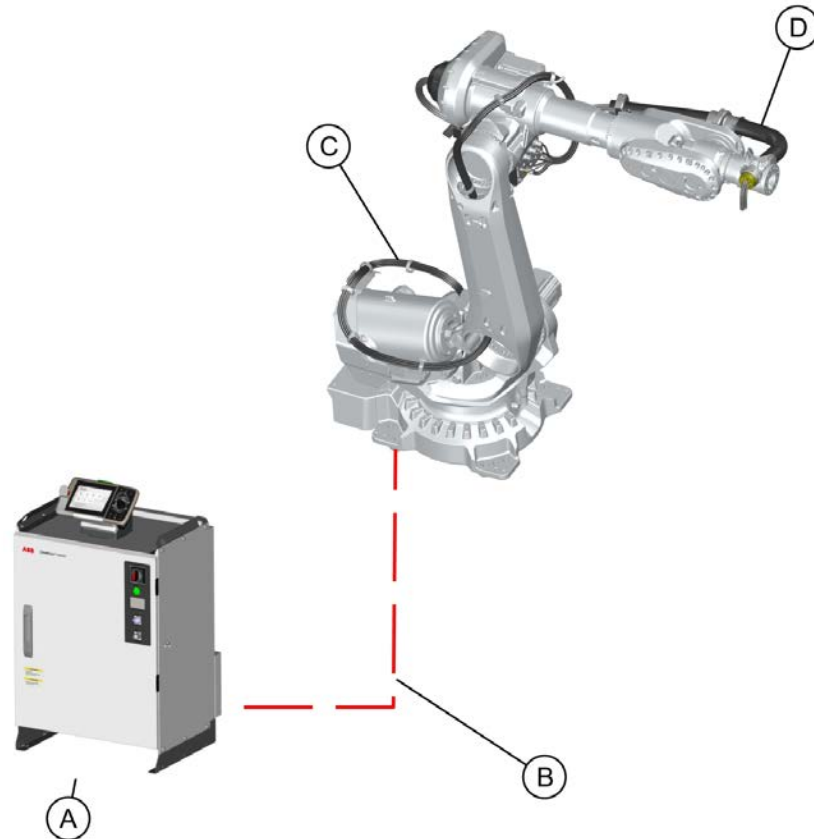
### Additional functionality

For additional functionality, the robot can be equipped with optional software for application support - for example communication features - network communication - and advanced functions such as multitasking, sensor control etc. For a complete description on optional software, see the product specification for the robot controller, listed in [References on page 7](#).

### 1.2 About the IRB 6710 LeanID

#### About the DressPack

The IRB 6710 can be equipped with the well-integrated cable and hose packages in the DressPack options. The DressPack is designed together with the manipulator to offer a complete solution. The DressPack is designed to fit a wide variety of applications, like machine tending, material handling and spot welding and are well integrated into the robot system to ensure long life and large working range.



xx230000230

| Pos | Description          |
|-----|----------------------|
| A   | Robot controller     |
| B   | DressPack, floor     |
| C   | DressPack, lower arm |
| D   | DressPack, upper arm |

*Continues on next page*

# 1 Description of IRB 6710

## 1.2 About the IRB 6710 LeanID

*Continued*

### Available DressPack for IRB 6710

To support the variety of complexity in the operation/wrist movements, there are different solutions available.

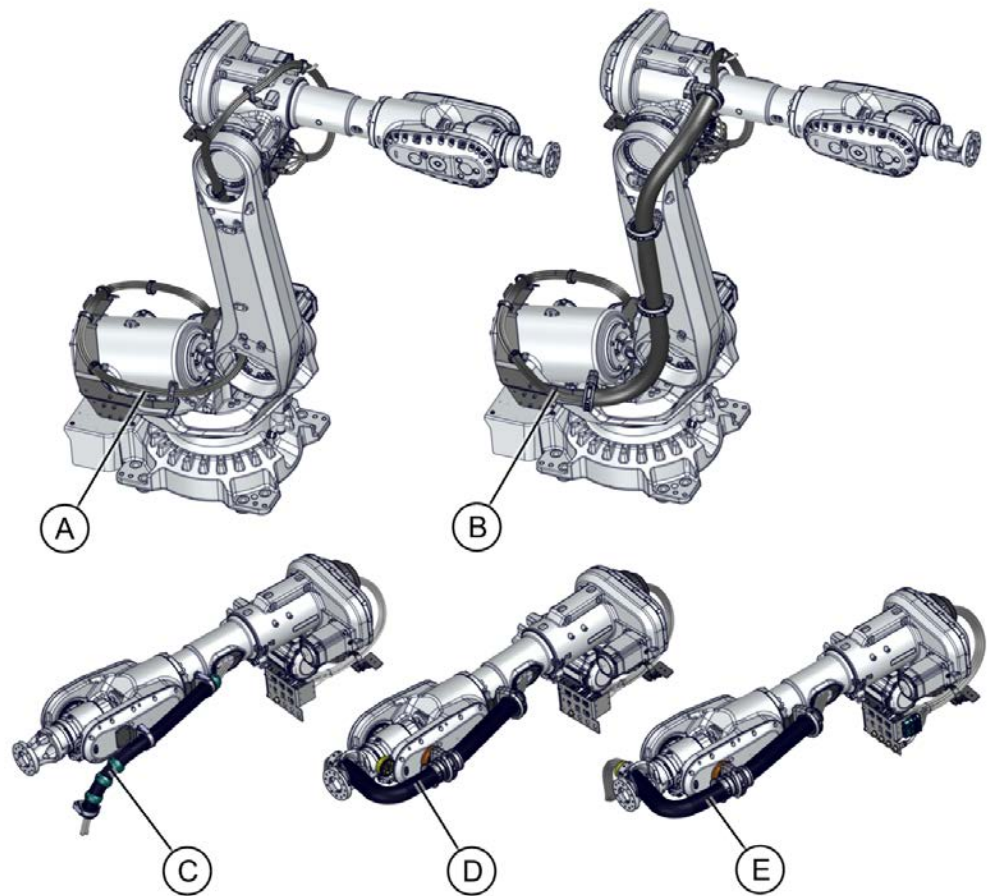
The lower arm DressPack (base - axis 3) has the same routing and design for all manipulator variants, but differs for material handling and spot welding. The DressPack for material handling (MH) is routed inside the manipulator lower arm while the DressPack for spot welding (SW) runs outside of the lower arm.

The upper arm DressPack options (axis 3 - 6) are available in different design solutions, *LeanID - MH*, *LeanID - SW* and *MH3*. The main difference between LeanID and MH3 is that LeanID is guided across the axis 6 center of rotation by utilizing a process turning disc instead of the standard turning disc. This allows for a controlled and predictable motion pattern of the DressPack. The MH3 DressPack is designed for less complex wrist movements and requires the integrator to manage the DressPack routing at axis 6.

| Robot variant         | DressPack variants |   |
|-----------------------|--------------------|---|
|                       | Base - axis 3      | axis 3 - 6  |
| IRB 6710-210/2.65     | MH, SW             | MH3   |
| IRB 6710-200/2.95     | MH, SW             | MH3   |
| IRB 6710-175/2.65 LID | MH, SW             | LeanID - MH, LeanID - SW,<br>LeanID Empty Conduit |
| IRB 6710-175/2.95 LID | MH, SW             | LeanID - MH, LeanID - SW,<br>LeanID Empty Conduit |

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### Illustration of DressPack designs



xx230000229

|   | Description             | DressPack variant    | Robot variant  |
|---|-------------------------|----------------------|--|
| A | DressPack base - axis 3 | MH                   | IRB 6710-210/2.65<br>IRB 6710-200/2.95<br>IRB 6710-175/2.65 LID<br>IRB 6710-175/2.95 LID |
| B | DressPack base - axis 3 | SW                   | IRB 6710-210/2.65<br>IRB 6710-200/2.95<br>IRB 6710-175/2.65 LID<br>IRB 6710-175/2.95 LID |
| C | DressPack axis 3 - 6    | MH3                  | IRB 6710-210/2.65<br>IRB 6710-200/2.95   |
| D | DressPack axis 3 - 6    | LeanID - MH          | IRB 6710-175/2.65 LID<br>IRB 6710-175/2.95 LID   |
| E | DressPack axis 3 - 6    | LeanID - SW          | IRB 6710-175/2.65 LID<br>IRB 6710-175/2.95 LID   |
| - | DressPack axis 3 - 6    | LeanID Empty Conduit | IRB 6710-175/2.65 LID<br>IRB 6710-175/2.95 LID   |

# 1 Description of IRB 6710

## 1.3.1 Applicable standards

## 1.3 Standards

### 1.3.1 Applicable standards

#### General

The product is compliant 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 deviation from ISO 10218-1:2011, these are listed in the declaration of incorporation. The declaration of incorporation is part of the delivery.

#### Robot standards

| Standard | Description  |
|----------|--|
| ISO 9283 | Manipulating industrial robots – Performance criteria and related test methods |
| ISO 9787 | Robots and robotic devices – Coordinate systems and motion nomenclatures       |
| ISO 9946 | Manipulating industrial robots – Presentation of characteristics               |

#### Other standards used in design

| Standard         | Description   |
|------------------|---|
| IEC 60204-1      | Safety of machinery - Electrical equipment of machines - Part 1: General requirements, normative reference from ISO 10218-1                 |
| IEC 61000-6-2    | Electromagnetic compatibility (EMC) – Part 6-2: Generic standards – Immunity standard for industrial environments                           |
| IEC 61000-6-4    | Electromagnetic compatibility (EMC) – Part 6-4: Generic standards – Emission standard for industrial environments                           |
| ISO 13849-1:2006 | Safety of machinery - Safety related parts of control systems - Part 1: General principles for design, normative reference from ISO 10218-1 |

#### Region specific standards and regulations

| Standard                             | Description   |
|--------------------------------------|---|
| ANSI/RIA R15.06                      | Safety requirements for industrial robots and robot systems                             |
| CAN/CSA Z 434-03<br>CAN/CSA Z 434-14 | Industrial robots and robot Systems - General safety requirements                       |
| EN ISO 10218-1                       | Robots and robotic devices — Safety requirements for industrial robots — Part 1: Robots |



### 1.4 Maintenance and troubleshooting

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#### 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.
- Oil 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 - IRB 6710*.

---

#### Troubleshooting

The robot has built-in communication that shows information on the FlexPendant. These messages facilitates troubleshooting and are an integral part of the control system. Troubleshooting procedures are describes in the product manual for the manipulator and the controller respectively.

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## 2 Technical data for IRB 6710

### 2.1 Technical data

#### 2.1.1 Technical data

##### Weight, robot

The table shows the weight of the robot.

| Robot model           | Nominal weight |
|-----------------------|----------------|
| IRB 6710-210/2.65     | 1,140 kg       |
| IRB 6710-200/2.95     | 1,150 kg       |
| IRB 6710-175/2.65 LID | 1,200 kg       |
| IRB 6710-175/2.95 LID | 1,210 kg       |



##### Note

The weight does not include additional options, tools and other equipment fitted on the robot.

The weight includes the weight of the DressPack for LID variants.

##### Mounting positions

The table shows valid mounting positions and the installation (mounting) angle for the manipulator.

| Mounting position | Installation angle |
|-------------------|--------------------|
| Floor mounted     | 0°                 |



##### Note

The actual mounting angle must always be configured in the system parameters, otherwise the performance and lifetime is affected. See the product manual for details.

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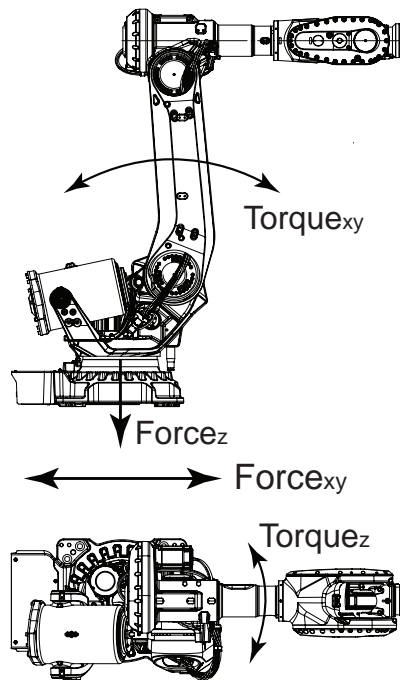
## 2 Technical data for IRB 6710

### 2.1.1 Technical data

Continued

#### Loads on foundation, robot

The illustration shows the directions of the robots stress forces.



xx2200001958

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!



#### 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  | $\pm 7.4$ kN                  | $\pm 19.4$ kN                 |
| Force z   | $14.1 \pm 4.2$ kN             | $14.1 \pm 16.3$ kN            |
| Torque xy | $\pm 19.5$ kNm                | $\pm 35.8$ kNm                |
| Torque z  | $\pm 5$ kNm                   | $\pm 12.3$ kNm                |

Continues on next page

**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 | 0.3 mm   | Flat foundations give better repeatability of the resolver calibration compared to original settings on delivery from ABB.<br>The value for levelness aims at the circumstance of the anchoring points in the robot base.<br>In order to compensate for an uneven surface, the robot can be recalibrated during installation. If resolver/encoder calibration is changed this will influence the absolute accuracy. |
| Minimum resonance frequency    | 22 Hz<br> <b>Note</b><br>It may affect the manipulator lifetime to have a lower resonance frequency than recommended. | The value is recommended for optimal performance.<br>Due to foundation stiffness, consider robot mass including equipment. <sup>i</sup><br>For information about compensating for foundation flexibility, see the description of <i>Motion Process Mode</i> in the manual that describes the controller software option, see <a href="#">References on page 7</a> .   |

<sup>i</sup> 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 possibly 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                    | -25 °C |
| Maximum ambient temperature                    | 55 °C  |
| Maximum ambient temperature (less than 24 hrs) | 70 °C  |
| Maximum ambient humidity                       | 95%    |

**Operating conditions, robot**

The table shows the allowed operating conditions for the robot:

| Parameter                   | Value                       |
|-----------------------------|-----------------------------|
| Minimum ambient temperature | 5 °C <sup>i</sup>           |
| Maximum ambient temperature | 50 °C                       |
| Maximum ambient humidity    | 95% at constant temperature |

<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.

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## 2 Technical data for IRB 6710

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### 2.1.1 Technical data

*Continued*

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#### Protection classes, robot

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

| Protection type                             | Protection class <sup>i</sup> |
|---|-------------------------------|
| Manipulator, protection type Standard       | IP67                          |
| Manipulator, protection type Foundry Plus 2 | IP67                          |

<sup>i</sup> According to IEC 60529.

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#### Environmental information

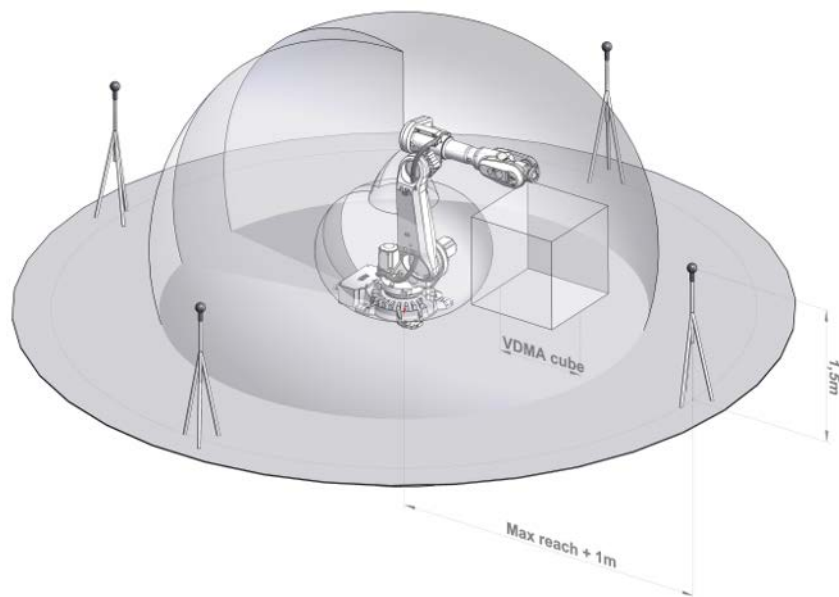
The product complies with IEC 63000. *Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances.*

## 2.1.2 Airborne noise level

### Airborne noise level

| Description          | Note  | Value         |
|----------------------|---|---------------|
| Airborne noise level | The sound pressure level outside the working space. | 74 dB (A) Leq |

The noise emission is measured at four points on a radius 1 m outside the robots maximum working range and at 1.5 m above the robot base level, while the manipulator follows a defined cycle according to VDMA 24608, at max performance and payload.



xx2100002505



#### Note

The noise emission from a robot, in an actual application, depends on the programmed path, payload, cycle time, mounting position, environment, etc.

## 2 Technical data for IRB 6710

### 2.1.3 Power consumption

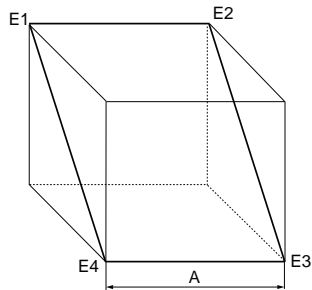
### 2.1.3 Power consumption

#### Power consumption at max load

| Variant <sup>i</sup> | ISO cube                                   | Robot in calibration position            |   |
|----------------------|--|--|---|
|                      | Power consumption at maximum velocity (kW) | Power consumption at brakes engaged (kW) | Power consumption at brakes disengaged (kW) |
| IRB 6710-210/2.65    | 2.5  | 0.17                                     | 0.70  |
| IRB 6710-200/2.95    | 2.4  | 0.16                                     | 0.80  |

<sup>i</sup> LID manipulator variants are considered to have the same data as specified variants with the same reach.

#### ISO cube



xx1000000101

| Pos | Description |
|-----|-------------|
| A   | 1,000 mm    |



#### Note

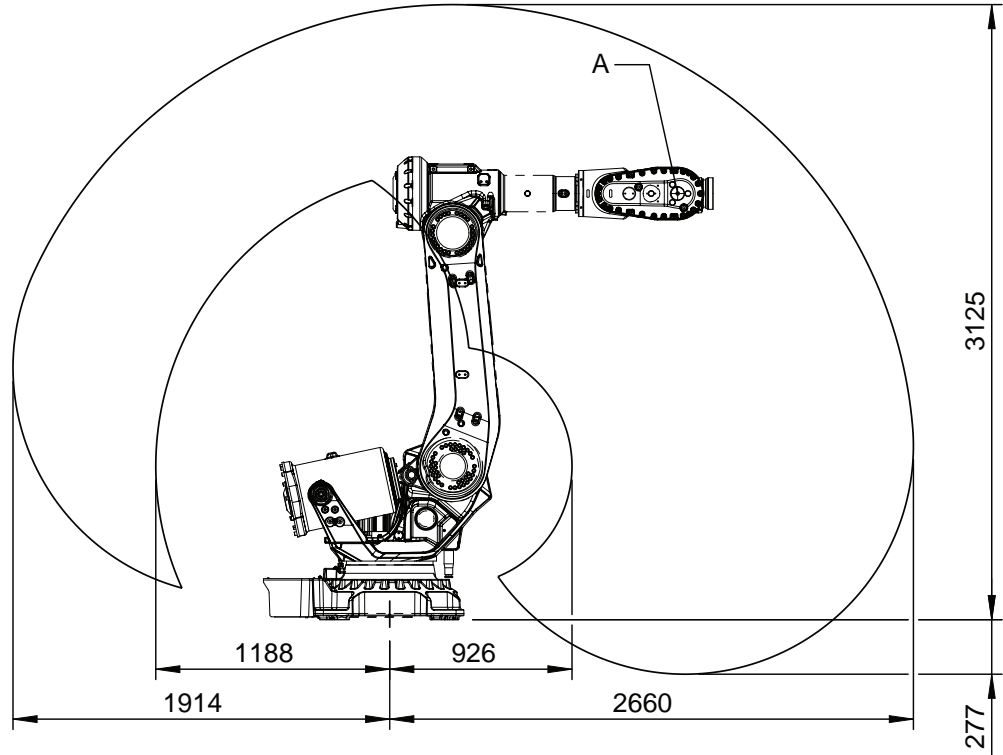
If measuring the power consumption at the installation site, the returned power to the grid needs to be taken in to account.



2.1.4 Working range

Illustration, working range IRB 6710-210/2.65

This illustration shows the unrestricted working range of the robot.



xx2200001961

|   |                                   |
|---|-----------------------------------|
| A | Path intersect with axis-5 center |
|---|-----------------------------------|

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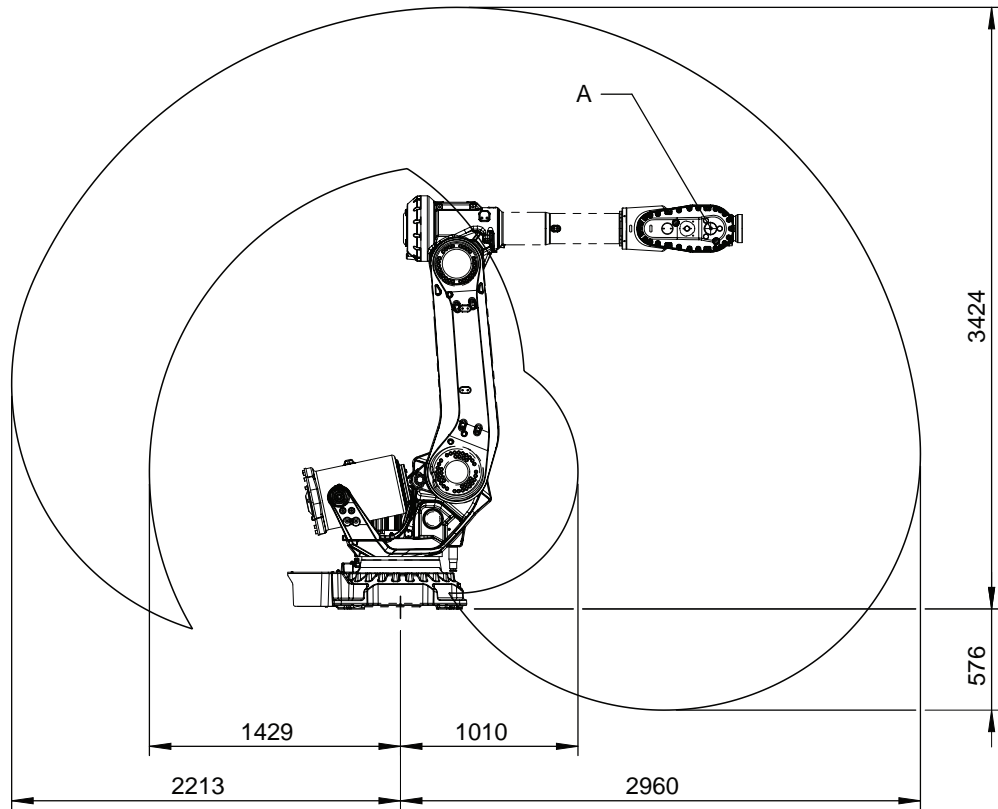
## 2 Technical data for IRB 6710

### 2.1.4 Working range

*Continued*

#### Illustration, working range IRB 6710-200/2.95

This illustration shows the unrestricted working range of the robot.

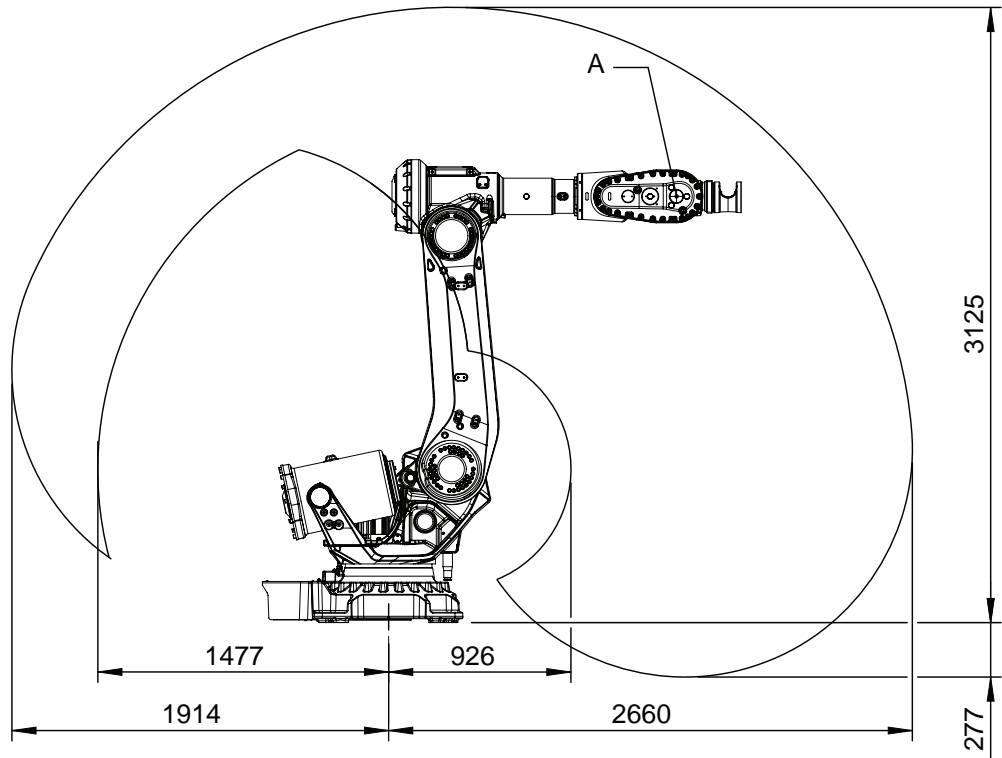


|   |                                   |
|---|-----------------------------------|
| A | Path intersect with axis-5 center |
|---|-----------------------------------|

*Continues on next page*

Illustration, working range IRB 6710-175/2.65 LID

This illustration shows the unrestricted working range of the robot.



xx2200001963

|   |                                   |
|---|-----------------------------------|
| A | Path intersect with axis-5 center |
|---|-----------------------------------|

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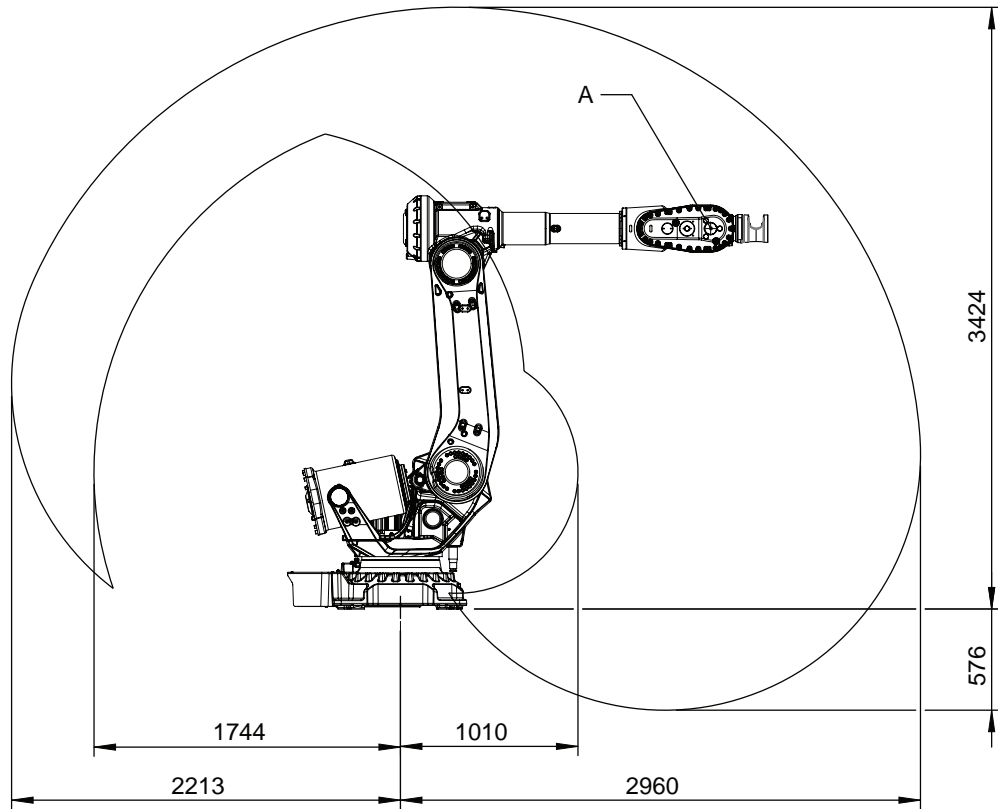
## 2 Technical data for IRB 6710

### 2.1.4 Working range

*Continued*

#### Illustration, working range IRB 6710-175/2.95 LID

This illustration shows the unrestricted working range of the robot.

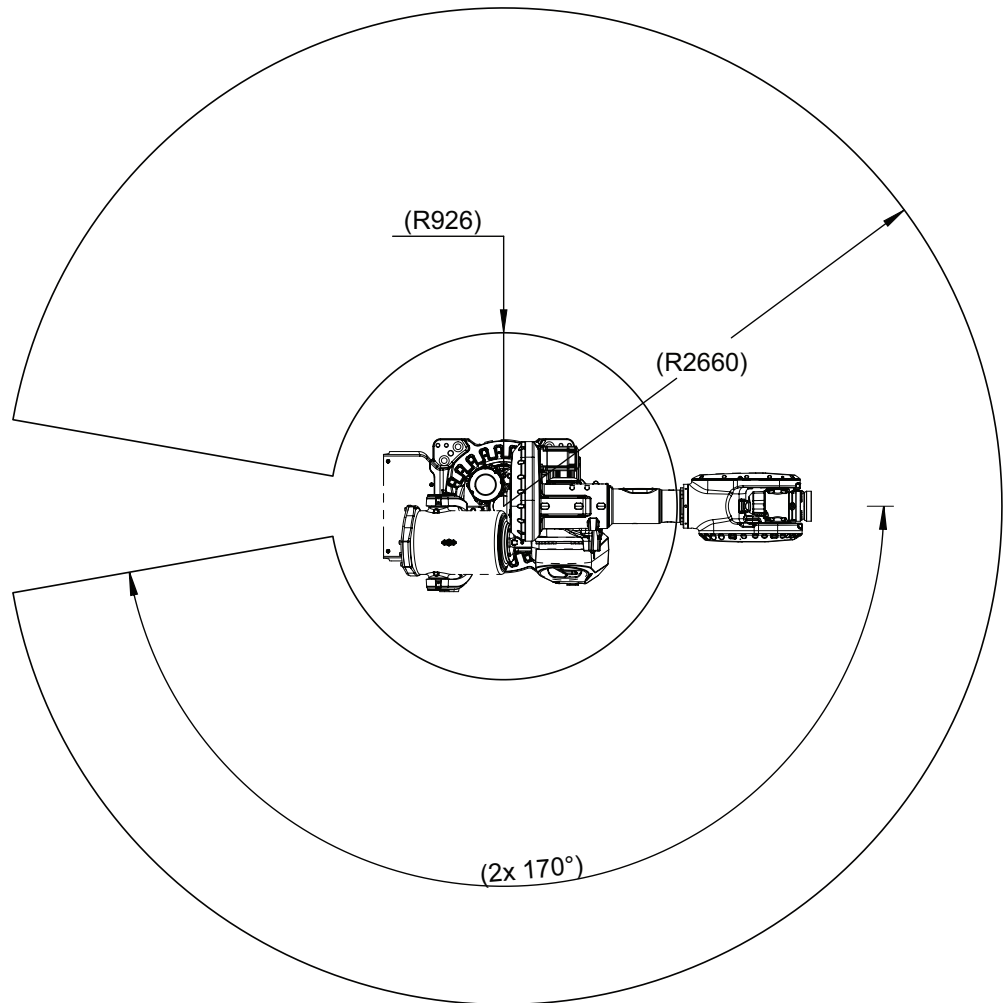


|   |                                   |
|---|-----------------------------------|
| A | Path intersect with axis-5 center |
|---|-----------------------------------|

*Continues on next page*

Top view of working range

IRB 6710-210/2.65, IRB 6710-175/2.65 LID



xx2200001985

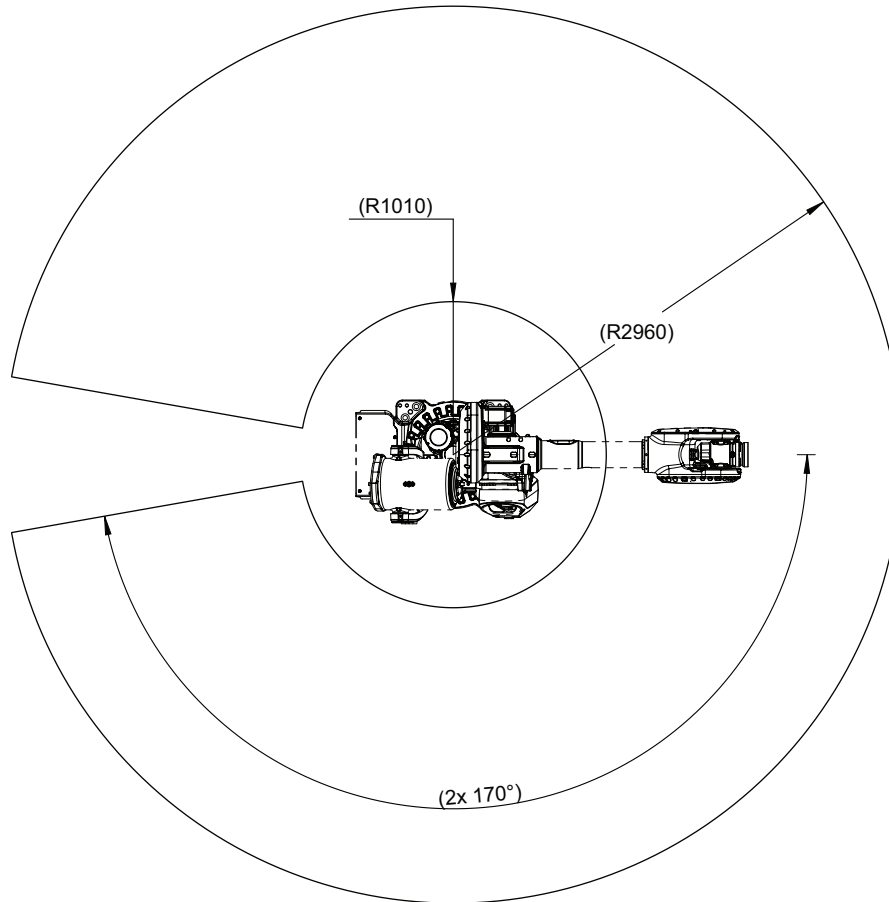
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## 2 Technical data for IRB 6710

### 2.1.4 Working range

Continued

IRB 6710-200/2.95, IRB 6710-175/2.95 LID



xx2200001986

### Working range

| Axis   | Working range                            | Note   |
|--------|--|--|
| Axis 1 | $\pm 170^\circ$                          |  |
|        | $\pm 220^\circ$ <sup>i</sup>             | The default working range for axis 1 can be extended as an option. |
| Axis 2 | $-65^\circ / +85^\circ$                  |  |
| Axis 3 | $-180^\circ$ <sup>ii</sup> / $+70^\circ$ | IRB 6710-210/2.65, IRB 6710-200/2.95                               |
|        | $-160^\circ / +70^\circ$                 | IRB 6710-175/2.65 LID, IRB 6710-175/2.95 LID                       |
| Axis 4 | $\pm 300^\circ$                          |  |
| Axis 5 | $\pm 130^\circ$                          | IRB 6710-210/2.65, IRB 6710-200/2.95                               |
|        | $\pm 120^\circ$ <sup>iii</sup>           | IRB 6710-175/2.65 LID, IRB 6710-175/2.95 LID                       |
| Axis 6 | $\pm 360^\circ$                          | IRB 6710-210/2.65, IRB 6710-200/2.95                               |
|        | $\pm 220^\circ$ <sup>iii</sup>           | IRB 6710-175/2.65 LID, IRB 6710-175/2.95 LID                       |

<sup>i</sup> Option Extended Working Range Axis 1 (3324-1)  
Not valid with DressPack SW.

<sup>ii</sup>  $-160^\circ$  if lower arm DressPack is installed

<sup>iii</sup> Maximum combined movements reduced. See [Working range axis 5 and axis 6 for IRB 6710-175/2.65 LID, IRB 6710-175/2.95 LID \(option axis 3-6 \[3326-x\]\) on page 32.](#)

Continues on next page

### Working range limitation

The working range of axis 1 can be reduced by altering the parameter values. Installation of additional mechanical stops is recommended. See [Working range alterations on page 52](#).

## 2 Technical data for IRB 6710

### 2.1.5 Robot motion

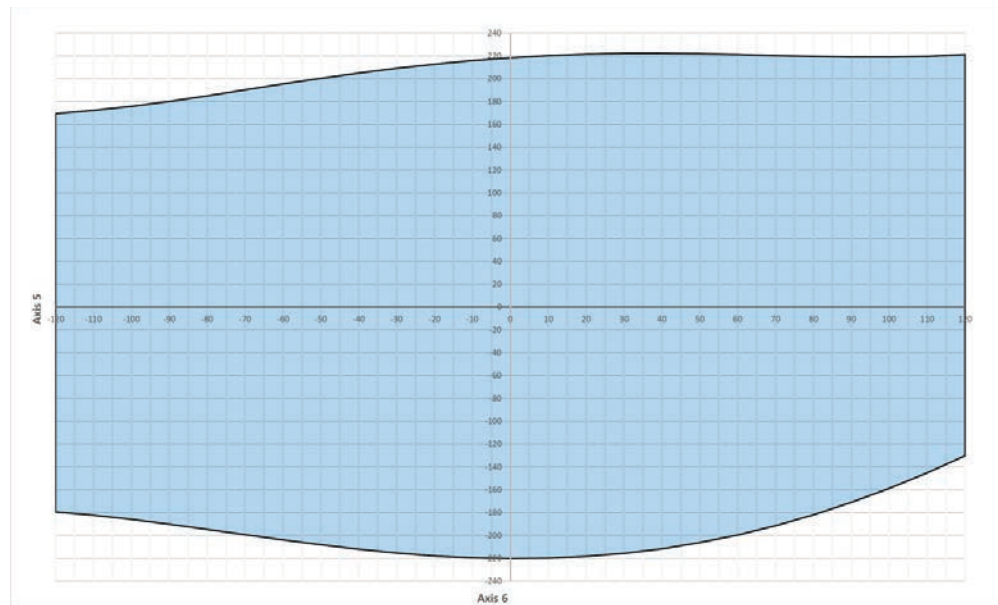
### 2.1.5 Robot motion

#### Limitations of robot movements for LeanID

Robot variants with LeanID have restricted working range implemented in RobotWare. See [Working range on page 30](#).

#### Working range axis 5 and axis 6 for IRB 6710-175/2.65 LID, IRB 6710-175/2.95 LID (option axis 3-6 [3326-x])

The allowed working area for axis 6 related to axis 5 position is shown in the figure below.



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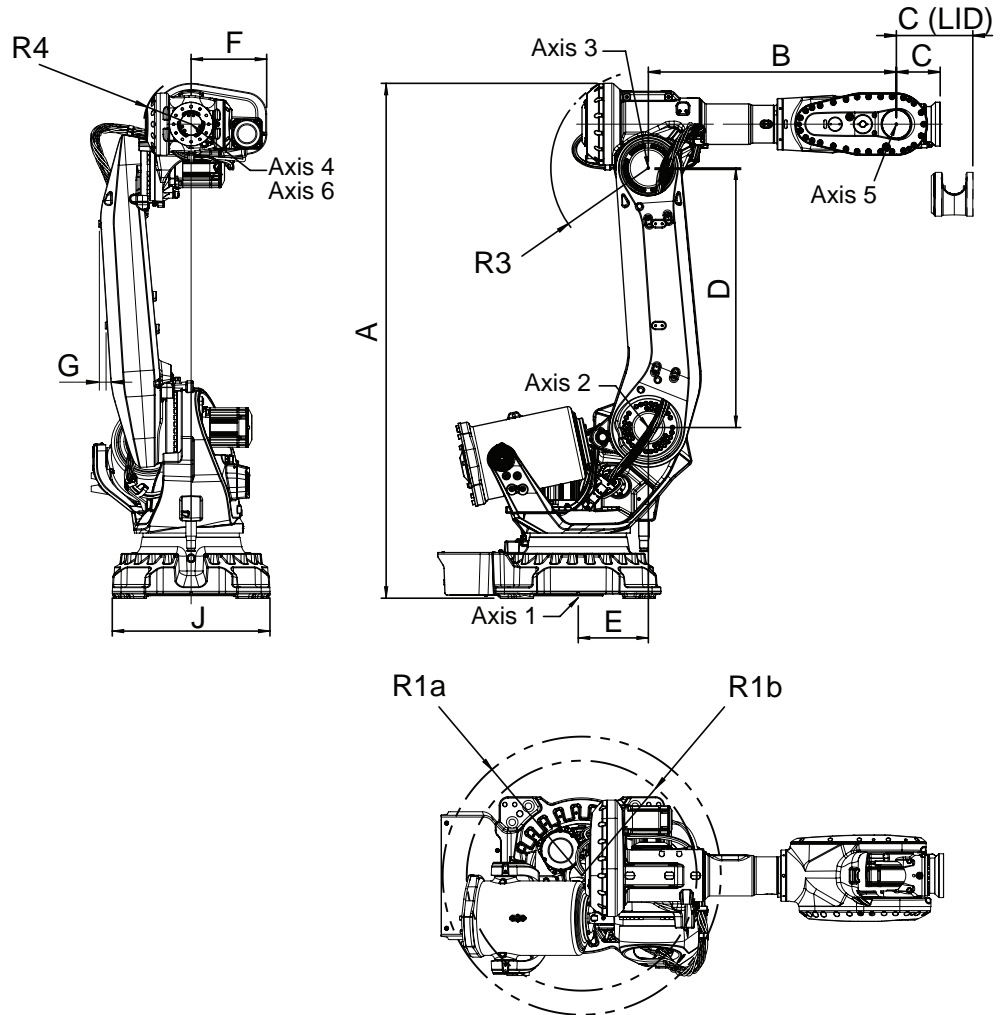
#### Note

The working range for LeanID variants is controlled and protected by software.



2.2 Fitting equipment on the robot (robot dimensions)

Robot dimensions



xx2200002031

|     |  |
|-----|--|
| R1a | Smallest circumscribed radius around axis 1 (back side)  |
| R1b | Smallest circumscribed radius around axis 1 (front side) |
| R3  | Smallest circumscribed radius around axis 3              |
| R4  | Smallest circumscribed radius around axis 4              |

Measurements

The measurements are given in mm.

| Variant               | A       | B       | C   | D     | E   | F   | G  | R1a | R1b | R3  | R4  |
|-----------------------|---------|---------|-----|-------|-----|-----|----|-----|-----|-----|-----|
| IRB 6710-210/2.65     | 2,351.5 | 1,142.5 | 180 | 1,185 | 320 | 345 | 30 | 634 | 525 | 446 | 200 |
| IRB 6710-200/2.95     | 2,351.5 | 1,445.5 | 180 | 1,185 | 320 | 345 | 30 | 634 | 525 | 446 | 200 |
| IRB 6710-175/2.65 LID | 2,351.5 | 1,142.5 | 346 | 1,185 | 320 | 345 | 30 | 634 | 525 | 446 | 200 |

Continues on next page

## 2 Technical data for IRB 6710

### 2.2 Fitting equipment on the robot (robot dimensions)

Continued

| Variant               | A       | B       | C   | D     | E   | F   | G  | R1a | R1b | R3  | R4  |
|-----------------------|---------|---------|-----|-------|-----|-----|----|-----|-----|-----|-----|
| IRB 6710-175/2.95 LID | 2,351.5 | 1,445.5 | 346 | 1,185 | 320 | 345 | 30 | 634 | 525 | 446 | 200 |

#### Extra load on the robot

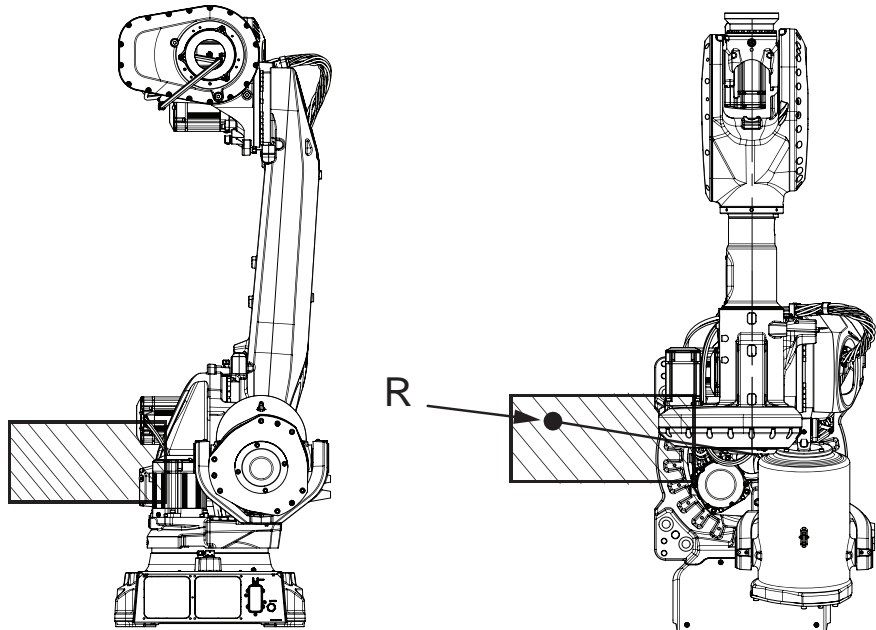
Extra loads can be mounted on robot. Definitions of dimensions and masses are shown in the following figures. The robot is supplied with holes for fitting extra equipment.

Maximum allowed arm load depends on center of gravity of arm load and robot payload.

#### Frame

The table and figure shows allowed extra load on the frame.

|   | Description  |
|---|--|
| Permitted extra load on frame                   | $J_H = 100 \text{ kgm}^2$  |
| Recommended position (see the following figure) | $J_H = J_{H0} + M4 \times R^2$<br>where: <ul style="list-style-type: none"> <li>• <math>J_{H0}</math> is the moment of inertia of the equipment</li> <li>• <math>R</math> is the radius (m) from the center of axis 1</li> <li>• <math>M4</math> is the total mass (kg) of the equipment including bracket and harness (<math>\leq 250 \text{ kg}</math>)</li> </ul> |

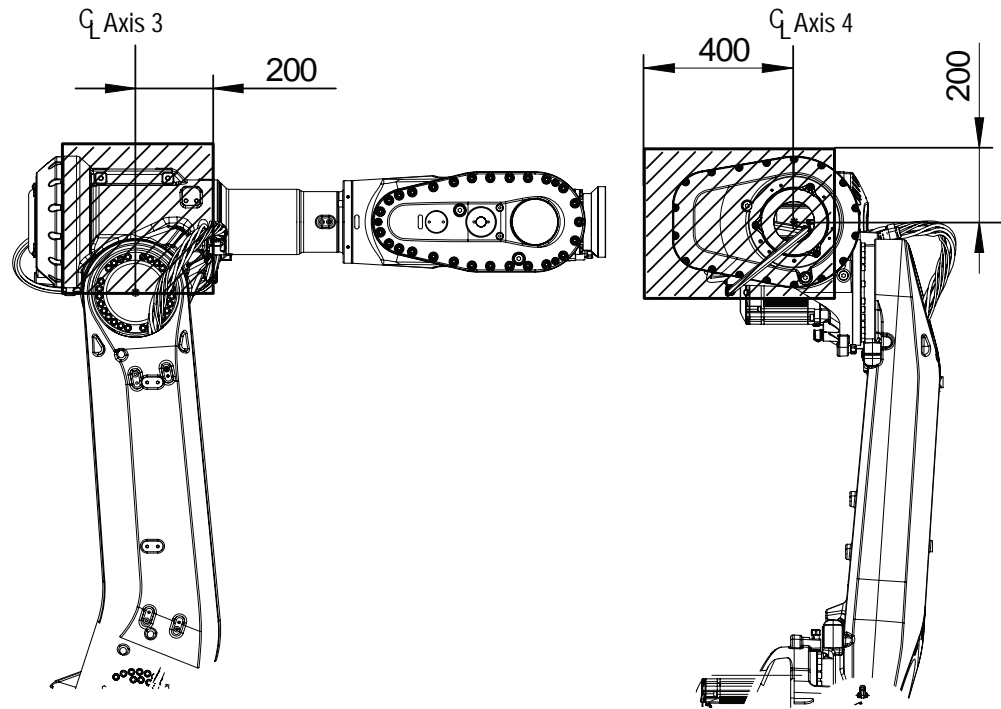


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#### Upper arm

The figure shows the position for a nominal extra load of 50 kg on the upper arm housing on a standard robot. For more precise calculations of allowed extra load up to maximum 200 kg in combination with the reduced payload, use RobotStudio add-in RobotLoad or contact ABB.



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*Continues on next page*

## 2 Technical data for IRB 6710

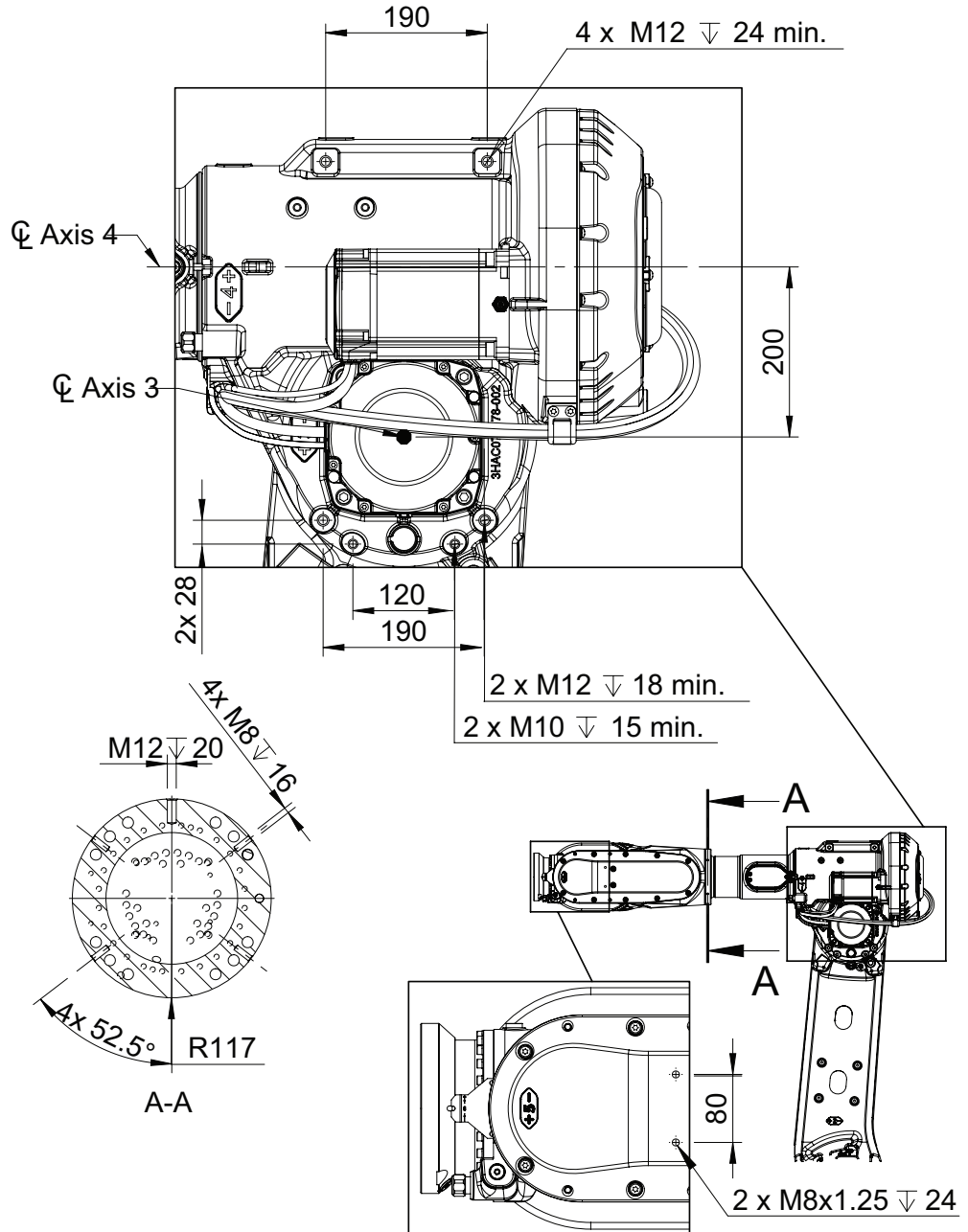
### 2.2 Fitting equipment on the robot (robot dimensions)

Continued

#### Attachment holes for fitting extra equipment

The robot is supplied with holes for fitting extra equipment.

Upper arm



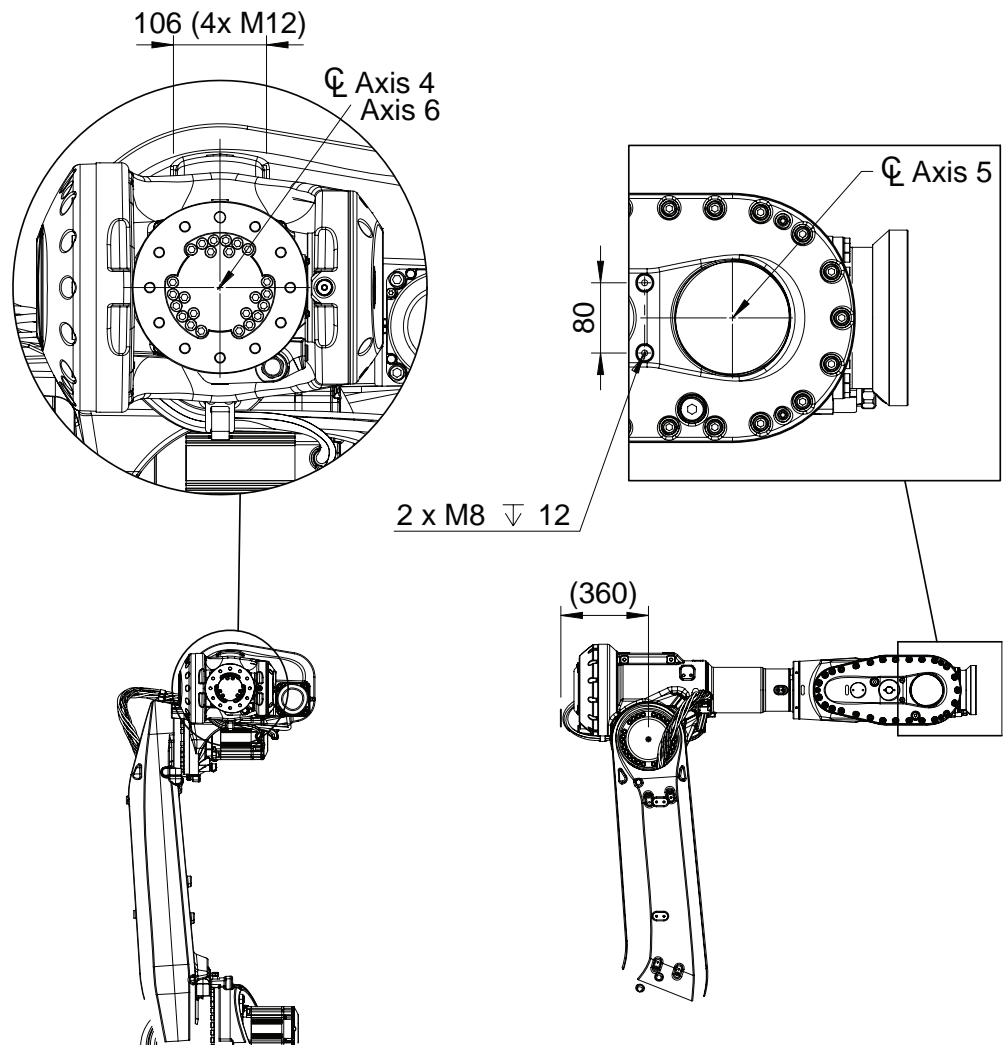
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## 2 Technical data for IRB 6710

### 2.2 Fitting equipment on the robot (robot dimensions)

*Continued*



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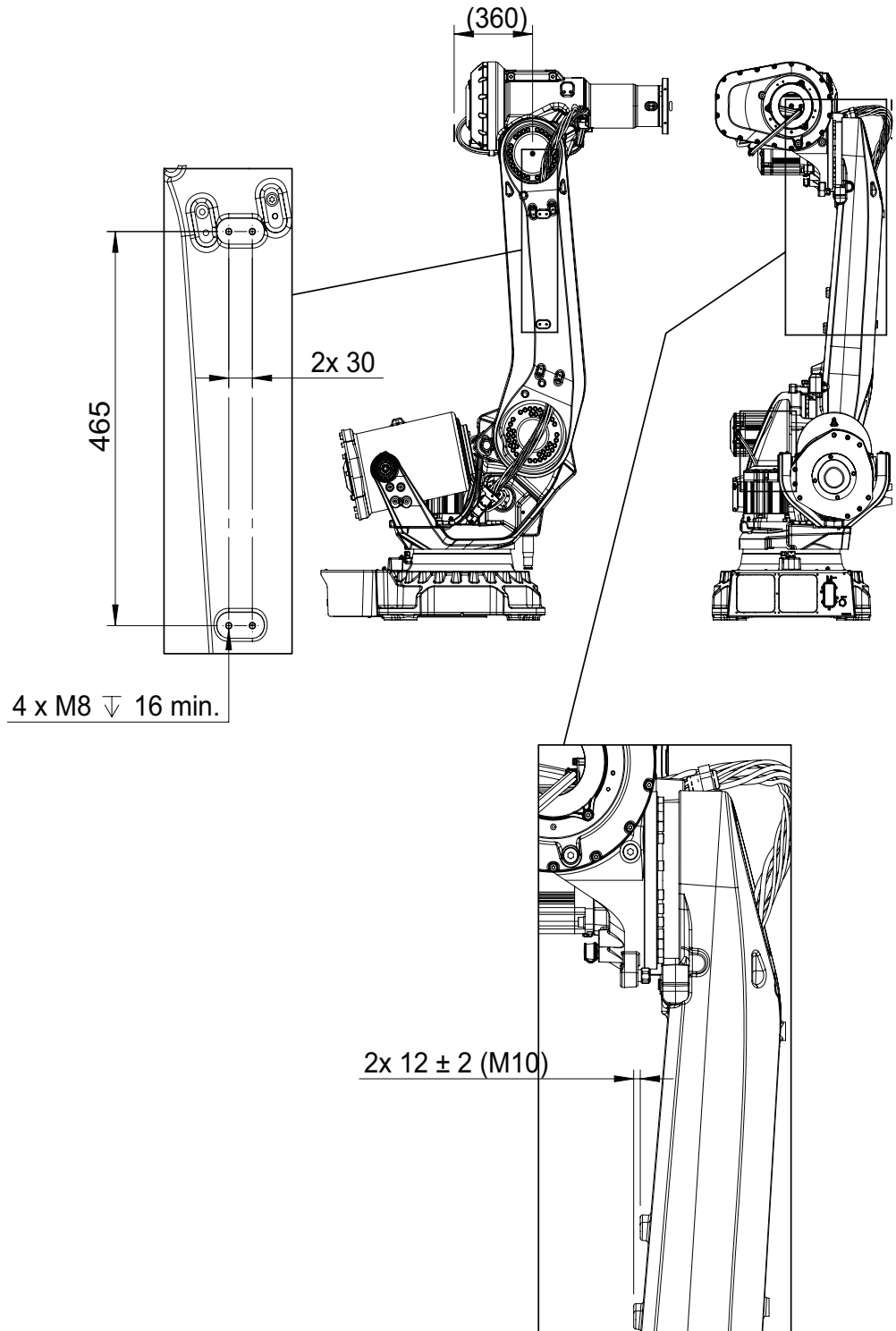
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## 2 Technical data for IRB 6710

### 2.2 Fitting equipment on the robot (robot dimensions)

Continued

Lower arm



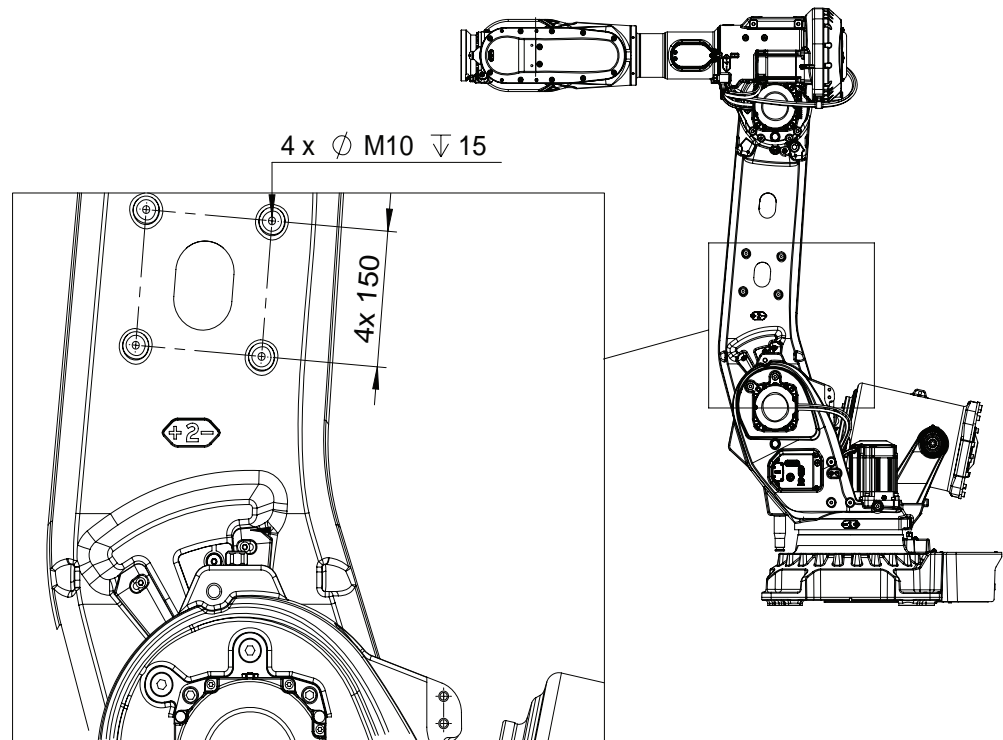
xx2200002055

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## 2 Technical data for IRB 6710

### 2.2 Fitting equipment on the robot (robot dimensions)

*Continued*



xx2200002056

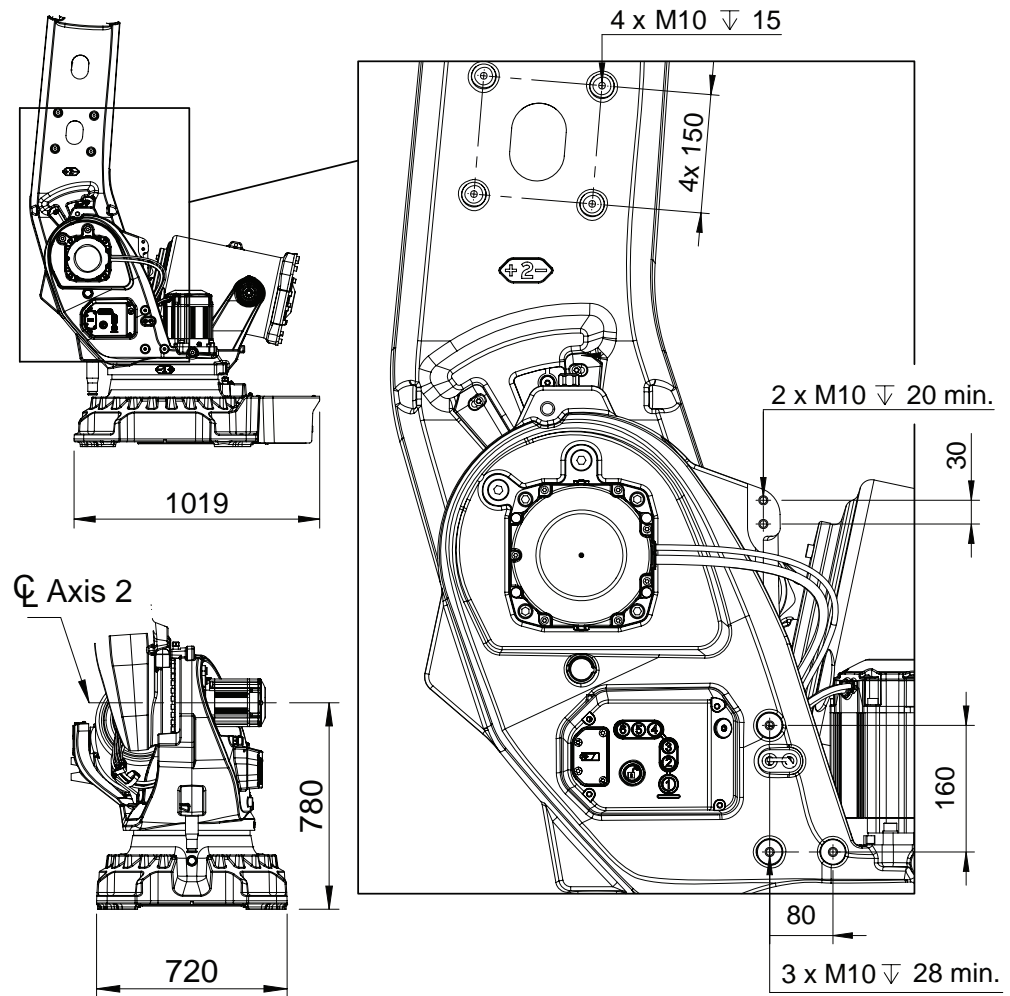
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## 2 Technical data for IRB 6710

### 2.2 Fitting equipment on the robot (robot dimensions)

Continued

#### Frame



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Continues on next page



Tool flange dimensions

| Robot variant                                  | Tool flange dimension |
|--|-----------------------|
| IRB 6710-210/2.65<br>IRB 6710-200/2.95         |                       |
| IRB 6710-175/2.65 LID<br>IRB 6710-175/2.95 LID |                       |

Fastener quality

Continues on next page

## 2 Technical data for IRB 6710

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### 2.2 Fitting equipment on the robot (robot dimensions)

*Continued*

When fitting tools on the tool flange, only use screws with quality 12.9. For other equipment use suitable screws and tightening torque for your application.

## 2.3 Mechanical data for installation

### Detailed installation instructions

All detailed installation instructions are found in *Product manual - IRB 6710*.

### 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  | M24 x 100  |
| Quantity   | 8 pcs  |
| Quality  | 8.8  |
| Suitable washer  | 4 mm flat washer   |
| Guide pins   | Guide pins are required if mounting the manipulator to a track motion or to a base plate.<br>For more information, see <a href="#">Guide pins on page 49</a> . |
| Tightening torque  | 550 Nm (screws lubricated with Molykote 1000)<br>600-725 Nm, typical 650 Nm (screws none or lightly lubricated)  |
| Screw tightening yield point utilization factor (v) (according to VDI2230) | 90% (v=0.9)  |
| Level surface requirements   | 0.3 mm <sup>i</sup>  |

<sup>i</sup> See [Requirements, foundation on page 21](#).

*Continues on next page*

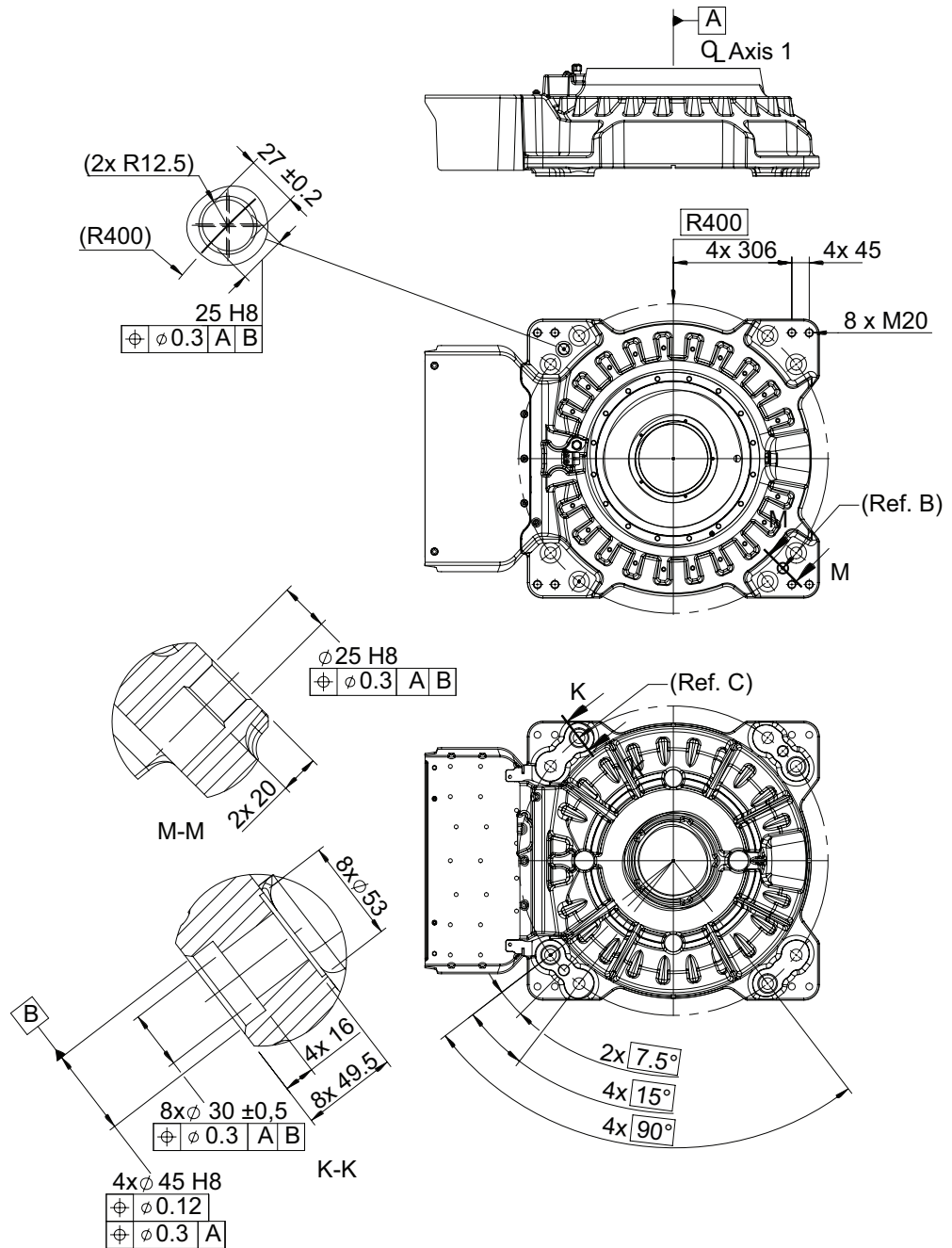
## 2 Technical data for IRB 6710

### 2.3 Mechanical data for installation

Continued

#### Hole configuration, base

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



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## 2.4 Installing a base plate

### Advantages of using a base plate

Instead of installing the robot directly on the floor, a base plate can be manufactured and used as an adapter between the floor and the robot base. This list specifies some of the advantages of using a base plate:

- to ensure a plain surface with a high precision of the robot base hole configuration
- to simplify adjustment of levelness by machined surfaces or by using shims
- to distribute the press force from the robot to a larger foot print
- to compensate poor floor quality that might not be suitable for fastening the robot base directly onto. The base plate has a greater number of fastening points to the foundation and makes a larger footprint, which reduces the load on each fastening point.
- to reduce surface pressure on the foundation contact points, which minimizes the risk of wearing down an uneven surface and thereby causing changes in the robot fastening tightening torque
- to be able to prepare the installation site before robot delivery
- to increase the precision between the positions of an installed robot and other equipment



#### Note

Do not use a base plate for installation of an inverted robot.

*Continues on next page*

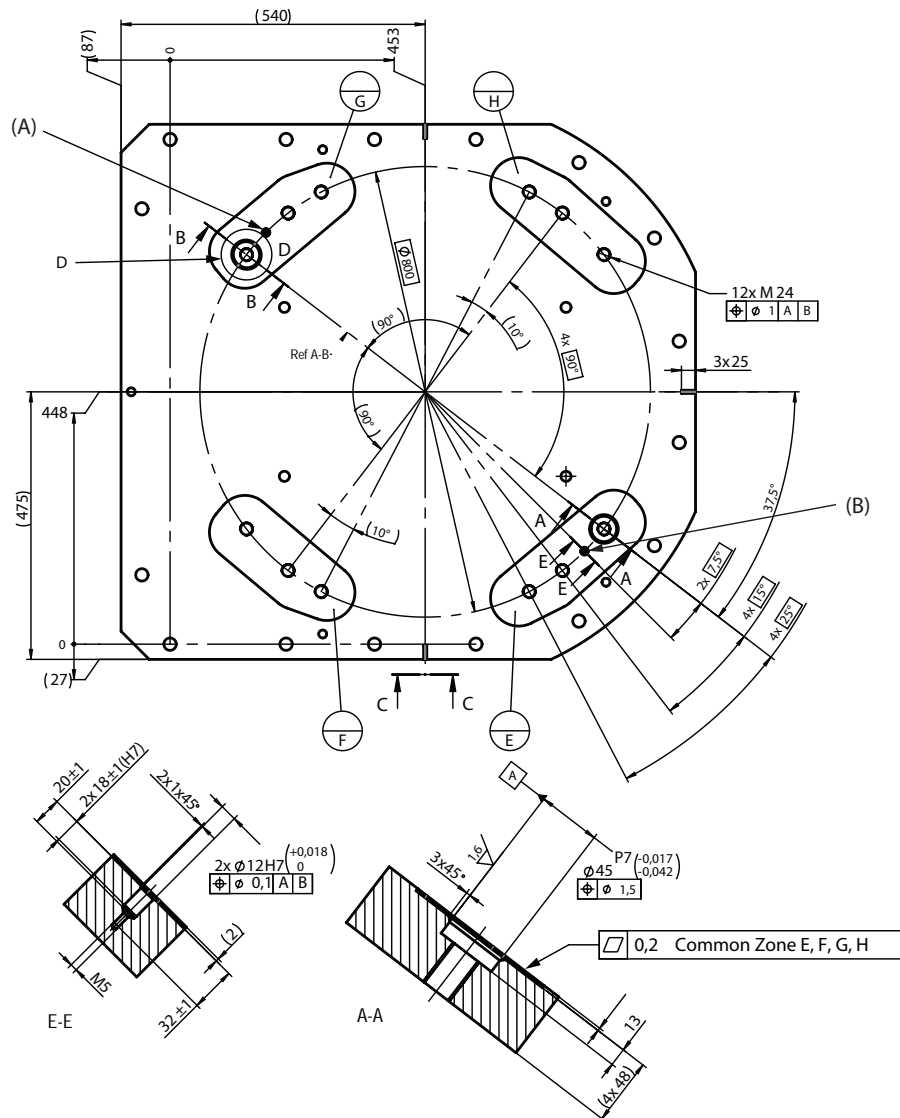
## 2 Technical data for IRB 6710

### 2.4 Installing a base plate

Continued

#### Base plate drawing

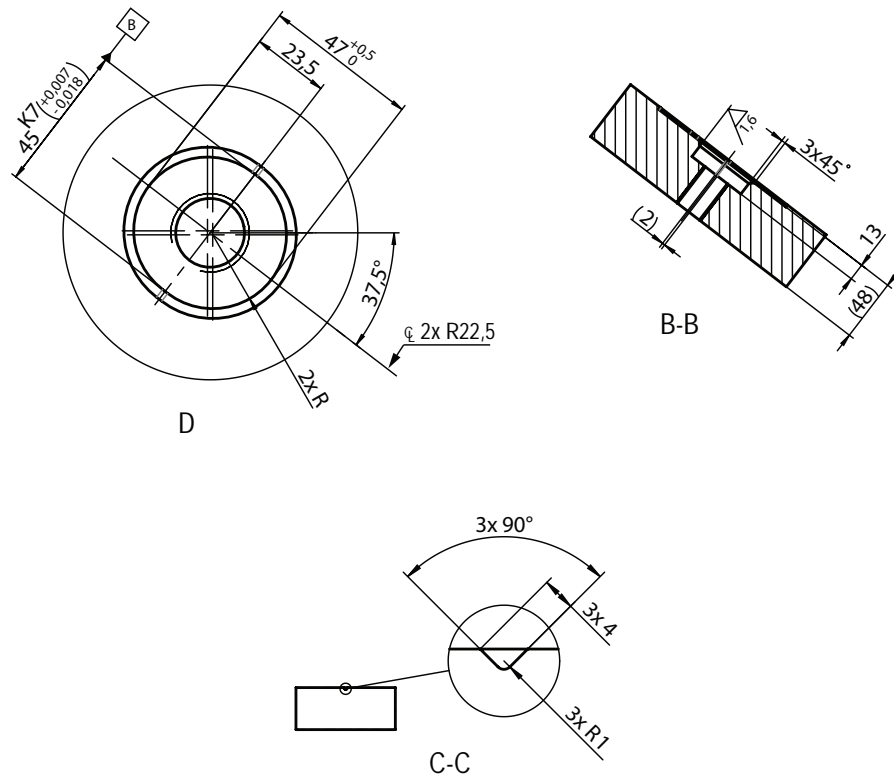
The following figure shows the option base plate (dimensions in mm).



xx1500000246

| Pos        | Description  |
|------------|--|
| A, B       | Hole for guide pin, cylindrical, see <a href="#">Guide pins on page 49</a>                     |
| E, F, G, H | Common tolerance zone (accuracy all over the base plate from one contact surface to the other) |

Continues on next page

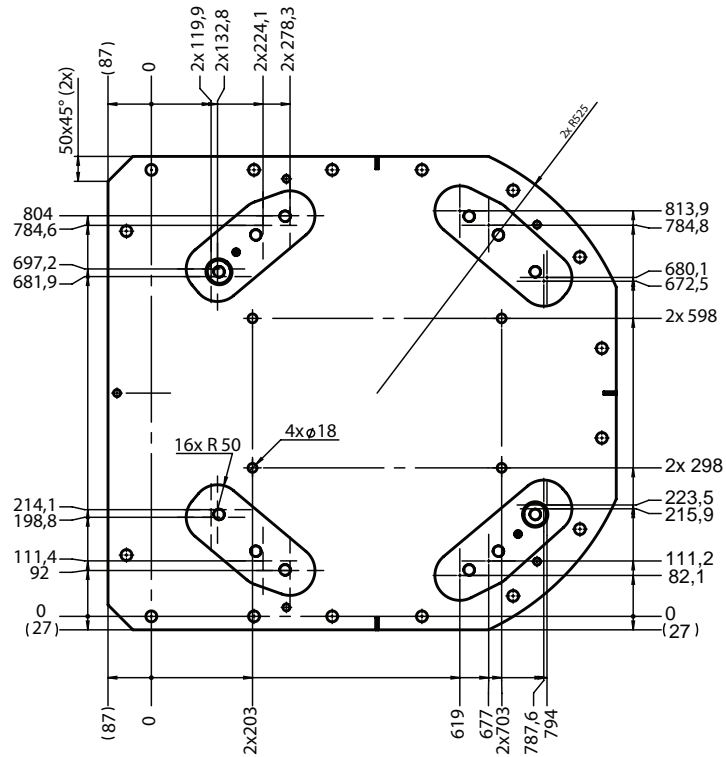
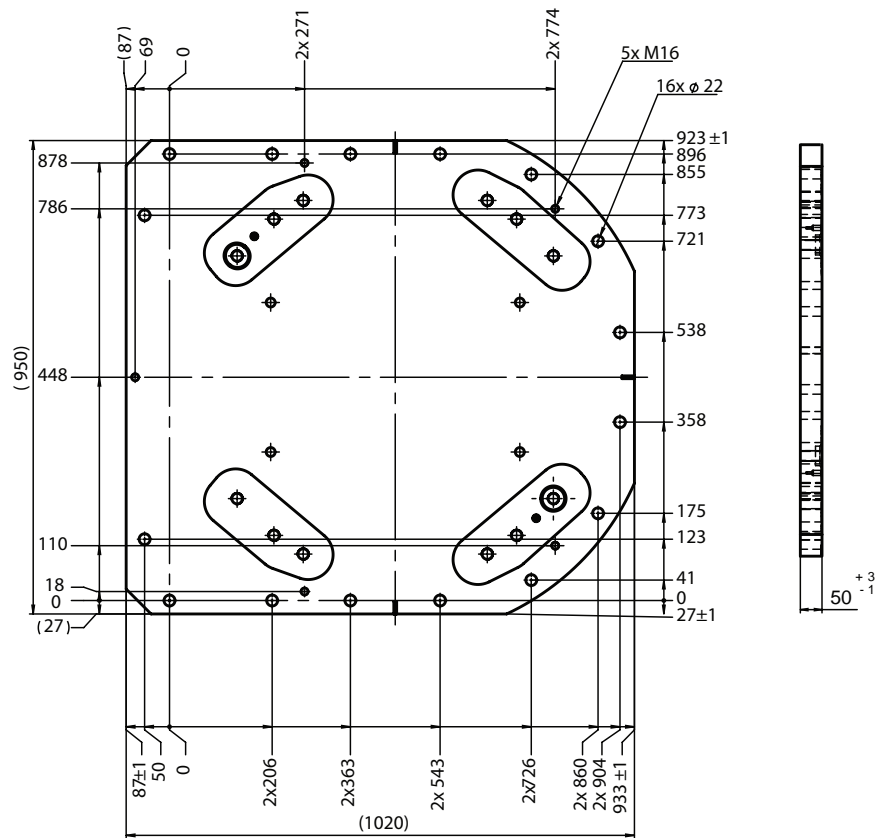


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## 2 Technical data for IRB 6710

### 2.4 Installing a base plate

Continued

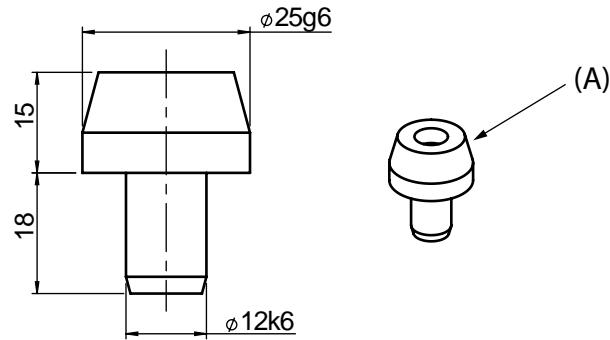


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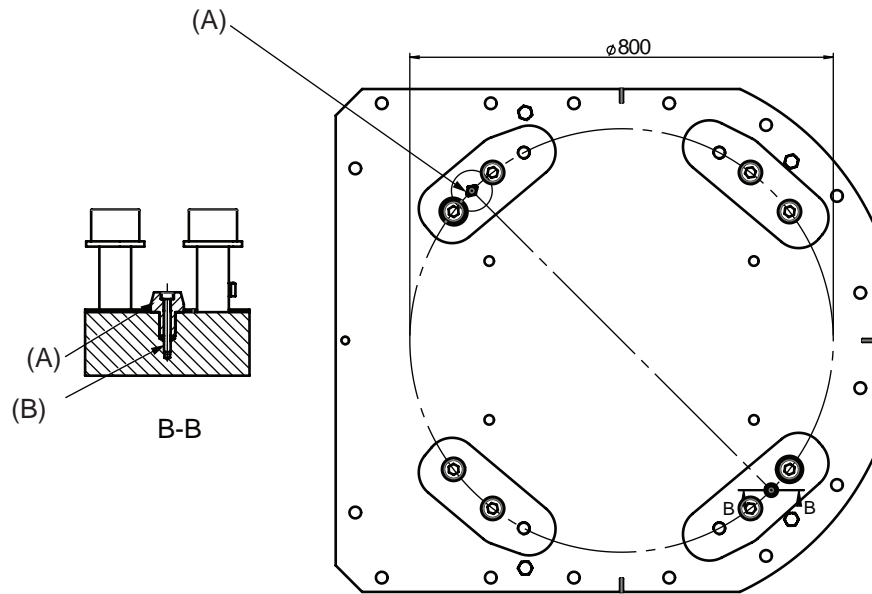
Guide pins



XX1500000248

| Pos | Description   |
|-----|---|
| A   | Cylindrical guide pin (x2)<br>(Requires attachment screws, see <a href="#">Assembly of guide pins on page 49.</a> ) |

Assembly of guide pins



| Pos | Description                           |
|-----|---------------------------------------|
| A   | Cylindrical guide pin (x2)            |
| B   | M5 x 40. Tightening torque 6 Nm. (x2) |

Continues on next page

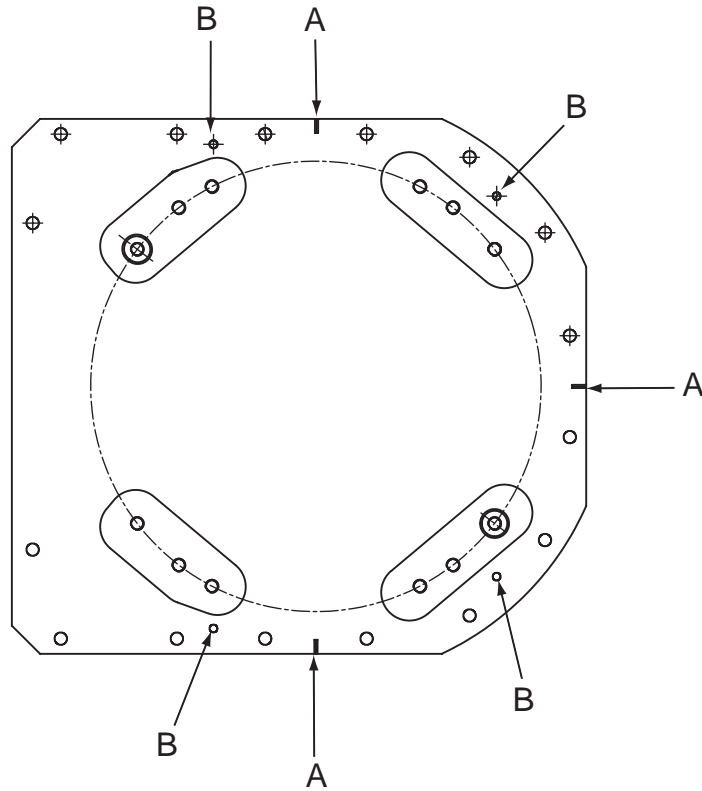
## 2 Technical data for IRB 6710

### 2.4 Installing a base plate

*Continued*

#### Base plate, orienting grooves and leveling bolts

The illustration below shows the orienting grooves and attachment holes for leveling bolts in the base plate.



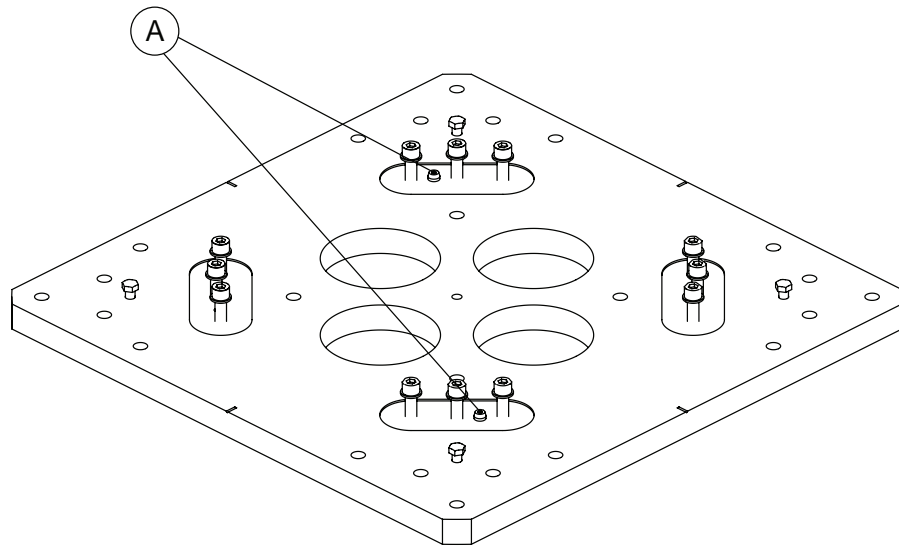
xx150000312

|   |   |
|---|---|
| A | Orienting grooves (3 pcs)                 |
| B | Levelling bolts, attachment holes (4 pcs) |

*Continues on next page*

**Base plate, locating pins**

The illustration below shows the locating pins in the base plate.

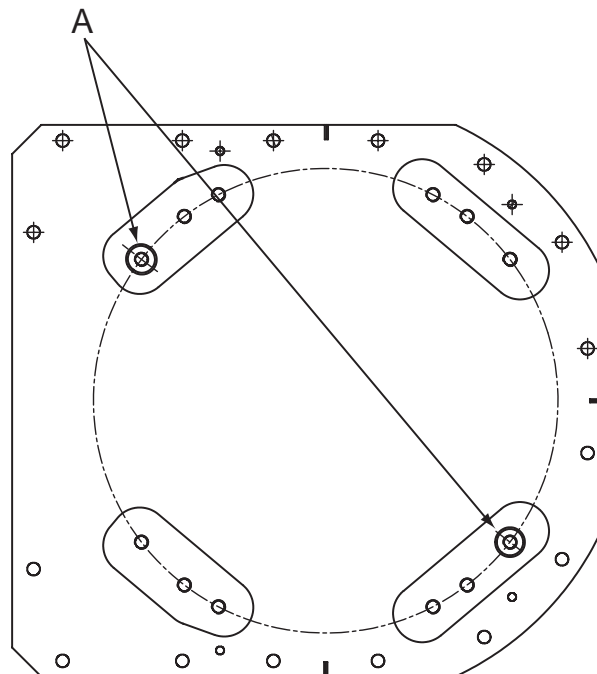


xx1700001591

|   |                       |
|---|-----------------------|
| A | Locating pins (2 pcs) |
|---|-----------------------|

**Base plate, guide sleeve holes**

The illustration below shows the guide sleeve holes in the base plate.



xx0300000045

|   |                            |
|---|----------------------------|
| A | Guide sleeve holes (2 pcs) |
|---|----------------------------|

## 2 Technical data for IRB 6710

### 2.5.1 Adjusting the working range

## 2.5 Working range alterations

### 2.5.1 Adjusting the working range

#### Reasons for adjusting the manipulator working range

The working range of each manipulator axis is configured in the software. If there is a risk that the manipulator may collide with other objects at installation site, its working space should be limited. The manipulator must always be able to move freely within its entire working space.

#### Working range configurations

The parameter values for the axes working range can be altered within the allowed working range and according to available options for the robot, either to limit or to extend a default working range. Allowed working ranges and available options for each manipulator axis are specified in [Working range on page 30](#).

#### Mechanical stops on the manipulator

Mechanical stops are and can be installed on the manipulator as limiting devices to ensure that the manipulator axis does not exceed the working range values set in the software parameters.



#### Note

The mechanical stops are only installed as safety precaution to physically stop the robot from exceeding the working range set. A collision with a mechanical stop always requires actions for repair and troubleshooting.

| Axis   | Fixed mechanical stop <sup>i</sup> | Movable mechanical stop <sup>ii</sup>   |
|--------|------------------------------------|---|
| Axis 1 | yes                                | yes<br>The working range can be reduced by altering the parameter values. Installation of additional mechanical stops is recommended.<br>The working range can be extended (option 3324-1) by altering the parameter values and removing the movable mechanical stop pin. |
| Axis 2 | yes                                | no  |
| Axis 3 | yes                                | no  |
| Axis 4 | no                                 | no  |
| Axis 5 | yes                                | no  |
| Axis 6 | no                                 | no  |

<sup>i</sup> Part of the casting or fixed on the casting and can not /should not be removed.

<sup>ii</sup> Can be installed in one or more than one position, to ensure a reduced working range, or be removed to allow extended working range.

## 2.5.2 Installing movable mechanical stops on axis 1 (option 3323-1)

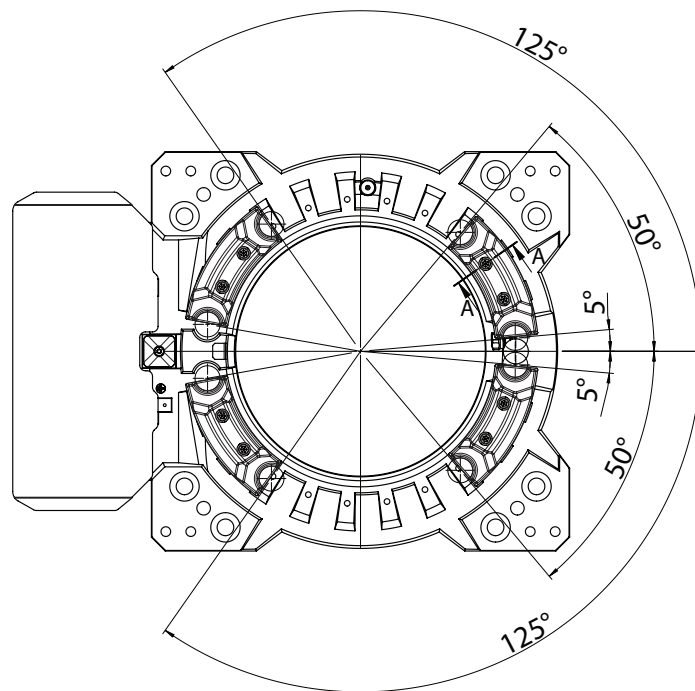
### Reduction of the axis-1 working range

The working range of axis 1 is limited by system parameter configuration. To reduce the working range from default range, first adjust the parameter values and then install additional mechanical stops as a safety measure.

The movable mechanical stops reduce the working range according to the table.

| Graduation of limited working range | Reduction of working range                                |
|-------------------------------------|---|
| 15°                                 | from $\pm 5^\circ$ and $\pm 125^\circ$ in both directions |

Illustration, reduced working range



xx210000973



### WARNING

If the mechanical stop pin is deformed after a hard collision, it must be replaced!  
Deformed movable stops and/or additional stops as well as deformed attachment screws must also be replaced after a hard collision.

*Continues on next page*

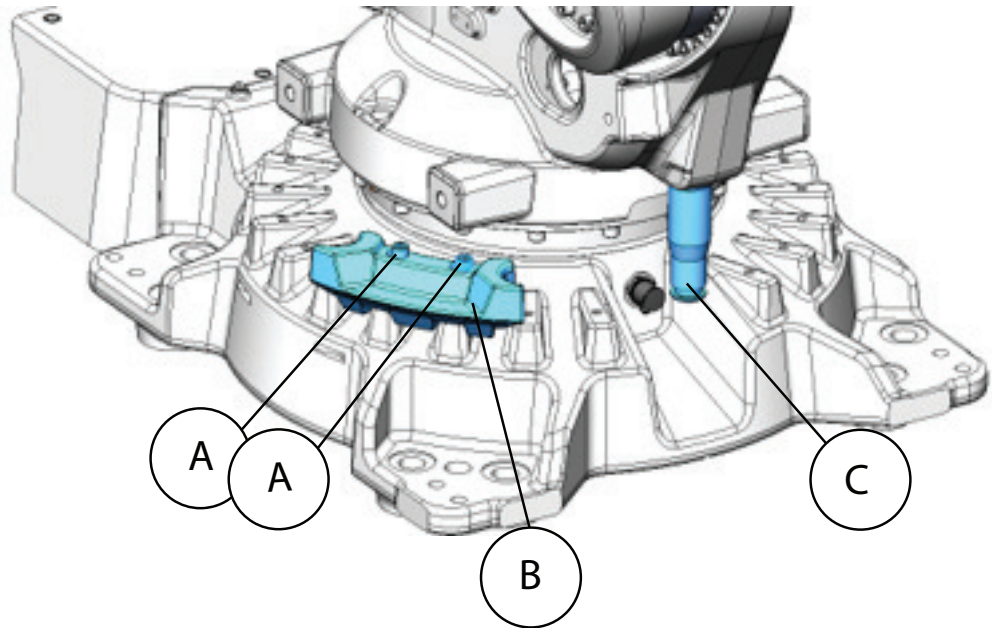
## 2 Technical data for IRB 6710

### 2.5.2 Installing movable mechanical stops on axis 1 (option 3323-1)

Continued

#### Location of the mechanical stops

The mechanical stops are located as shown in the figure.



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|                |   |
|----------------|---|
| A <sup>i</sup> | Attachment screws M12x70 quality 12.9 and washers DIN 125 (2 pcs per additional mechanical stop); Tightening torque 60 Nm |
| B              | Movable mechanical stop   |
| C              | Mechanical stop pin axis-1  |

<sup>i</sup> There is a need to drill and make threaded M12 holes in base.  
Use the movable mechanical stop or the dents in the casting as a guide to drill.

#### Installing the movable mechanical stops

See the product manual for installation procedure.

## 2.6 Calibration and references

### 2.6.1 Calibration methods

#### Overview

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

More information is available in the product manual.

#### Types of calibration

| Type of calibration                      | Description  | Calibration method |
|--|--|--------------------|
| Standard calibration                     | The calibrated robot is positioned at calibration position.<br>Standard calibration data is found on the SMB (serial measurement board) or EIB in the robot.   | Axis Calibration   |
| Absolute accuracy calibration (optional) | Based on standard calibration, and besides positioning the robot at synchronization position, the Absolute accuracy calibration also compensates for: <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 serial measurement board (SMB) or other robot memory.</p> <p>A robot calibrated with Absolute accuracy has the option information printed on its name plate (OmniCore).</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> | CalibWare          |

#### Brief description of calibration methods

##### Axis Calibration method

Axis Calibration is a standard calibration method for calibration of IRB 6710. It is the recommended method in order to achieve proper performance.

The following routines are available for the Axis Calibration method:

- Fine calibration
- Update revolution counters
- Reference calibration

The calibration equipment for Axis Calibration is delivered as a toolkit.

The actual instructions of how to perform the calibration procedure and what to do at each step is given on the FlexPendant. You will be guided through the calibration procedure, step by step.

*Continues on next page*

## 2 Technical data for IRB 6710

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### 2.6.1 Calibration methods

*Continued*

#### 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.

The Absolute Accuracy option varies according to the robot mounting position. This is printed on the robot name plate for each robot. The robot must be in the correct mounting position when it is recalibrated for absolute accuracy.

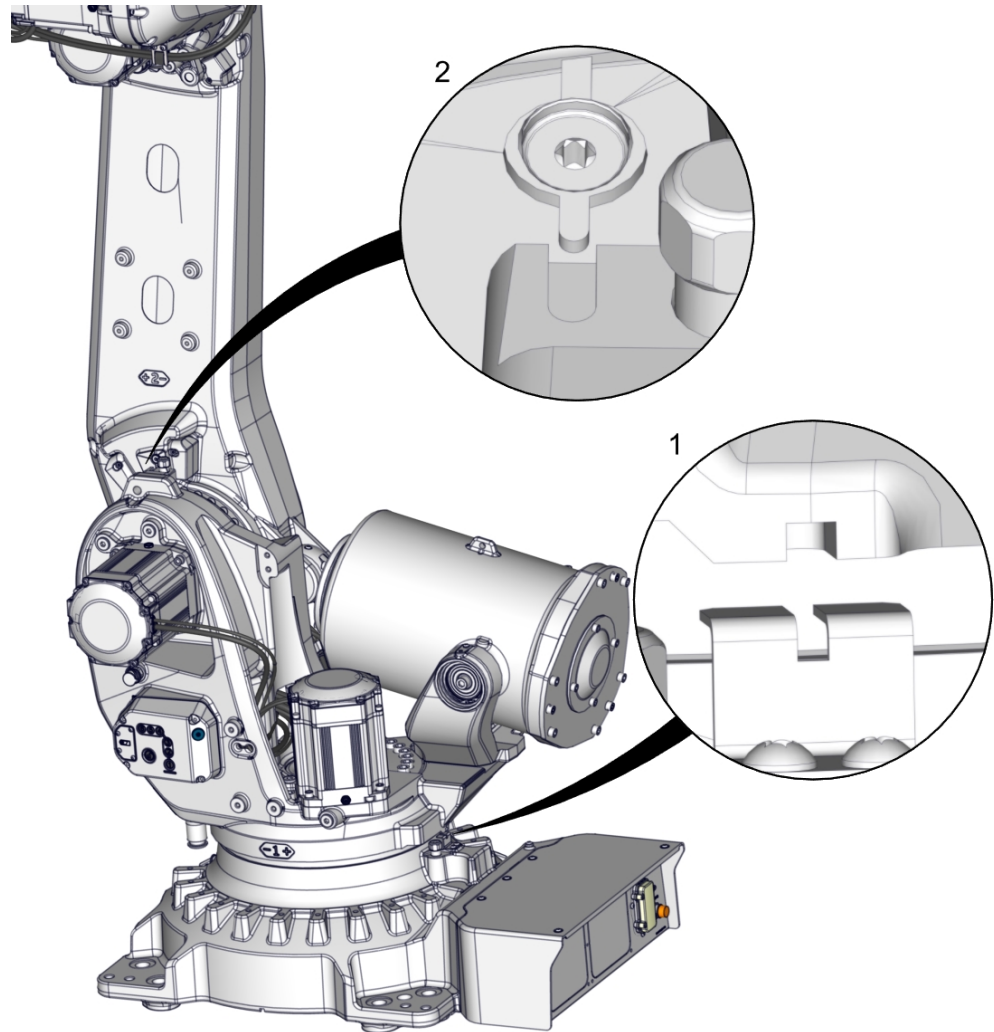


## 2.6.2 Synchronization marks and synchronization position for axes

### Introduction

This section shows the position of the synchronization marks and the synchronization position for each axis.

### Synchronization marks, IRB 6710, IRB 6720, IRB 6730, IRB 6740



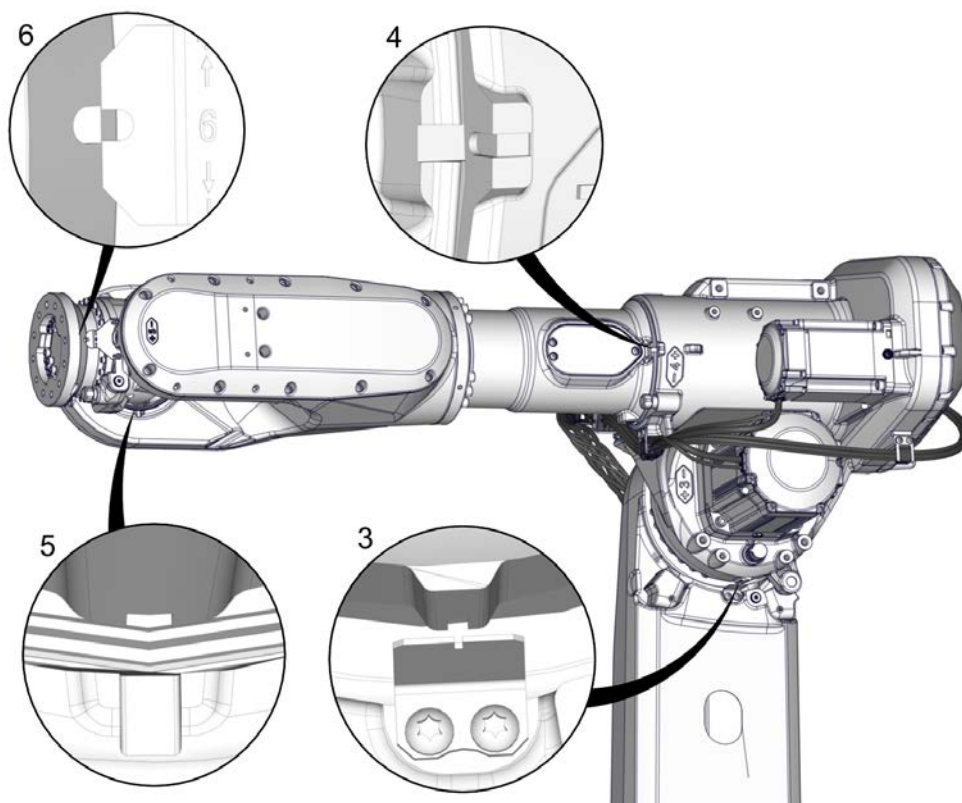
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## 2 Technical data for IRB 6710

### 2.6.2 Synchronization marks and synchronization position for axes

Continued



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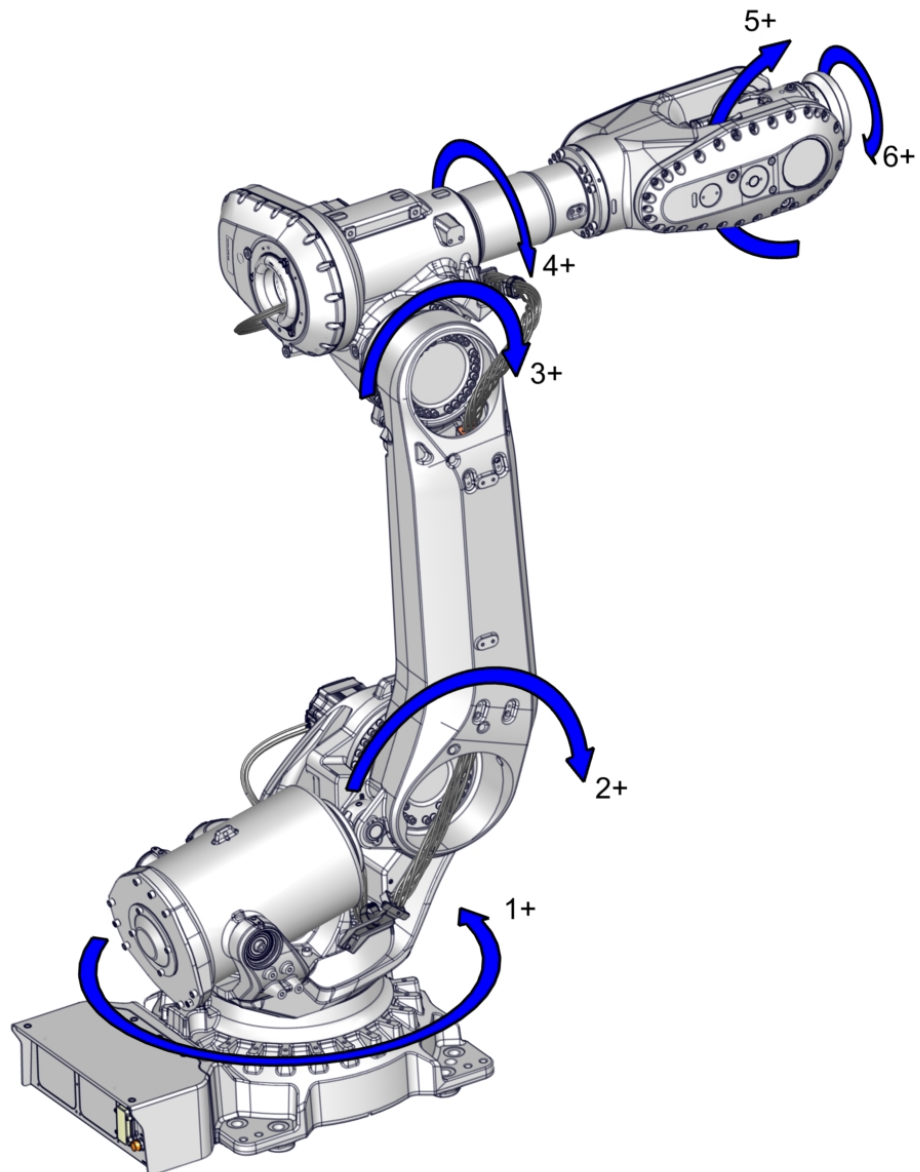
### 2.6.3 Calibration movement directions for all axes

#### Overview

When calibrating, the axis must consistently be run towards the calibration position in the same direction in order to avoid position errors caused by backlash in gears and so on. Positive directions are shown in the graphic below.

Calibration service routines will handle the calibration movements automatically and these might be different from the positive directions shown below.

#### Manual movement directions



xx2200002089

## 2 Technical data for IRB 6710

### 2.6.4 Fine calibration

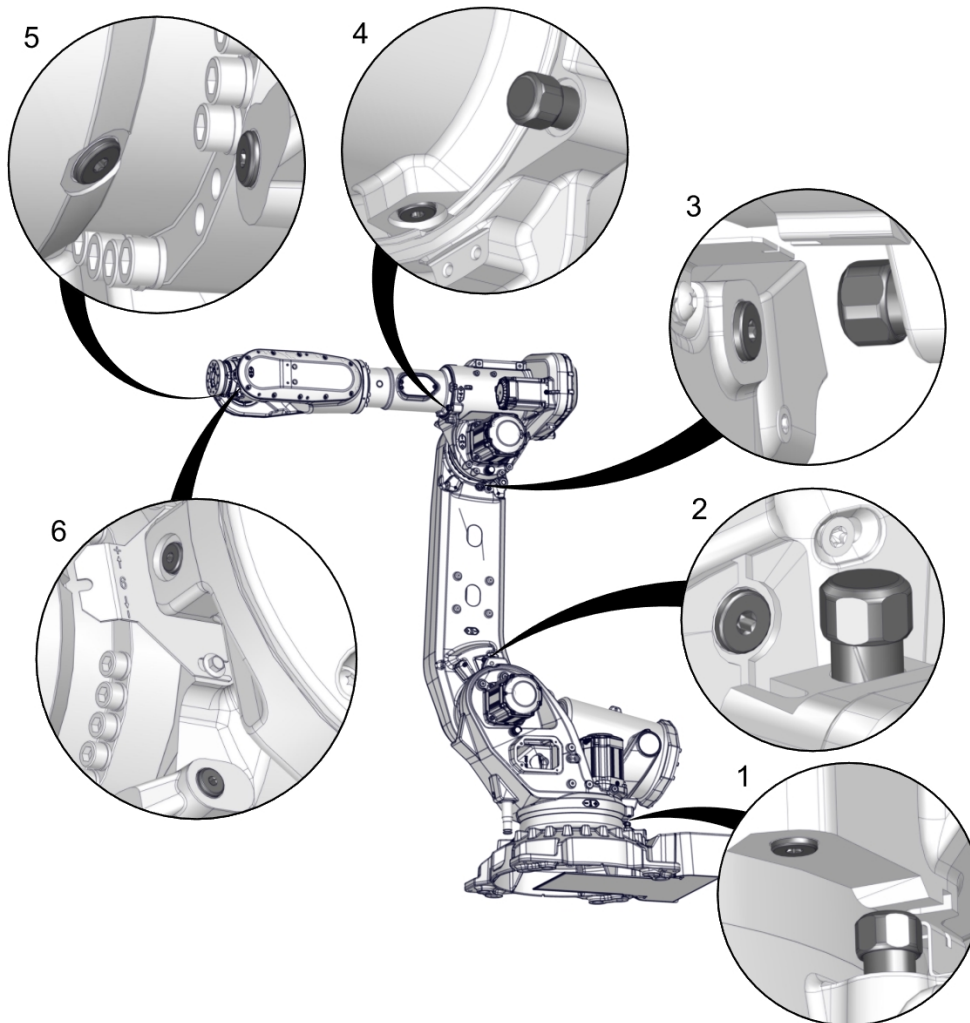
#### 2.6.4 Fine calibration

##### Recommended method

Fine calibration for the IRB 6710 is done with the Axis Calibration method.

##### Installation locations for the calibration tools

The figure shows the locations for the fixed calibration pins and/or bushings on each axis. Installed calibration tools are not shown.



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More information about the Axis Calibration method is found in the product manual for the manipulator.

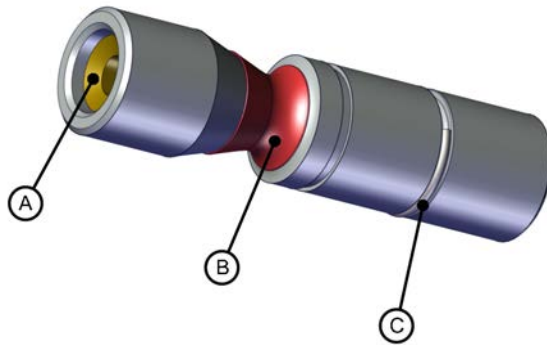
2.6.5 Calibration tools for Axis Calibration

Calibration tools



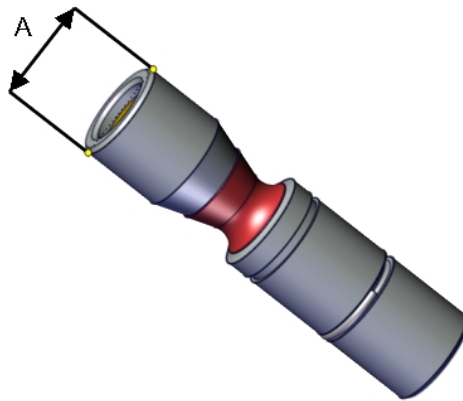
**WARNING**

If any part is missing or damaged, the tool must be replaced immediately.



xx1500001914

|   |                    |
|---|--------------------|
| A | Tube insert        |
| B | Plastic protection |
| C | Steel spring ring  |



xx1500000951

|   |                |
|---|----------------|
| A | Outer diameter |
|---|----------------|

If including the calibration tool in a local periodic check system, the following measures should be checked.

- Outer diameter within  $\varnothing 12g4$  mm,  $\varnothing 8g4$  mm or  $\varnothing 6g5$  mm (depending on calibration tool size).
- Straightness within 0.005 mm.

### 2.6.6 Absolute Accuracy calibration

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#### Purpose

*Absolute Accuracy* is a calibration concept that improves TCP accuracy. The difference between an ideal robot and a real robot can be several millimeters, resulting from mechanical tolerances and deflection in the robot structure. *Absolute Accuracy* compensates for these differences.

Here are some examples of when this accuracy is important:

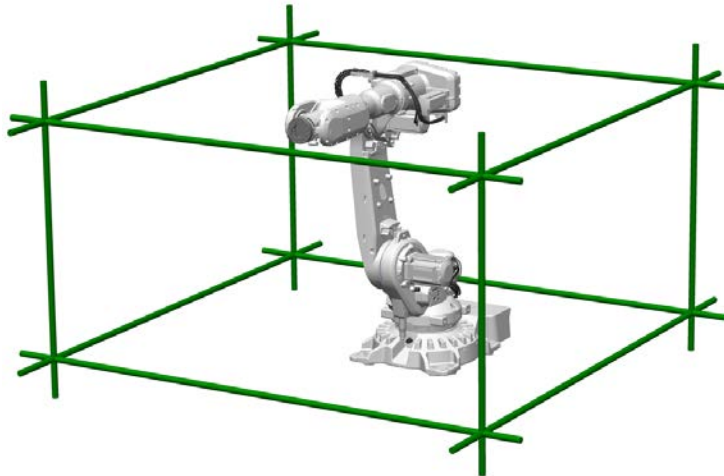
- Exchangeability of robots
- Offline programming with no or minimum touch-up
- Online programming with accurate movement and reorientation of tool
- Programming with accurate offset movement in relation to eg. vision system or offset programming
- Re-use of programs between applications

The option *Absolute Accuracy* is integrated in the controller algorithms and does not need external equipment or calculation.



#### Note

The performance data is applicable to the corresponding RobotWare version of the individual robot.



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#### What is included

Every *Absolute Accuracy* robot is delivered with:

- compensation parameters saved on the robot's serial measurement board
- a birth certificate representing the *Absolute Accuracy* measurement protocol for the calibration and verification sequence.

A robot with *Absolute Accuracy* calibration has a label with this information on the manipulator.

*Continues on next page*

Absolute Accuracy supports floor mounted installations. Compensation parameters saved in the robot's serial measurement board differ depending on which Absolute Accuracy option is selected.

---

#### **RAPID instructions**

There are no RAPID instructions included in this option.

## 2 Technical data for IRB 6710

### 2.7.1 Introduction

## 2.7 Load diagrams

### 2.7.1 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
- controller drive system



#### WARNING

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.

### Nominal payload inertia and extra load

The load diagram for each robot variant includes a nominal payload inertia ( $J_0$ ), as specified in the table.

| Robot variant                                  | Nominal payload inertia, $J_0$ | Extra load |
|--|--------------------------------|------------|
| IRB 6710-210/2.65<br>IRB 6710-200/2.95         | 15 kgm <sup>2</sup>            | 50 kg      |
| IRB 6710-175/2.65 LID<br>IRB 6710-175/2.95 LID | 15 kgm <sup>2</sup>            | LeanID SW  |

At different moment of inertia the load diagram will be changed.

*Continues on next page*



### **Control of load case by "RobotLoad"**

To verify a specific load case, use the RobotStudio add-in RobotLoad.

The result from RobotLoad is only valid within the maximum loads and tilt angles.

There is no warning if the maximum permitted arm load is exceeded. For over-load cases and special applications, contact ABB for further analysis.

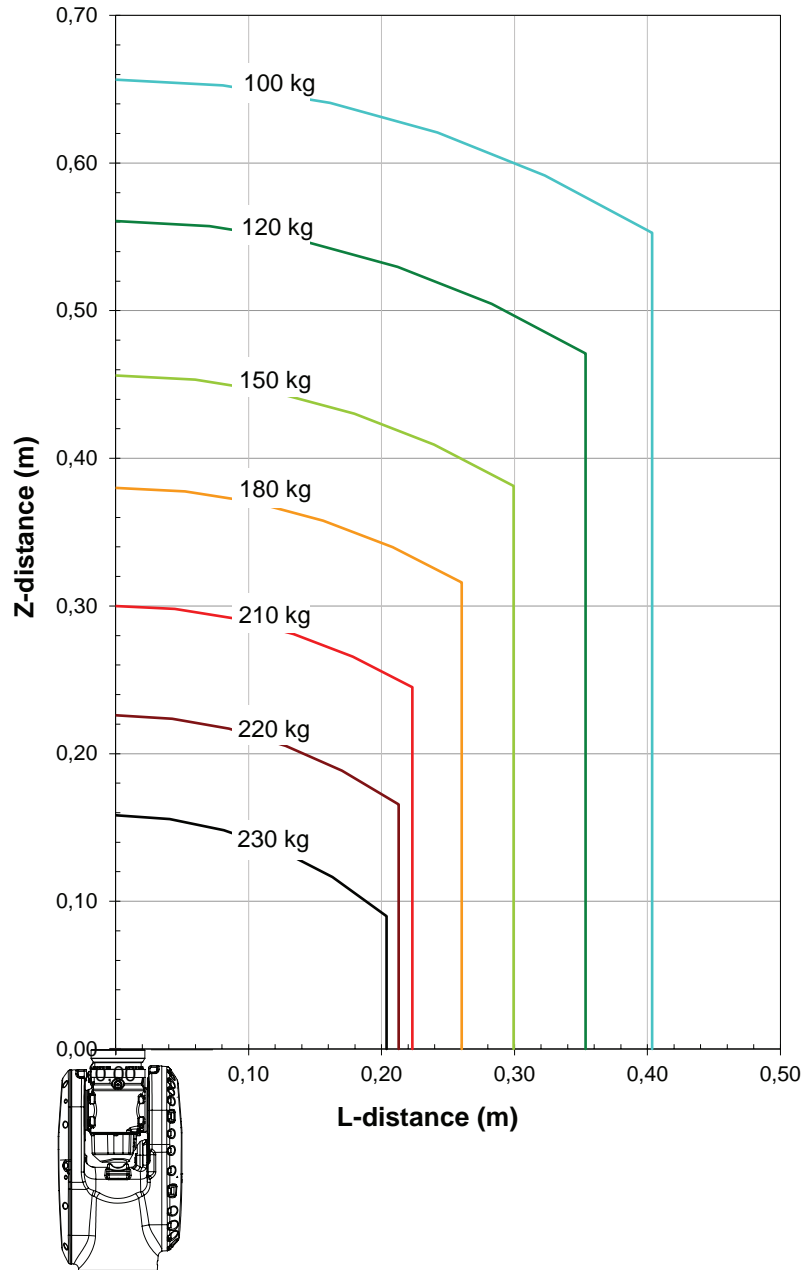
## 2 Technical data for IRB 6710

### 2.7.2 Diagrams

### 2.7.2 Diagrams

#### Diagrams of IRB 6710-210/2.65

Arm load for upper arm: 50 kg.

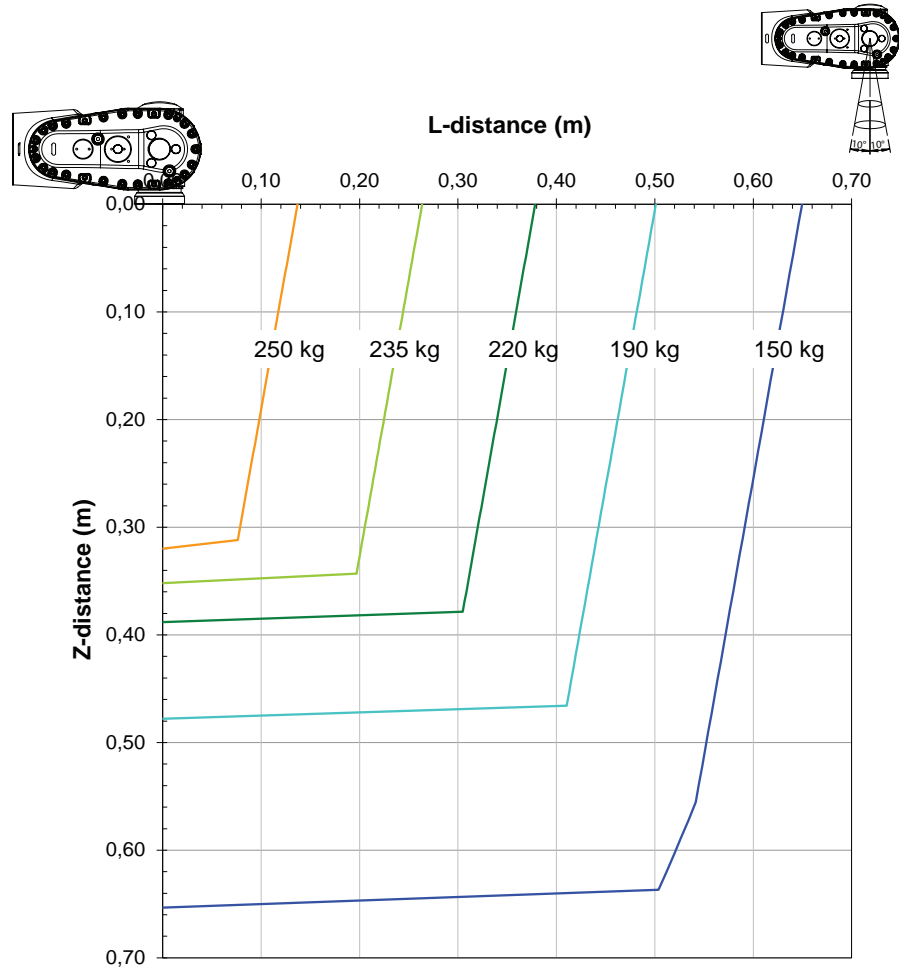


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Continues on next page

Diagrams of IRB 6710-210/2.65"Vertical Wrist" ( $\pm 10^\circ$ )

Arm load for upper arm: 50 kg.



xx2200002155

For wrist down ( $0^\circ$  deviation from the vertical line).

|                  | Description |
|------------------|-------------|
| Max load         | 290 kg      |
| Z <sub>max</sub> | 0.251 m     |
| L <sub>max</sub> | 0.058 m     |

Continues on next page

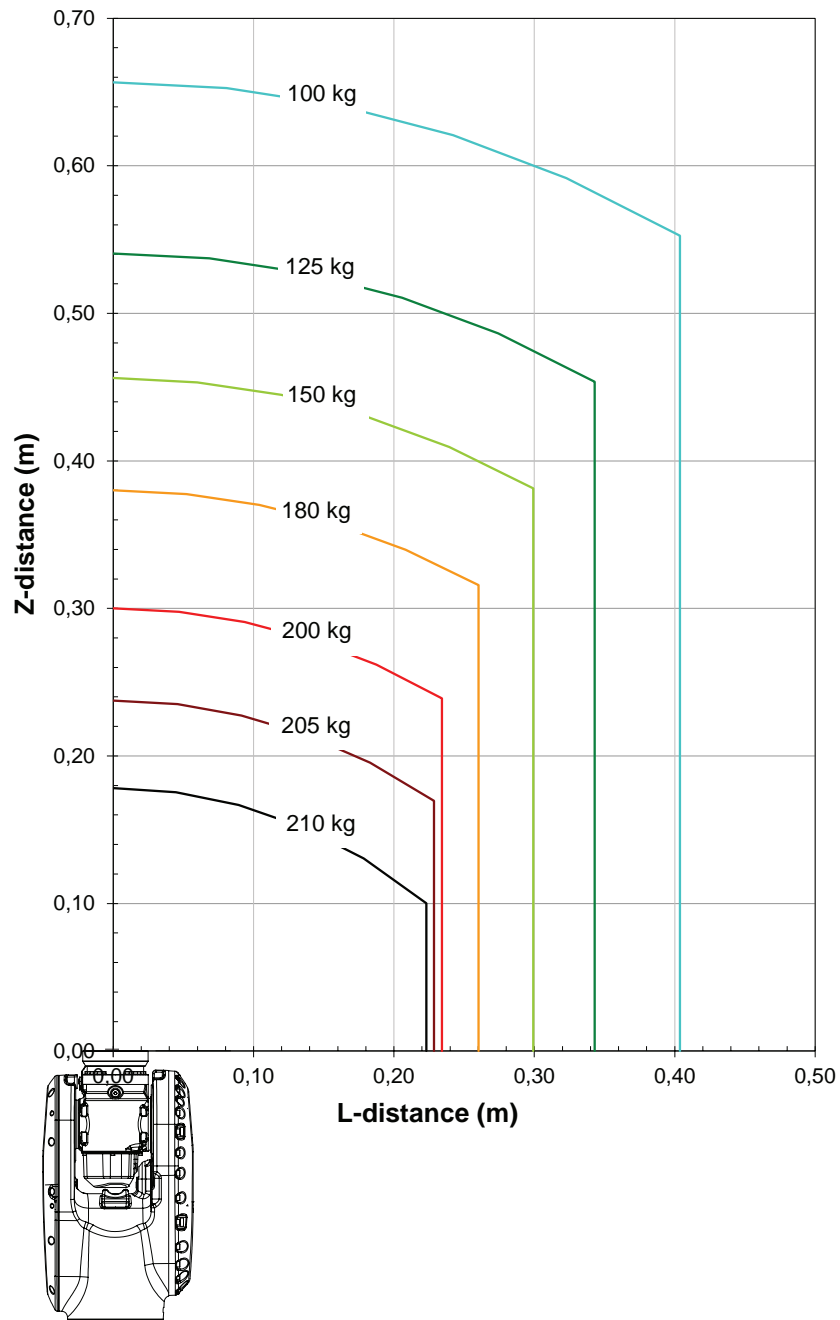
## 2 Technical data for IRB 6710

### 2.7.2 Diagrams

Continued

#### Diagrams of IRB 6710-200/2.95

Arm load for upper arm: 50 kg.

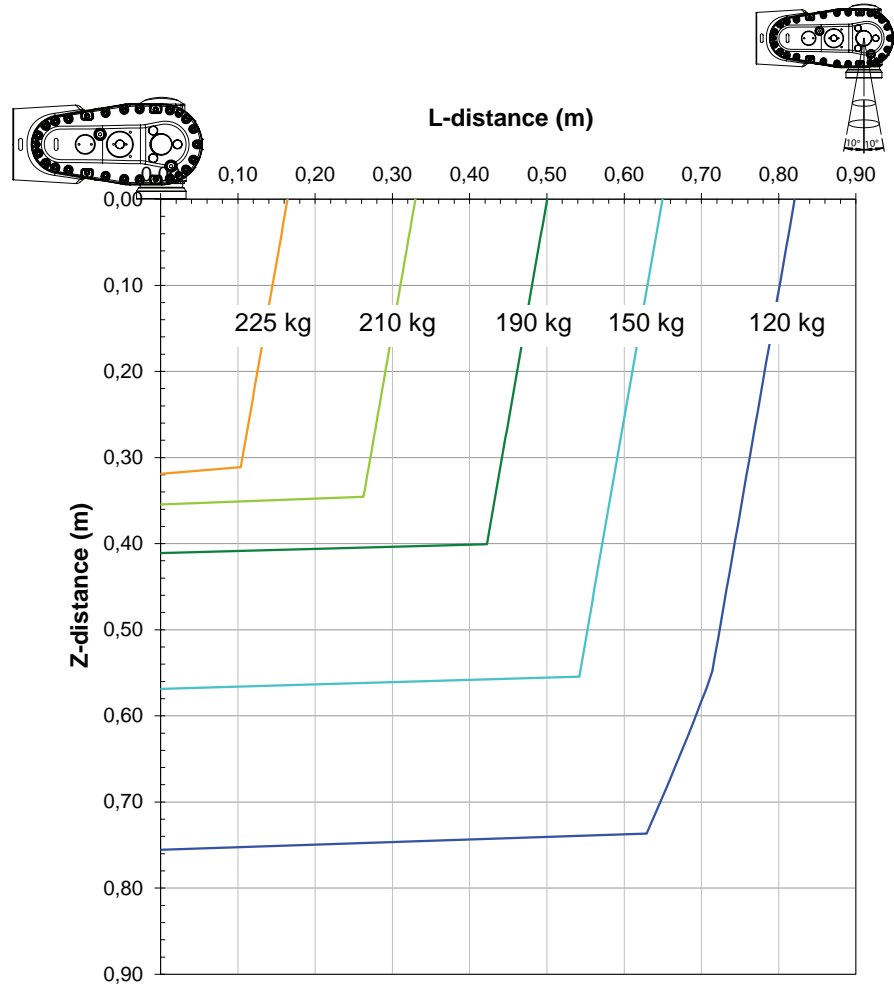


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Continues on next page

Diagrams of IRB 6710-200/2.95"Vertical Wrist" ( $\pm 10^\circ$ )

Arm load for upper arm: 50 kg.



xx2200002157

For wrist down ( $0^\circ$  deviation from the vertical line).

|                  | Description |
|------------------|-------------|
| Max load         | 260 kg      |
| Z <sub>max</sub> | 0.252 m     |
| L <sub>max</sub> | 0.063 m     |

Continues on next page

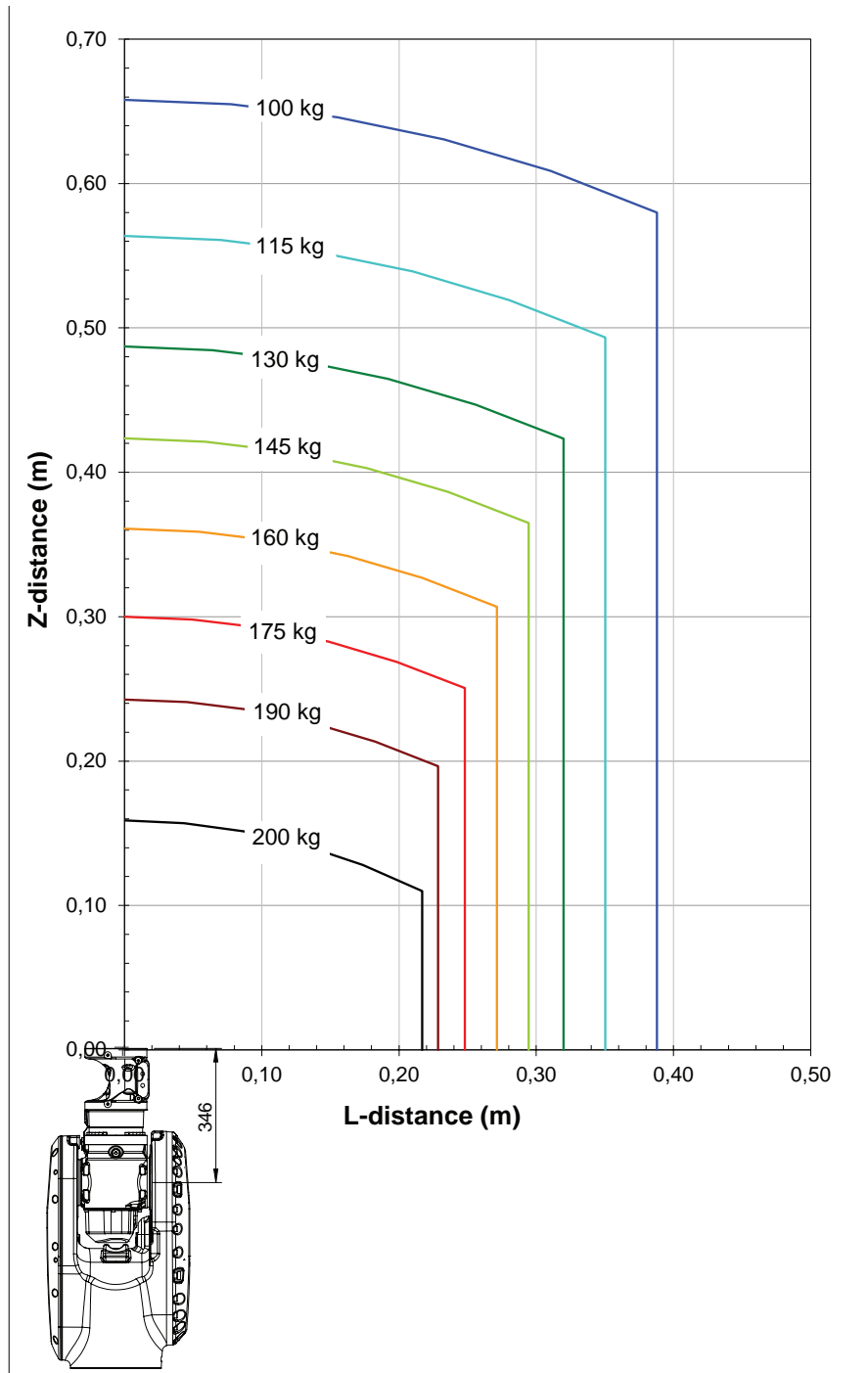
## 2 Technical data for IRB 6710

### 2.7.2 Diagrams

Continued

#### Diagrams of IRB 6710-175/2.65 LID

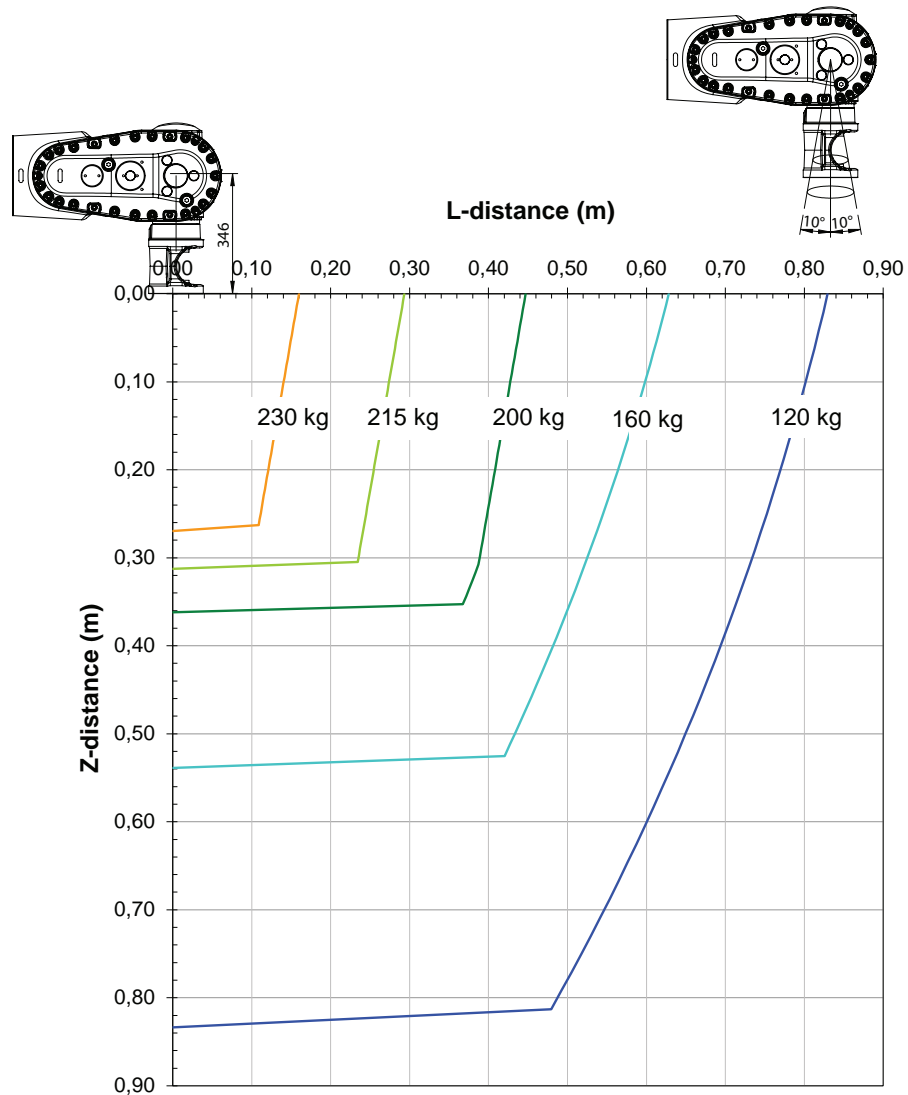
With option [3326-x]. Arm load: LeanID SW.



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Continues on next page

Diagrams of IRB 6710-175/2.65 LID ("Vertical Wrist" ( $\pm 10^\circ$ ))  
With option [3326-x]. Arm load: LeanID SW.



xx2200002159

For wrist down ( $0^\circ$  deviation from the vertical line).

|                  | Description |
|------------------|-------------|
| Max load         | 250 kg      |
| Z <sub>max</sub> | 0.22 m      |
| L <sub>max</sub> | 0.064 m     |

Continues on next page

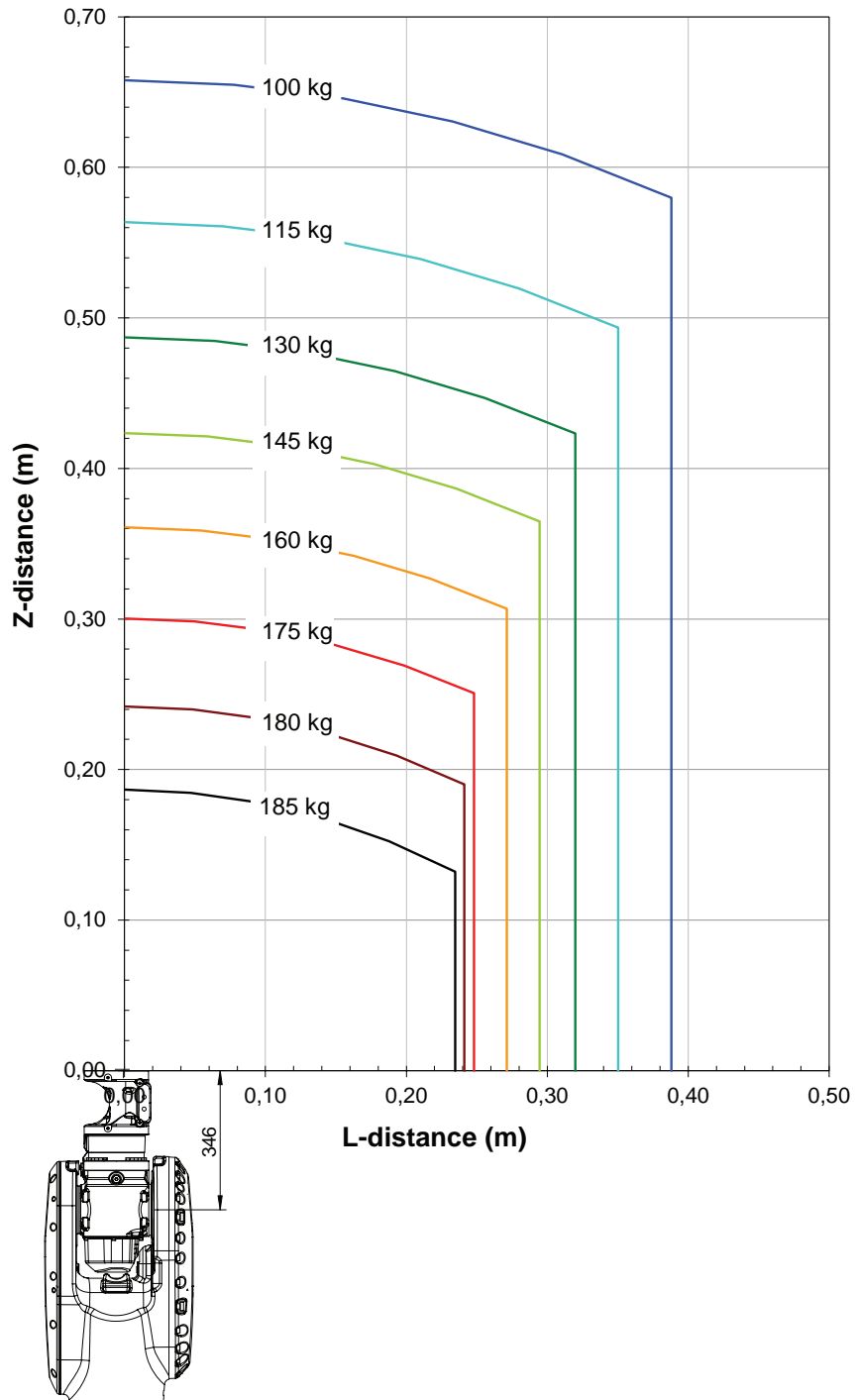
## 2 Technical data for IRB 6710

### 2.7.2 Diagrams

Continued

#### Diagrams of IRB 6710-175/2.95 LID

With option [3326-x]. Arm load: LeanID SW.

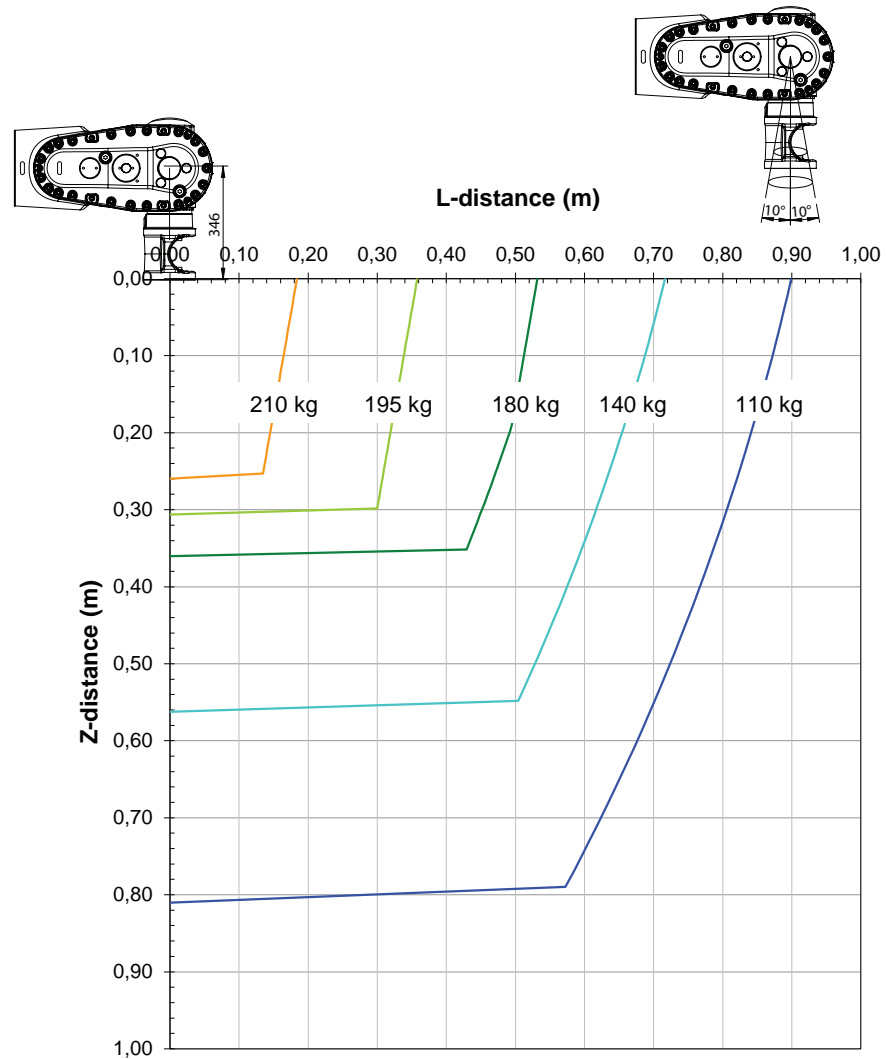


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Diagrams of IRB 6710-175/2.95 LID ("Vertical Wrist" ( $\pm 10^\circ$ ))  
With option [3326-x]. Arm load: LeanID SW.



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For wrist down ( $0^\circ$  deviation from the vertical line).

|                  | Description |
|------------------|-------------|
| Max load         | 230 kg      |
| Z <sub>max</sub> | 0.207 m     |
| L <sub>max</sub> | 0.047 m     |

## 2 Technical data for IRB 6710

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

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

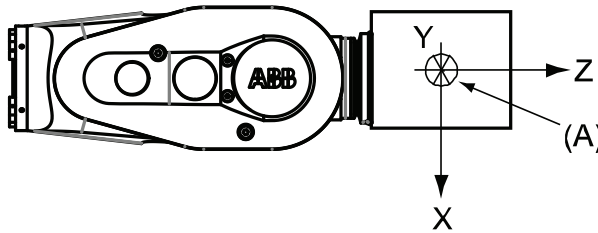


#### Note

Total load given as: mass in kg, center of gravity (Z and L) in meters and moment of inertia ( $J_{0x}$ ,  $J_{0y}$ ,  $J_{0z}$ ) in  $\text{kgm}^2$ .  $L = \sqrt{X^2 + Y^2}$ , see the following figure.

#### Full movement of axis 5 ( $\pm 130^\circ$ )

| Robot variant         | Maximum load and moment of inertia  |   |
|-----------------------|---|---|
|                       | Axis 5  | Axis 6  |
| IRB 6710-210/2.65     | $J_{a5} = \text{Load} \times (Z + 0.18)^2 + \max(J_{0x}, J_{0y}) \leq 195 \text{ kgm}^2$  | $J_{a6} = \text{Load} \times L^2 + J_{0z} \leq 145 \text{ kgm}^2$ |
| IRB 6710-200/2.95     | $J_{a5} = \text{Load} \times (Z + 0.18)^2 + \max(J_{0x}, J_{0y}) \leq 195 \text{ kgm}^2$  | $J_{a6} = \text{Load} \times L^2 + J_{0z} \leq 145 \text{ kgm}^2$ |
| IRB 6710-175/2.65 LID | $J_{a5} = \text{Load} \times (Z + 0.346)^2 + \max(J_{0x}, J_{0y}) \leq 195 \text{ kgm}^2$ | $J_{a6} = \text{Load} \times L^2 + J_{0z} \leq 145 \text{ kgm}^2$ |
| IRB 6710-175/2.95 LID | $J_{a5} = \text{Load} \times (Z + 0.346)^2 + \max(J_{0x}, J_{0y}) \leq 195 \text{ kgm}^2$ | $J_{a6} = \text{Load} \times L^2 + J_{0z} \leq 145 \text{ kgm}^2$ |



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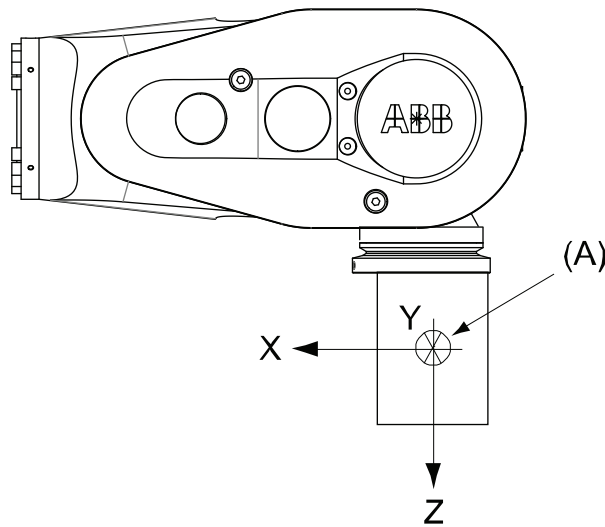
|                                | Description   |
|--------------------------------|---|
| A                              | Center of gravity   |
|                                | Description   |
| $J_{0x}$ , $J_{0y}$ , $J_{0z}$ | Max. moment of inertia around the X, Y and Z axes at center of gravity. |

Continues on next page

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

Limited axis 5, center line down

| Robot variant            | Maximum load and moment of inertia  |   |
|--------------------------|---|---|
|                          | Axis 5  | Axis 6  |
| IRB 6710-210/2.65        | $J_{a5} = \text{Load} \times (Z + 0.18)^2 + \max(J_{0x}, J_{0y}) \leq 215 \text{ kgm}^2$  | $J_{a6} = \text{Load} \times L^2 + J_{0z} \leq 195 \text{ kgm}^2$ |
| IRB 6710-200/2.95        | $J_{a5} = \text{Load} \times (Z + 0.18)^2 + \max(J_{0x}, J_{0y}) \leq 215 \text{ kgm}^2$  | $J_{a6} = \text{Load} \times L^2 + J_{0z} \leq 195 \text{ kgm}^2$ |
| IRB 6710-175/2.65<br>LID | $J_{a5} = \text{Load} \times (Z + 0.346)^2 + \max(J_{0x}, J_{0y}) \leq 215 \text{ kgm}^2$ | $J_{a6} = \text{Load} \times L^2 + J_{0z} \leq 195 \text{ kgm}^2$ |
| IRB 6710-175/2.95<br>LID | $J_{a5} = \text{Load} \times (Z + 0.346)^2 + \max(J_{0x}, J_{0y}) \leq 215 \text{ kgm}^2$ | $J_{a6} = \text{Load} \times L^2 + J_{0z} \leq 195 \text{ kgm}^2$ |



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|                          | Description   |
|--------------------------|---|
| A                        | Center of gravity   |
|                          | Description   |
| $J_{0x}, J_{0y}, J_{0z}$ | Max. moment of inertia around the X, Y and Z axes at center of gravity. |

## 2 Technical data for IRB 6710

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### 2.7.4 Wrist torque

### 2.7.4 Wrist torque



#### Note

The wrist torque 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. Furthermore, arm loads will influence the permitted load diagram. To find the absolute limits of the load diagram, use the RobotStudio add-in RobotLoad.

---

### Permissible torque

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

| Robot variant         | Maximum wrist torque axis 4 and 5 | Maximum wrist torque axis 6 | Load at which the maximum torques are valid |
|-----------------------|-----------------------------------|-----------------------------|---|
| IRB 6710-210/2.65     | 989 Nm                            | 460 Nm                      | 180 kg                                      |
| IRB 6710-200/2.95     | 989 Nm                            | 460 Nm                      | 180 kg                                      |
| IRB 6710-175/2.65 LID | 1,120 Nm                          | 426 Nm                      | 155 kg                                      |
| IRB 6710-175/2.95 LID | 1,120 Nm                          | 426 Nm                      | 155 kg                                      |

## 2.7.5 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 to use RobotStudio.

### Maximum Cartesian design acceleration for nominal loads

| Robot variant         | E-stop<br>Max acceleration at nominal<br>load COG [m/s <sup>2</sup> ] | Controlled Motion<br>Max acceleration at nominal load<br>COG [m/s <sup>2</sup> ] |
|-----------------------|---|--|
| IRB 6710-210/2.65     | 48  | 24   |
| IRB 6710-200/2.95     | 45  | 23   |
| IRB 6710-175/2.65 LID | 49  | 27   |
| IRB 6710-175/2.95 LID | 46  | 27   |



#### 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).

## 2 Technical data for IRB 6710

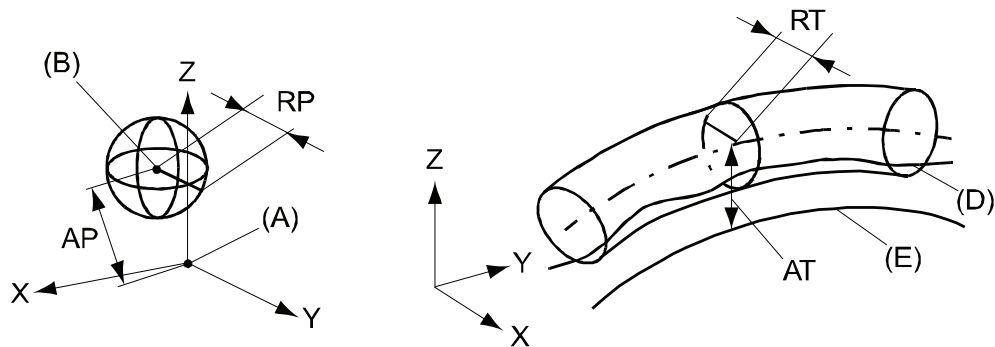
### 2.8 Performance according to ISO 9283

### 2.8 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 result of measurements using the robots Accuracy mode. 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 and 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 |

#### Pose data and path accuracy

| Data <sup>i</sup>  | IRB 6710-210/2.65 | IRB 6710-200/2.95 |
|--|-------------------|-------------------|
| Pose accuracy, AP (mm) <sup>ii</sup>                           | 0.03              | 0.01              |
| Pose repeatability, RP (mm)                                    | 0.04              | 0.03              |
| Pose stabilization time, PSt (s) within 0.5 mm of the position | 0.1               | 0.1               |
| Path accuracy, AT (mm)   | 1.1               | 0.9               |
| Path repeatability, RT (mm)                                    | 0.08              | 0.09              |

<sup>i</sup> LID manipulator variants are considered to have the same data as specified variants with the same reach.

<sup>ii</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.

## 2.9 Velocity

### Maximum axis speed

| Robot variant         | Axis 1 | Axis 2 | Axis 3 | Axis 4 | Axis 5 | Axis 6 |
|-----------------------|--------|--------|--------|--------|--------|--------|
| IRB 6710-210/2.65     | 110°/s | 110°/s | 110°/s | 200°/s | 150°/s | 210°/s |
| IRB 6710-200/2.95     | 110°/s | 100°/s | 90°/s  | 200°/s | 150°/s | 210°/s |
| IRB 6710-175/2.65 LID | 110°/s | 110°/s | 110°/s | 200°/s | 150°/s | 210°/s |
| IRB 6710-175/2.95 LID | 110°/s | 100°/s | 90°/s  | 200°/s | 150°/s | 210°/s |

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

## 2 Technical data for IRB 6710

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### 2.10.1 Robot stopping distances according to ISO 10218-1

## 2.10 Robot stopping distances and times

### 2.10.1 Robot stopping distances according to ISO 10218-1

---

#### About the data for robot stopping distances and times

All measurements and calculations of stopping distances and times are done according to ISO 10218-1, with single axis motion on axes 1, 2, and 3. If more than one axis is used for the movement, then the stopping distance and time can be longer. Normal delays of the hardware and software are taken into account. See more about the delays and their impact on the results, [Reading the data on page 82](#).

The stopping distances and times are presented using the tool data and extension zones presented for the respected robot variant. These variables are 100%, 66%, and 33% of the maximum values for the robot.

The stop categories 0 and 1 are according to IEC 60204-1.



#### Note

The category 0 stop is not necessarily the worst case (depending on load, speed, application, wear, etc.).



#### Note

The stop category 1 is a controlled stop and will therefore have less deviation from the programmed path compared with a stop category 0.

---

#### Loads

The tool data that is used is presented for the respective robot variant.

The used loads represent the rated load. No arm load is used. See the [Load diagrams on page 64](#).

*Continues on next page*



Extension zones

The extension zone for the stop category 1 is based on the tool mounting interface (tool flange) with the axis angles according to the following illustrations. The zone data is presented for the respective robot variant.

The extension zone outer limits are defined by the TCP0 position for the stated angles.

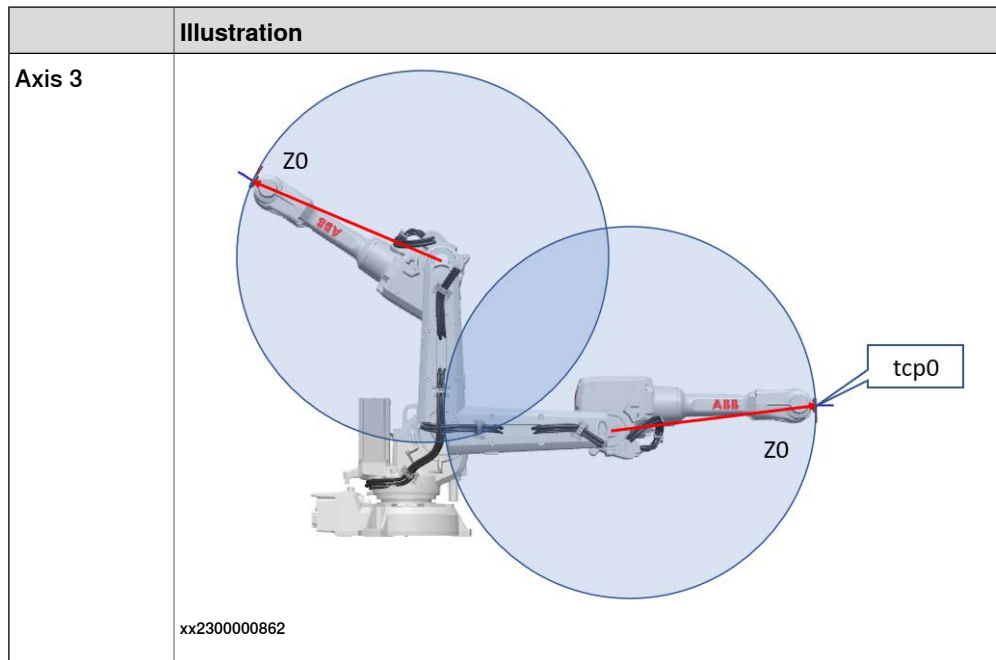
| Illustration |  |
|--------------|--|
| Axis 1       |  |
| Axis 2       |  |

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## 2 Technical data for IRB 6710

### 2.10.1 Robot stopping distances according to ISO 10218-1

Continued



#### Speed

The speed in the simulations is based on TCP0.

The TCP0 speed is measured in meters per second when the stop is triggered.

#### Stopping distances

The stopping distance is measured in degrees.

#### Stopping times

The stopping time is measured in seconds.

#### Limitations

The stopping distance can vary depending on additional loads on the robot.

The stopping distance for category 0 stops can vary depending on the individual brakes and the joint friction.

#### Reading the data

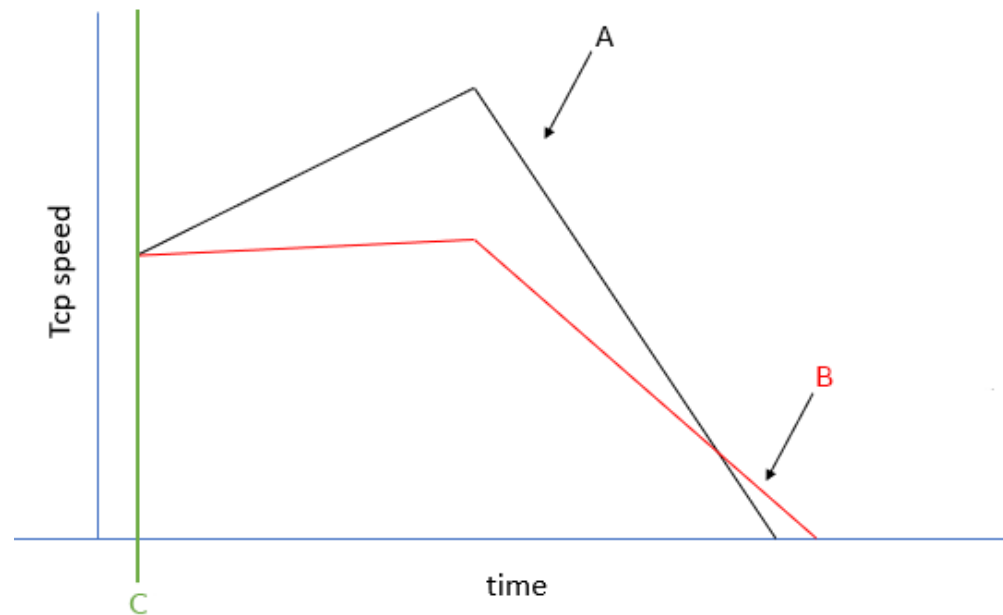
The data for stop category 0 is presented in tables, with distance and time for each axis.

The data for stop category 1 is presented as graphs with curves representing the different loads.

There is a short delay in the stop, which means that if the axis is accelerating when the stop is initiated (C), it will continue to accelerate during this delay time. This

Continues on next page

can result in graphs where a higher load (A) gives shorter stopping distance than a smaller load (B).



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The tcp speed is the actual speed when the stop is initiated, which is not necessarily the programmed speed.

## 2 Technical data for IRB 6710

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### 2.10.2 Measuring stopping distance and time

#### 2.10.2 Measuring stopping distance and time

---

##### Preparations before measuring

For measurement and calculation of overall system stopping performance, see ISO 13855:2010.

The measurement shall be done for the selected stop category. The emergency stop button on the robot controller is configured for stop category 0 on delivery. A risk assessment can conclude the need for another stop category. The stop category can be changed through the system parameter *Function* (topic *Controller*, type *Safety Run Chain*). In case of deviations of the default configuration of stop category 0, then this is detailed in the product specification for the respective manipulator.



##### CAUTION

The measurement and calculation of overall stopping performance for a robot must be tested with its correct load, speed, and tools, in its actual environment, before the robot is taken into production.

All load and tool data must be correctly defined (weight, CoG, moment of inertia). The load identification service routine can be used to identify the data.



##### CAUTION

Follow the safety instructions in the respective product manual for the robot.

---

##### Measuring with TuneMaster

The software TuneMaster can be used to measure stopping distances and times for ABB robots. The TuneMaster software contains documentation on how to use it.

- 1 Download TuneMaster from [www.abb.com/robotics](http://www.abb.com/robotics), section **RobotStudio - Downloads - RobotWare Tools and Utilities**.
- 2 Install TuneMaster on a computer. Start the TuneMaster app and select **Log Signals**.
- 3 Connect to the robot controller.
- 4 Define the I/O stop signal to use for measurement, for example, ES1 for emergency stop.
- 5 Define the signal number to use for measurement, 1298 for axis position. The value is given in radians.
- 6 Start the logging in TuneMaster.
- 7 Start the test program on the controller.



##### Tip

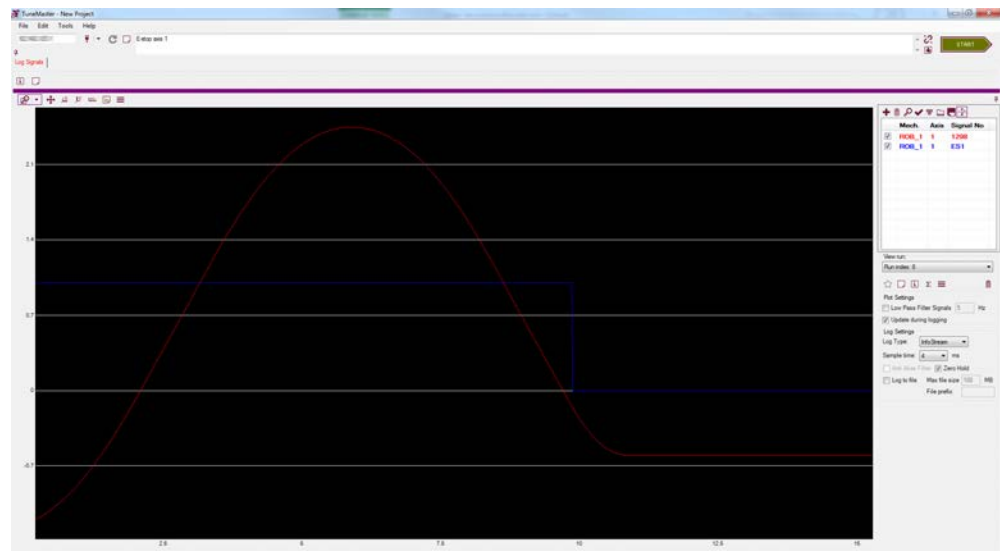
Use the tool and zone definitions for the respective variant in this document to get results that are comparable with this document.

*Continues on next page*

*Continued*

- 8 When the axis has reached maximum speed, press the emergency stop button.
- 9 In TuneMaster, measure the stopping distance and time.
- 10 Repeat for all installed emergency stop buttons until the identified hazards due to stopping distance and time for axes have been verified.

Example from TuneMaster



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## 2 Technical data for IRB 6710

### 2.10.3 IRB 6710-210/2.65

#### 2.10.3 IRB 6710-210/2.65

##### Used tooldata

```
PERS tooldata P100:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [210, [0, 0, 300], [1, 0, 0, 0], 3.2, 3.2, 3.2]];
PERS tooldata P66:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [140, [0, 0, 200], [1, 0, 0, 0], 1.4, 1.4, 1.4]];
PERS tooldata P33:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [70, [0, 0, 100], [1, 0, 0, 0], 0.35, 0.35, 0.35]];
```

##### Category 0

The following table describes the stopping distance and time for category 0 stop.

| Axis | Distance | Stop time |
|------|----------|-----------|
| 1    | 33.0°    | 0.58 s    |
| 2    | 28.4°    | 0.43 s    |
| 3    | 21.5°    | 0.28 s    |

##### Category 1, extension zones

For definitions of the zones, see [Extension zones on page 81](#).

The zone border is the mounting interface location for axis 2 and axis 3.

##### Axis 1

| Zone border | Axis 2 | Axis 3 |
|-------------|--------|--------|
| z0-z1       | -42°   | 42°    |
| z1-z2       | 6°     | -6°    |

##### Axis 2

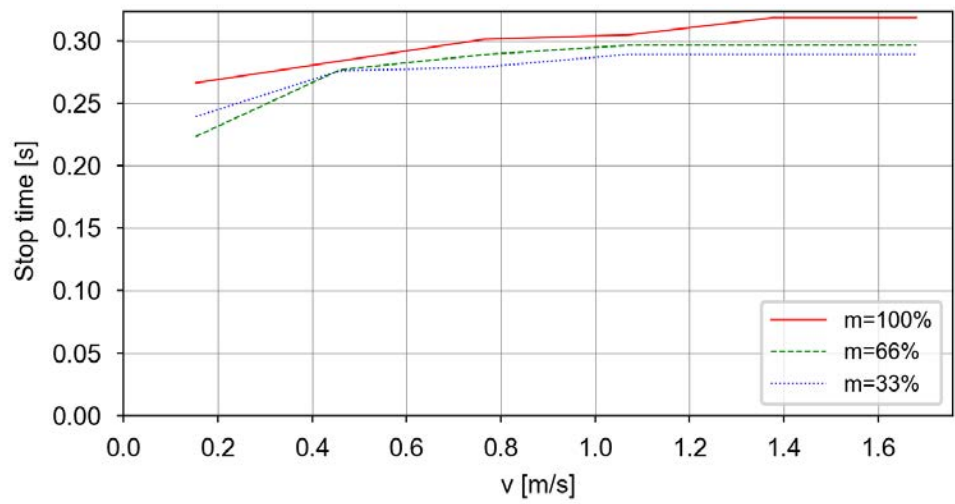
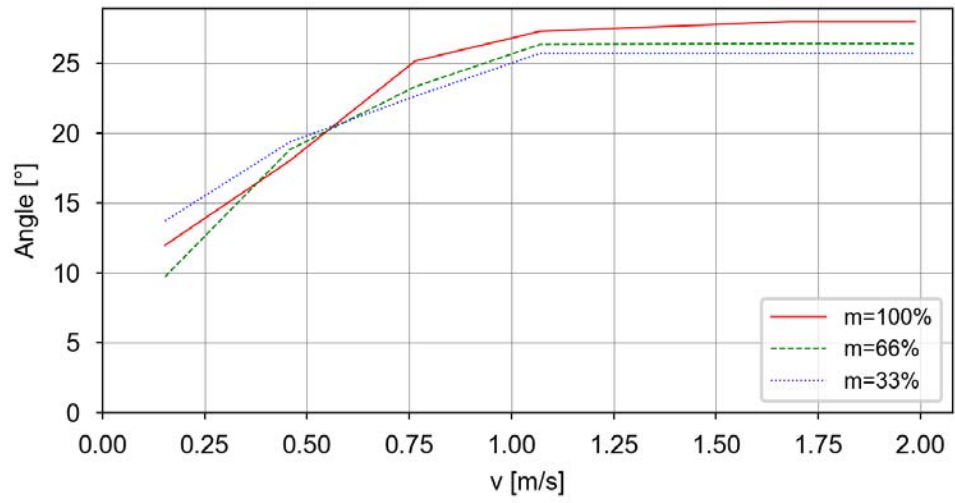
| Zone border | Axis 2 | Axis 3 |
|-------------|--------|--------|
| z0-z1       | 48°    | 30°    |
| z1-z2       | 85°    | -30°   |

##### Axis 3

Only one zone exists.

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Category 1, Axis 1, Extension zone 0, stopping distance and stopping time



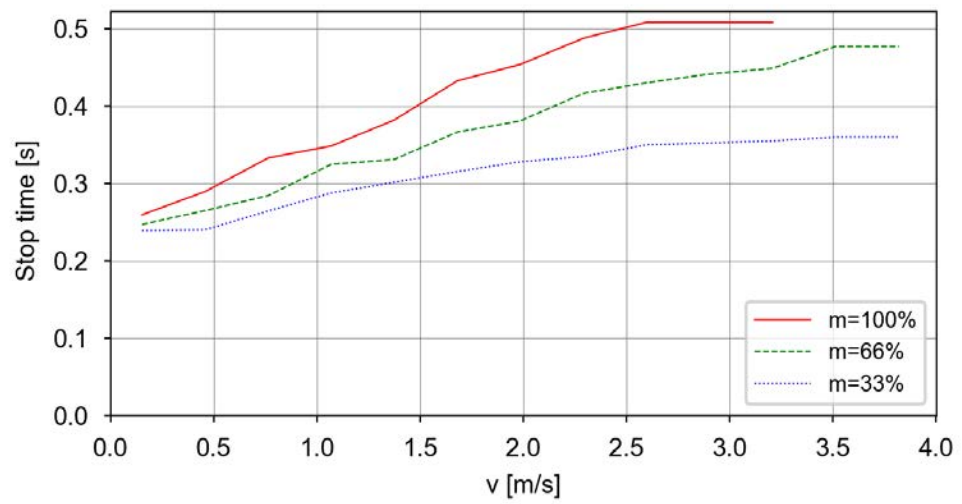
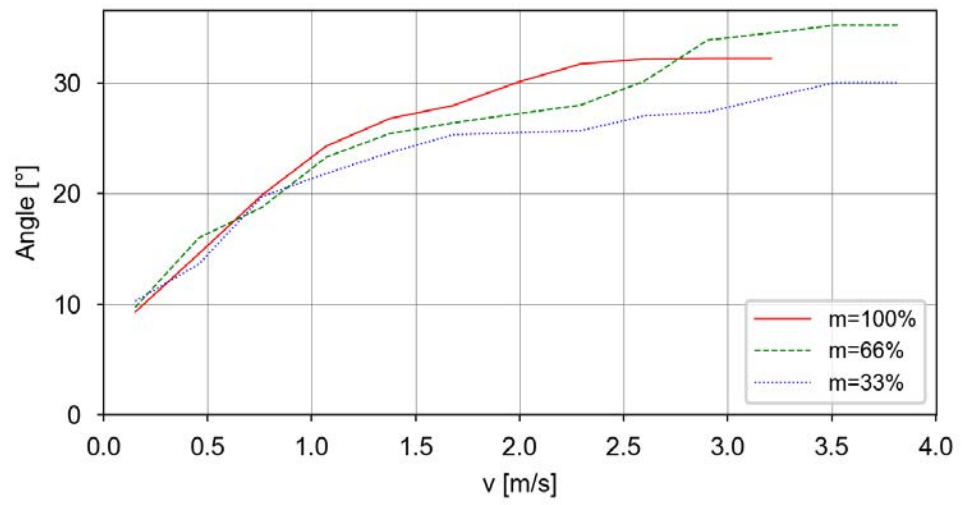
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## 2 Technical data for IRB 6710

### 2.10.3 IRB 6710-210/2.65

Continued

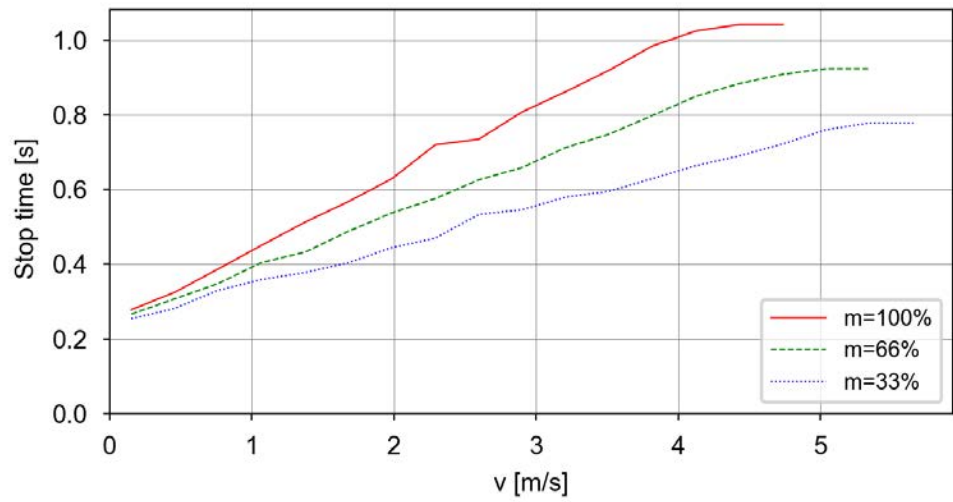
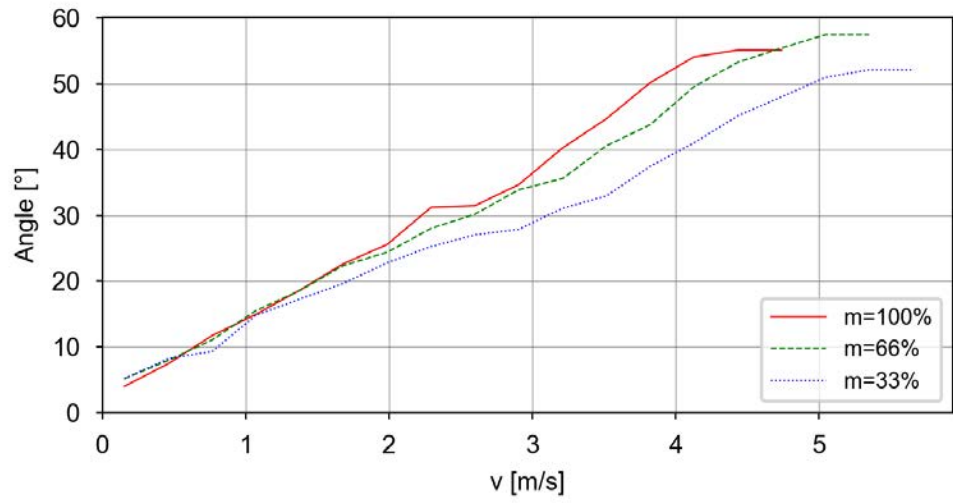
#### Category 1, Axis 1, Extension zone 1, stopping distance and stopping time



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Category 1, Axis 1, Extension zone 2, stopping distance and stopping time



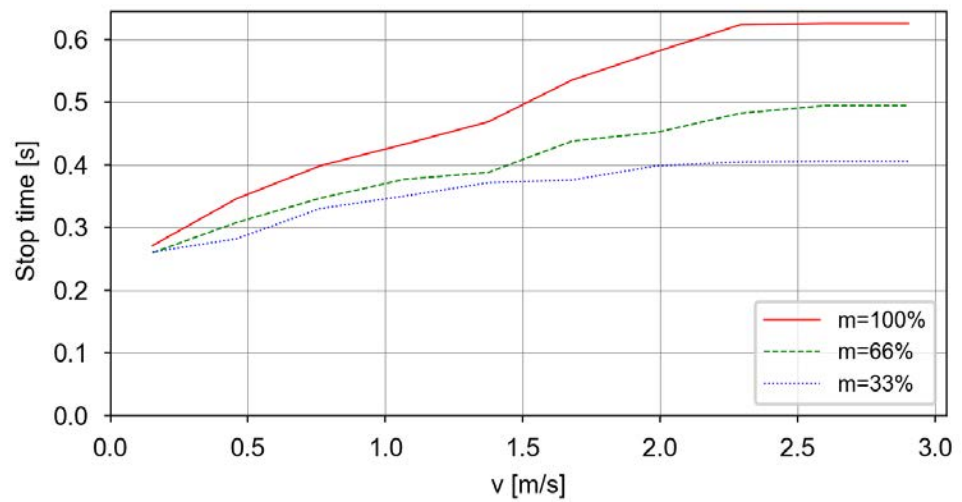
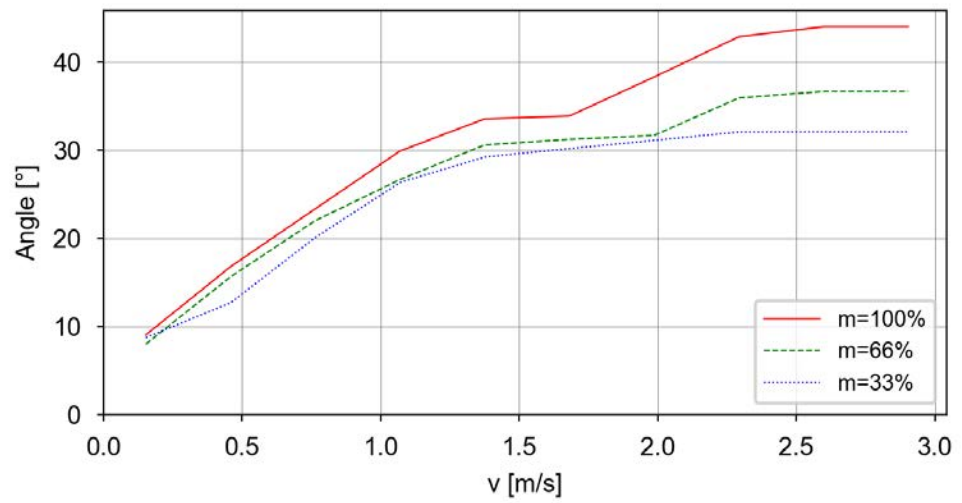
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## 2 Technical data for IRB 6710

### 2.10.3 IRB 6710-210/2.65

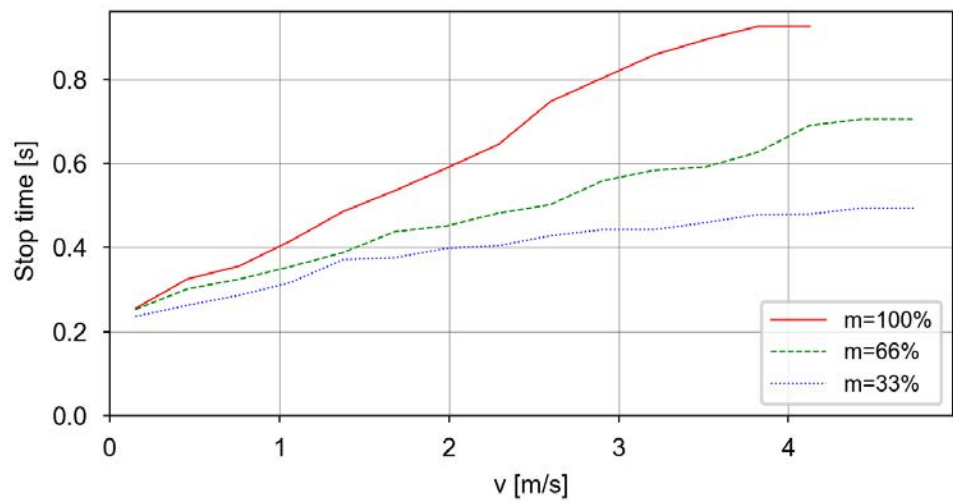
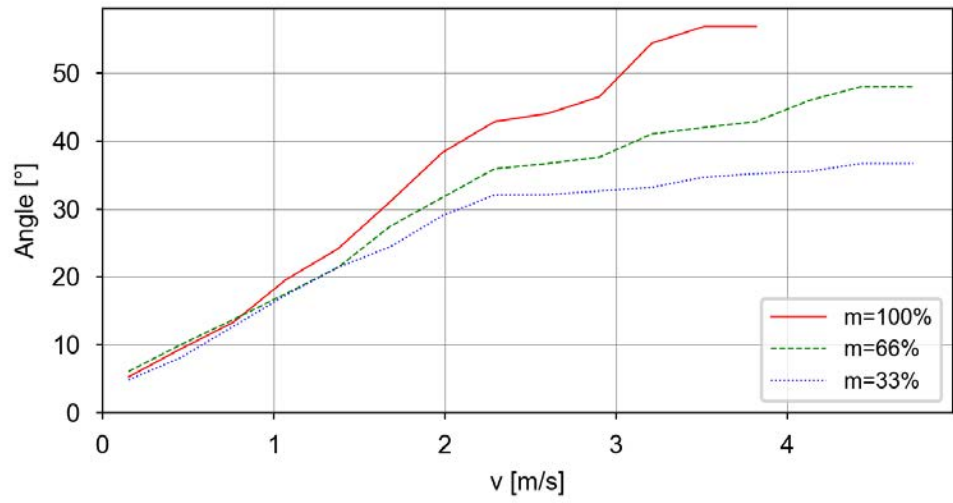
Continued

#### Category 1, Axis 2, Extension zone 0, stopping distance and stopping time



Continues on next page

Category 1, Axis 2, Extension zone 1, stopping distance and stopping time



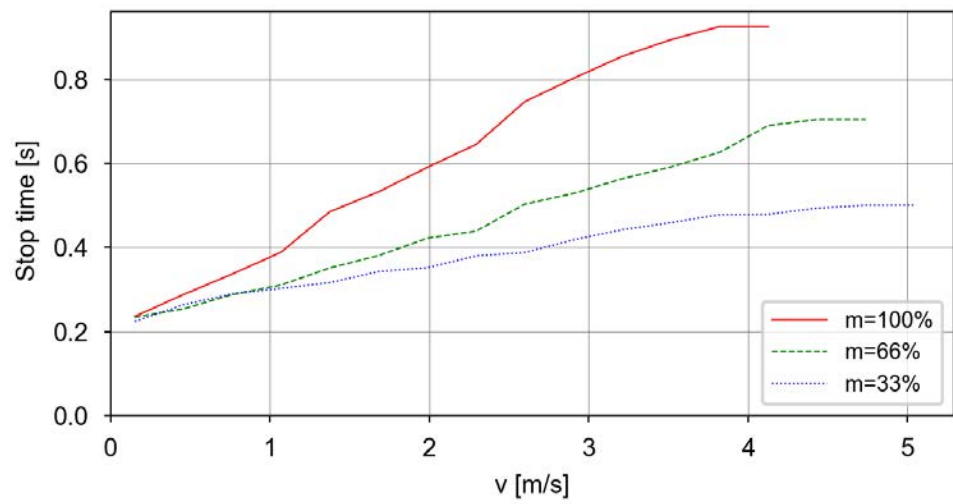
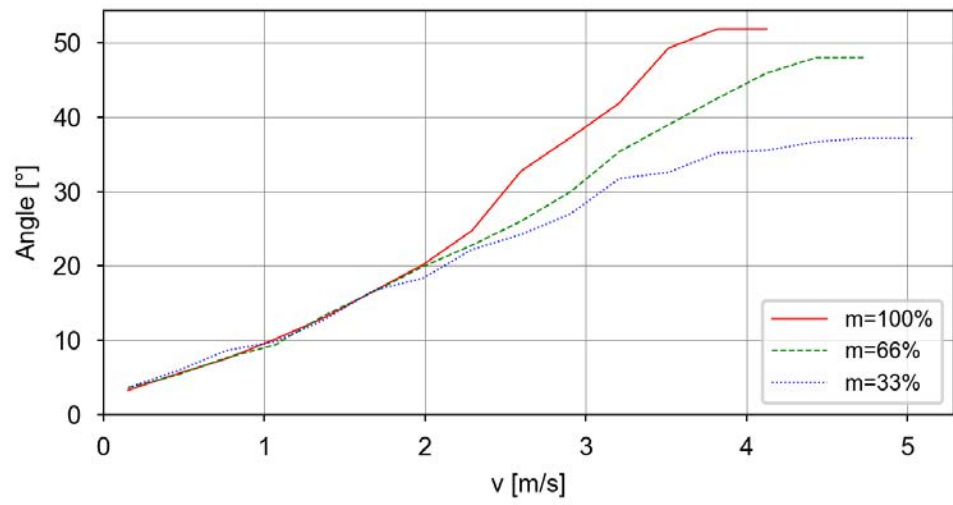
Continues on next page

## 2 Technical data for IRB 6710

### 2.10.3 IRB 6710-210/2.65

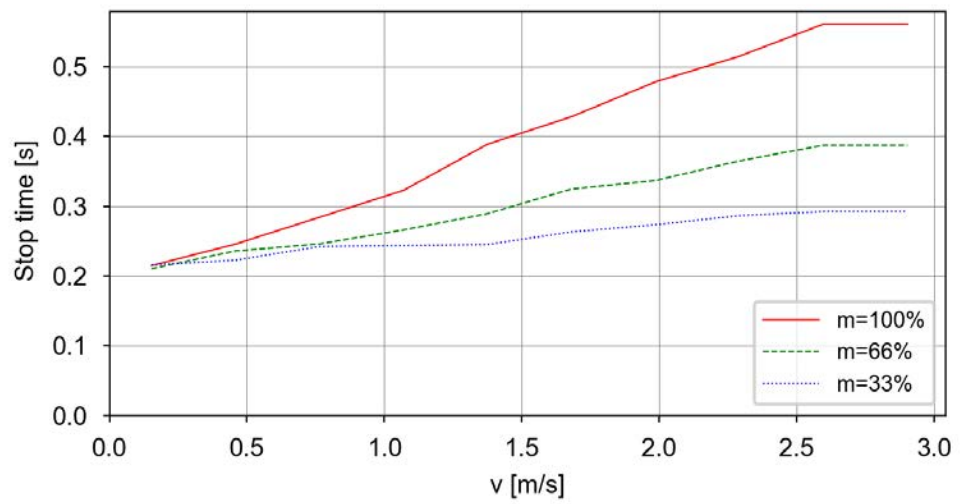
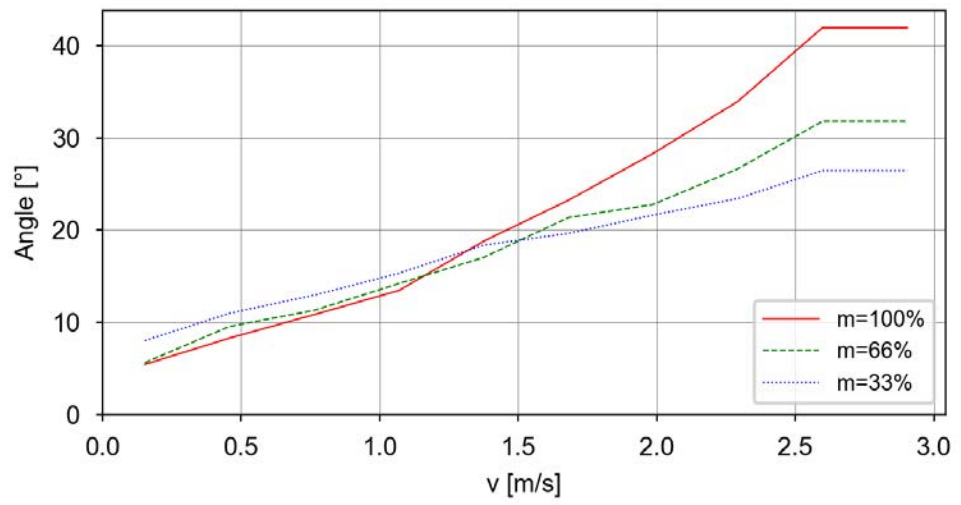
Continued

#### Category 1, Axis 2, Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3, Extension zone 0, stopping distance and stopping time



## 2 Technical data for IRB 6710

### 2.10.4 IRB 6710-200/2.95

#### 2.10.4 IRB 6710-200/2.95

##### Used tooldata

```
PERS tooldata P100:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [200, [0, 0, 300], [1, 0, 0, 0], 3, 3, 3]];
PERS tooldata P66:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [133, [0, 0, 200], [1, 0, 0, 0], 1.3, 1.3, 1.3]];
PERS tooldata P33:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [67, [0, 0, 100], [1, 0, 0, 0], 0.33, 0.33, 0.33]];
```

##### Category 0

The following table describes the stopping distance and time for category 0 stop.

| Axis | Distance | Stop time |
|------|----------|-----------|
| 1    | 33.2°    | 0.62 s    |
| 2    | 25.6°    | 0.43 s    |
| 3    | 17.7°    | 0.27 s    |

##### Category 1, extension zones

For definitions of the zones, see [Extension zones on page 81](#).

The zone border is the mounting interface location for axis 2 and axis 3.

##### Axis 1

| Zone border | Axis 2 | Axis 3 |
|-------------|--------|--------|
| z0-z1       | -42°   | 42°    |
| z1-z2       | 6°     | -6°    |

##### Axis 2

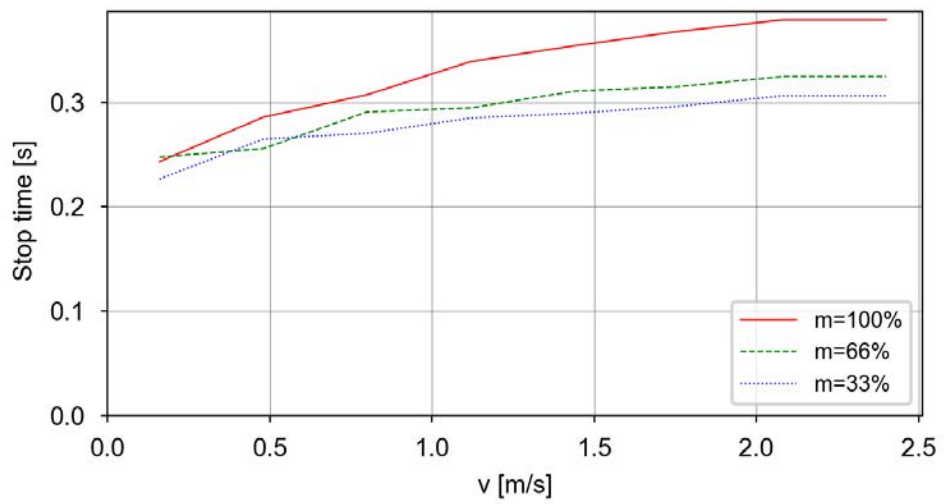
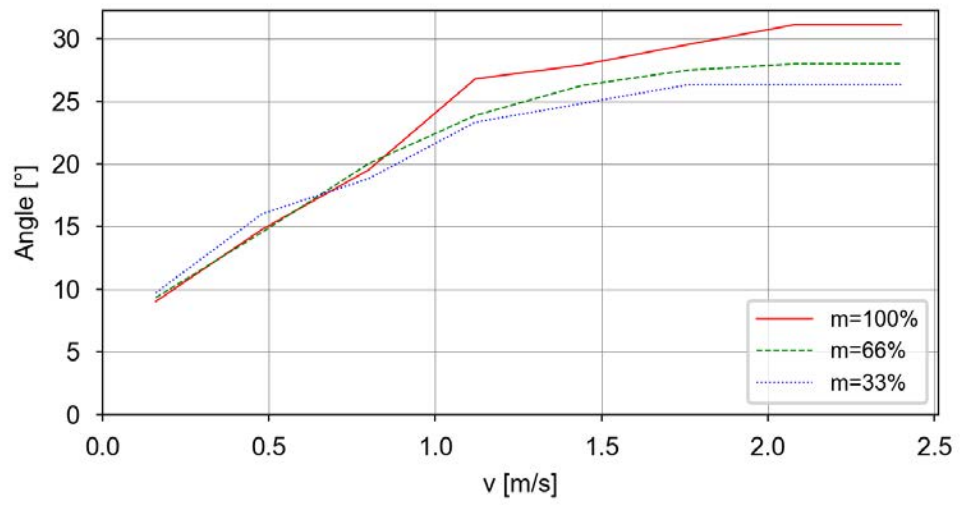
| Zone border | Axis 2 | Axis 3 |
|-------------|--------|--------|
| z0-z1       | 48°    | 30°    |
| z1-z2       | 85°    | -30°   |

##### Axis 3

Only one zone exists.

*Continues on next page*

Category 1, Axis 1, Extension zone 0, stopping distance and stopping time



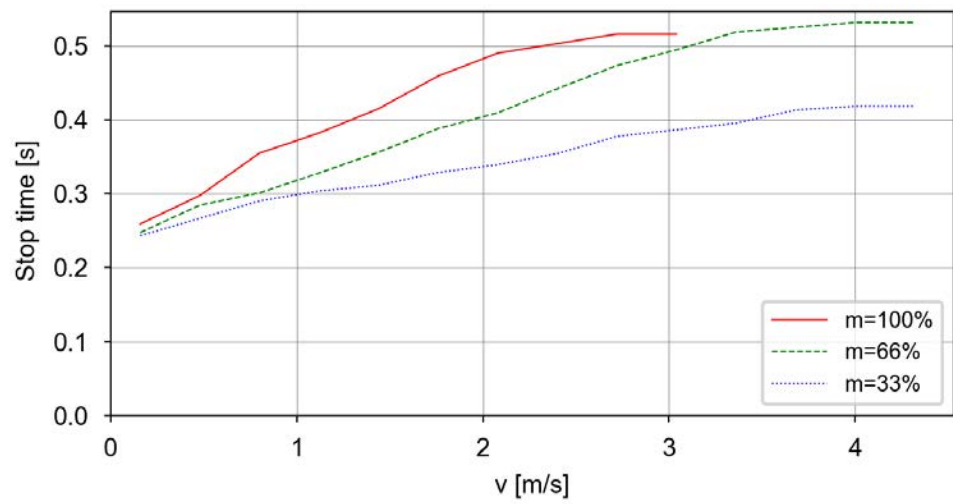
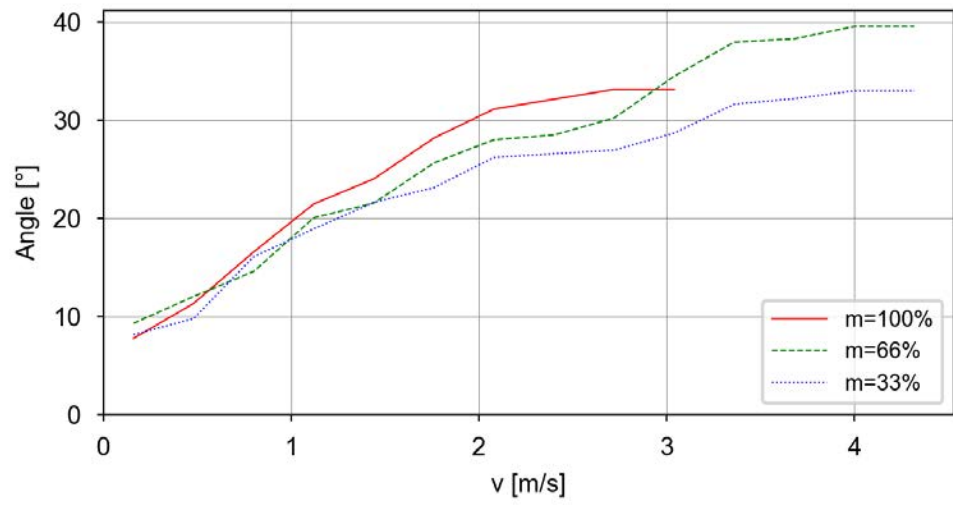
Continues on next page

## 2 Technical data for IRB 6710

### 2.10.4 IRB 6710-200/2.95

Continued

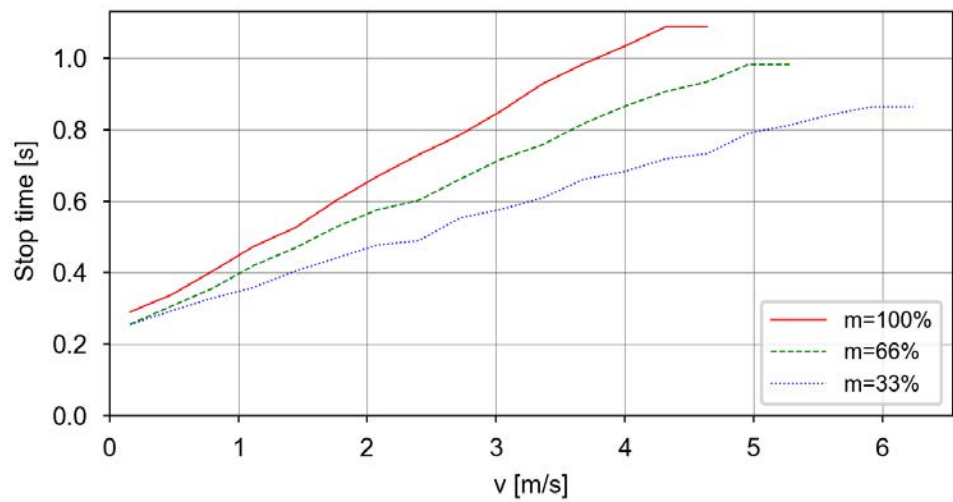
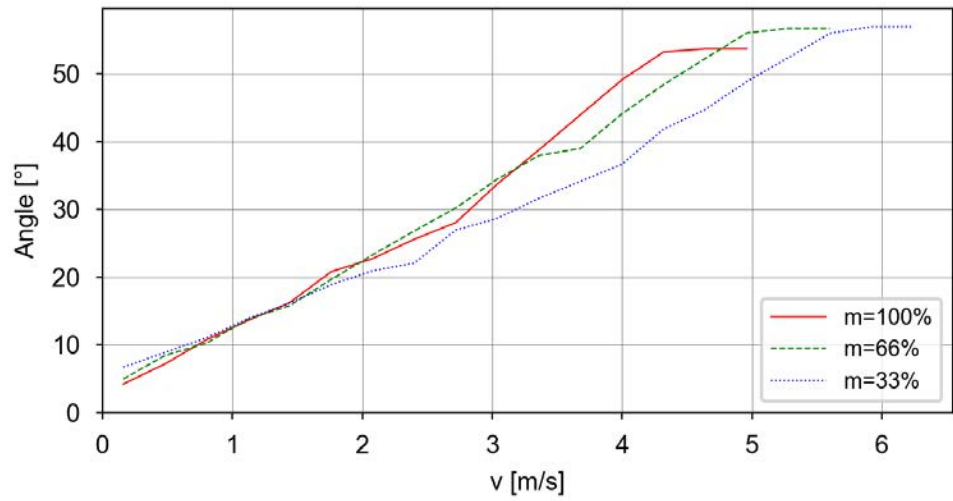
#### Category 1, Axis 1, Extension zone 1, stopping distance and stopping time



Continues on next page



Category 1, Axis 1, Extension zone 2, stopping distance and stopping time



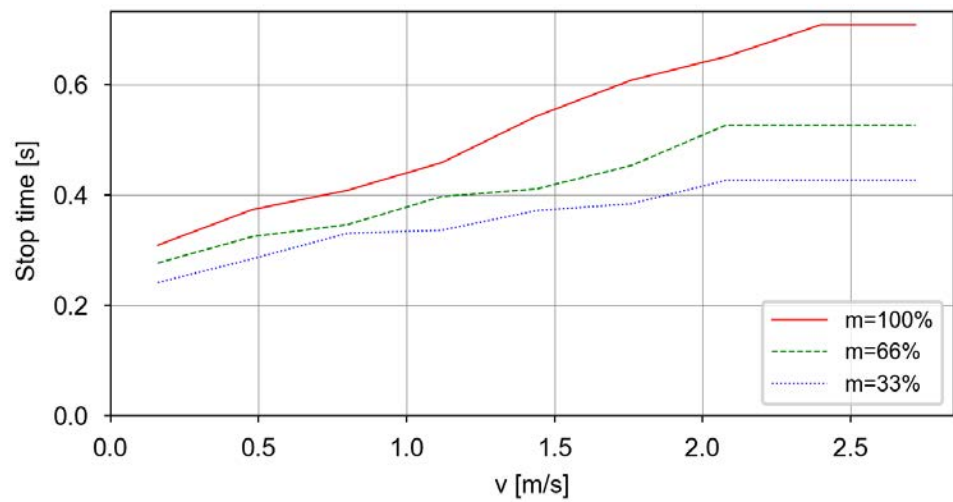
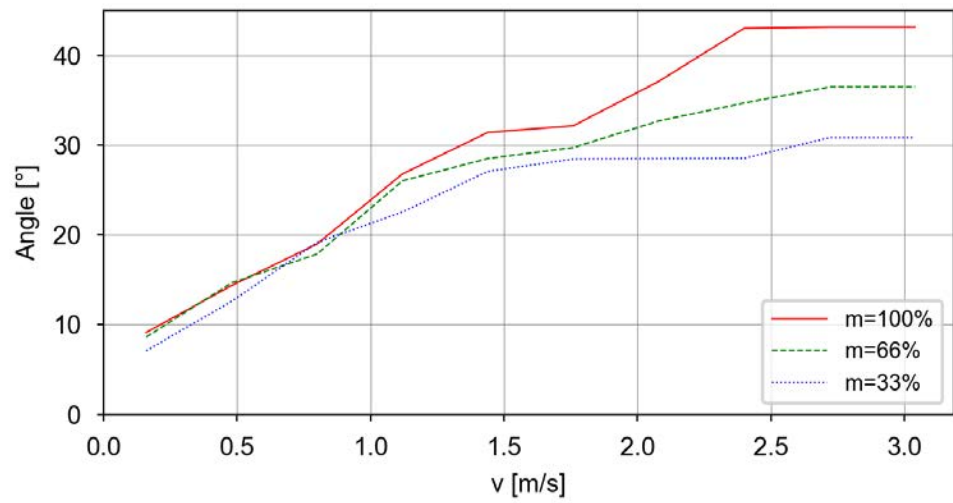
Continues on next page

## 2 Technical data for IRB 6710

### 2.10.4 IRB 6710-200/2.95

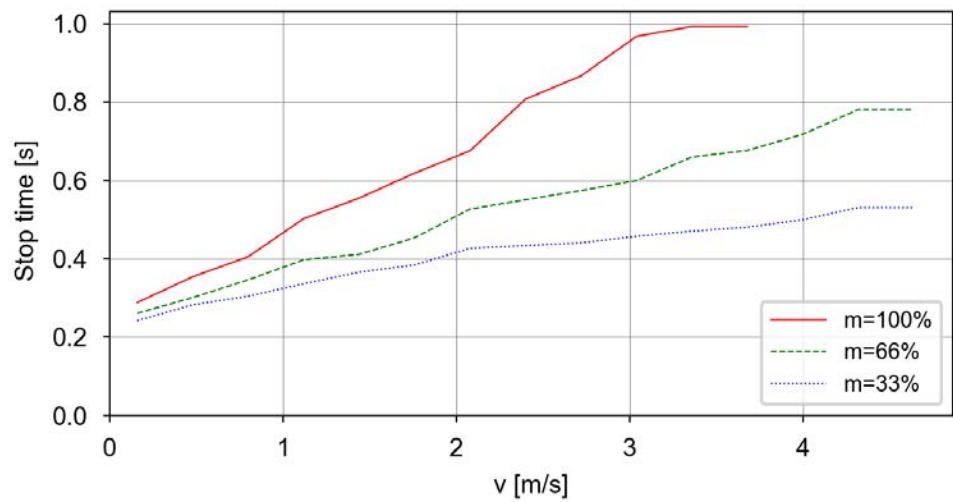
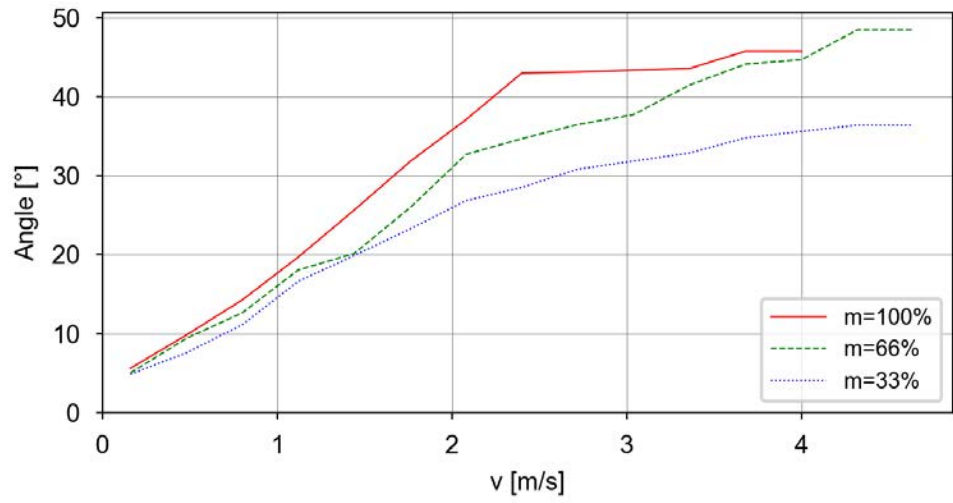
Continued

#### Category 1, Axis 2, Extension zone 0, stopping distance and stopping time



Continues on next page

Category 1, Axis 2, Extension zone 1, stopping distance and stopping time



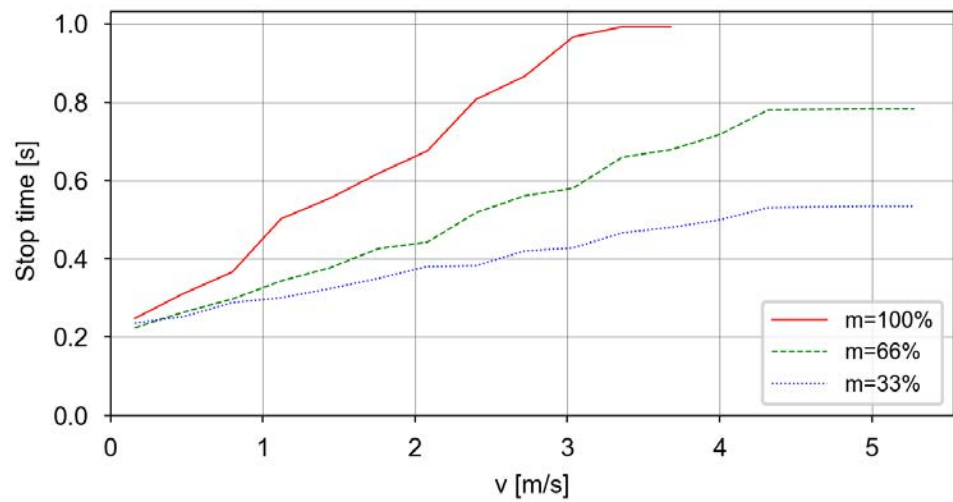
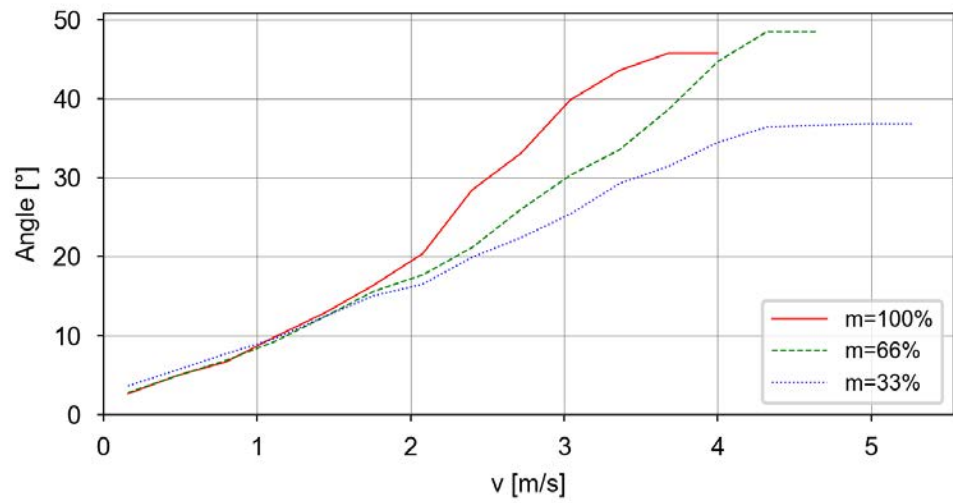
Continues on next page

## 2 Technical data for IRB 6710

### 2.10.4 IRB 6710-200/2.95

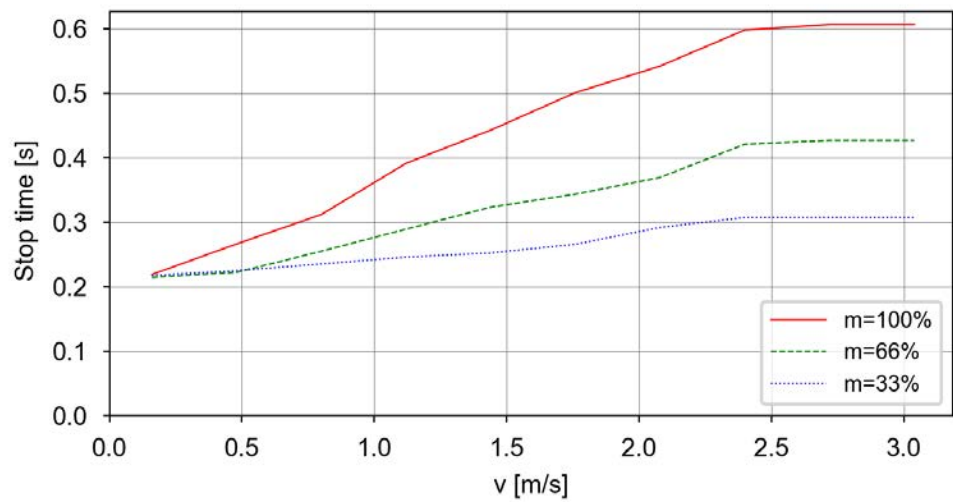
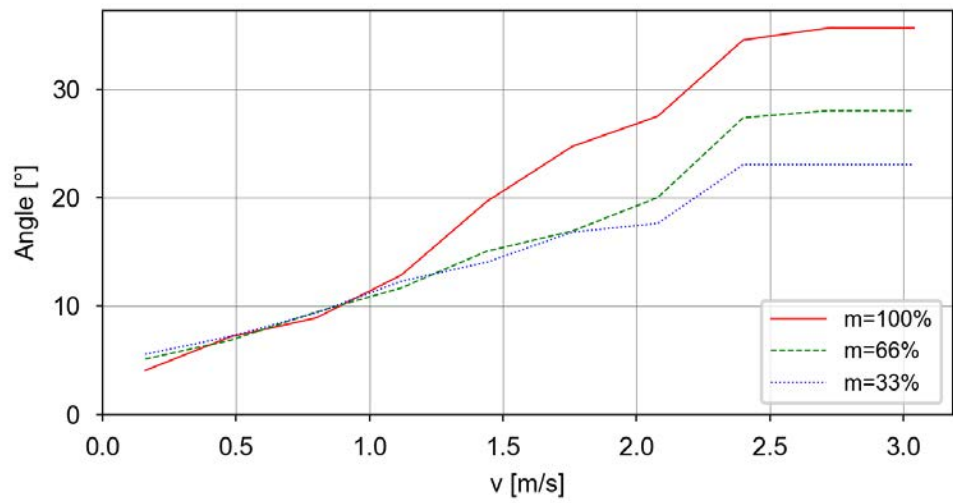
Continued

#### Category 1, Axis 2, Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3, Extension zone 0, stopping distance and stopping time



## 2 Technical data for IRB 6710

### 2.10.5 IRB 6710-175/2.65 LID

#### 2.10.5 IRB 6710-175/2.65 LID

##### Used tooldata

```
PERS tooldata P100:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [175, [0, 0, 300], [1, 0, 0, 0], 2.6, 2.6, 2.6]];
PERS tooldata P66:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [117, [0, 0, 200], [1, 0, 0, 0], 1.2, 1.2, 1.2]];
PERS tooldata P33:= [ TRUE, [[0, 0, 0], [1, 0, 0, 0]], [58, [0, 0, 100], [1, 0, 0, 0], 0.29, 0.29, 0.29]];
```

##### Category 0

The following table describes the stopping distance and time for category 0 stop.

| Axis | Distance | Stop time |
|------|----------|-----------|
| 1    | 32.8°    | 0.58 s    |
| 2    | 27.7°    | 0.41 s    |
| 3    | 22.1°    | 0.28 s    |

##### Category 1, extension zones

For definitions of the zones, see [Extension zones on page 81](#).

The zone border is the mounting interface location for axis 2 and axis 3.

##### Axis 1

| Zone border | Axis 2 | Axis 3 |
|-------------|--------|--------|
| z0-z1       | -42°   | 42°    |
| z1-z2       | 6°     | -6°    |

##### Axis 2

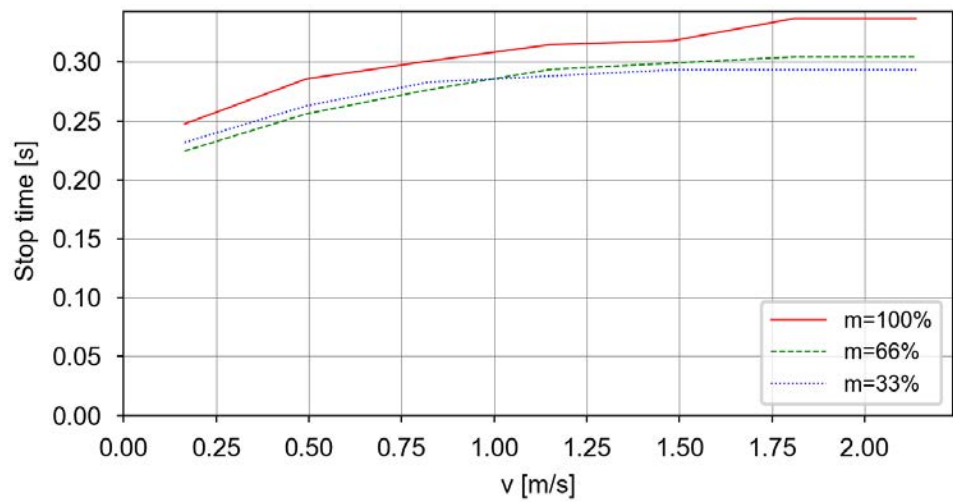
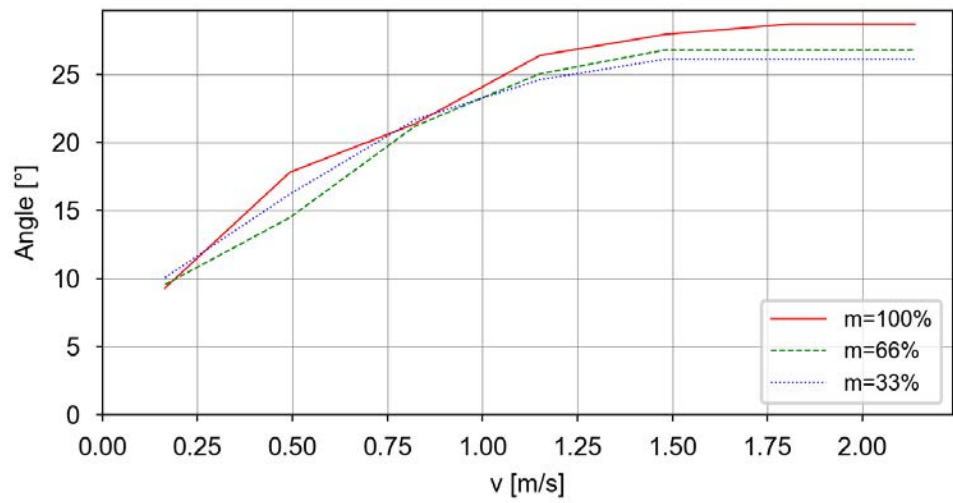
| Zone border | Axis 2 | Axis 3 |
|-------------|--------|--------|
| z0-z1       | 48°    | 30°    |
| z1-z2       | 85°    | -30°   |

##### Axis 3

Only one zone exists.

*Continues on next page*

Category 1, Axis 1, Extension zone 0, stopping distance and stopping time



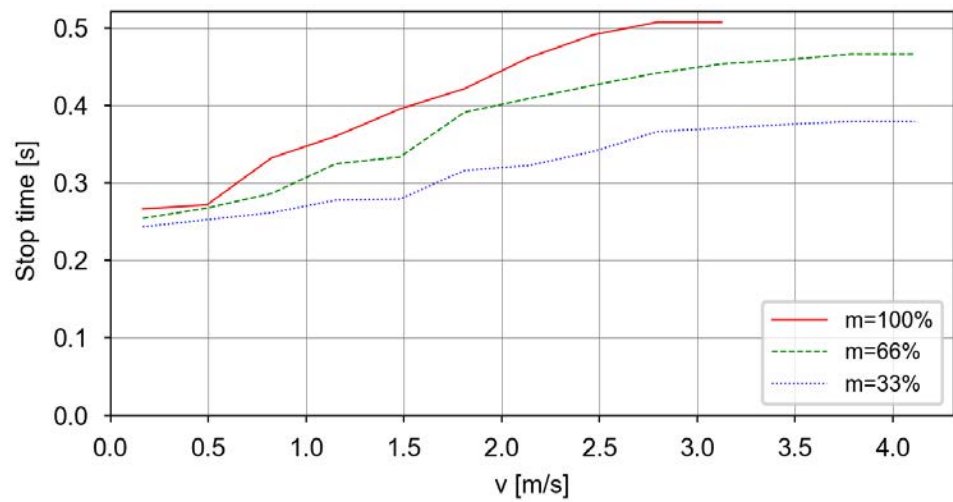
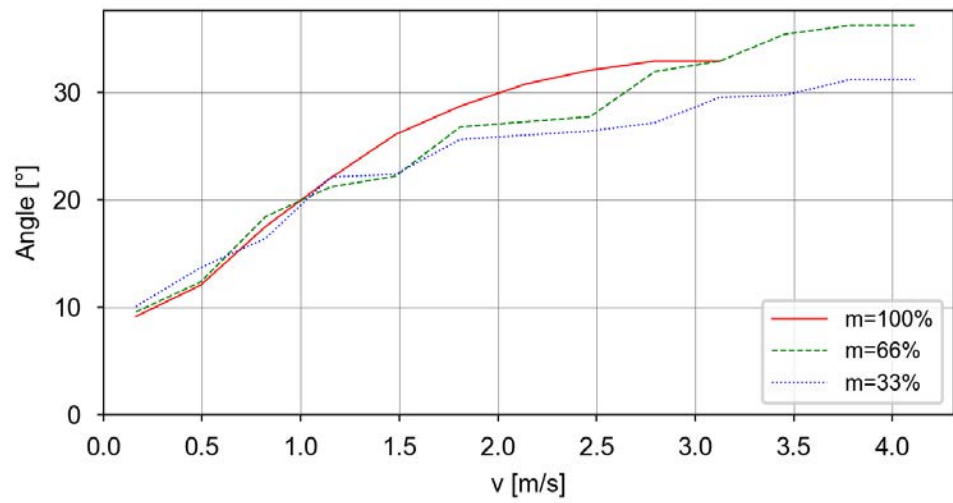
Continues on next page

## 2 Technical data for IRB 6710

### 2.10.5 IRB 6710-175/2.65 LID

Continued

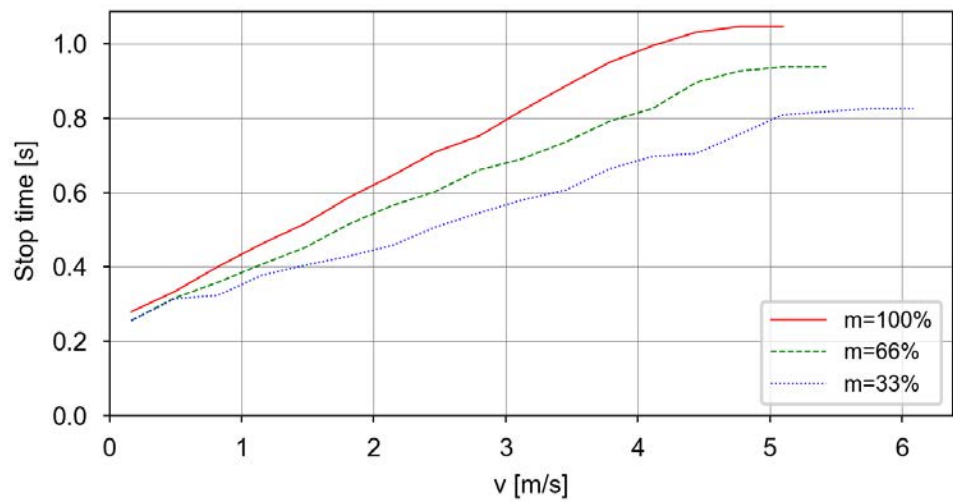
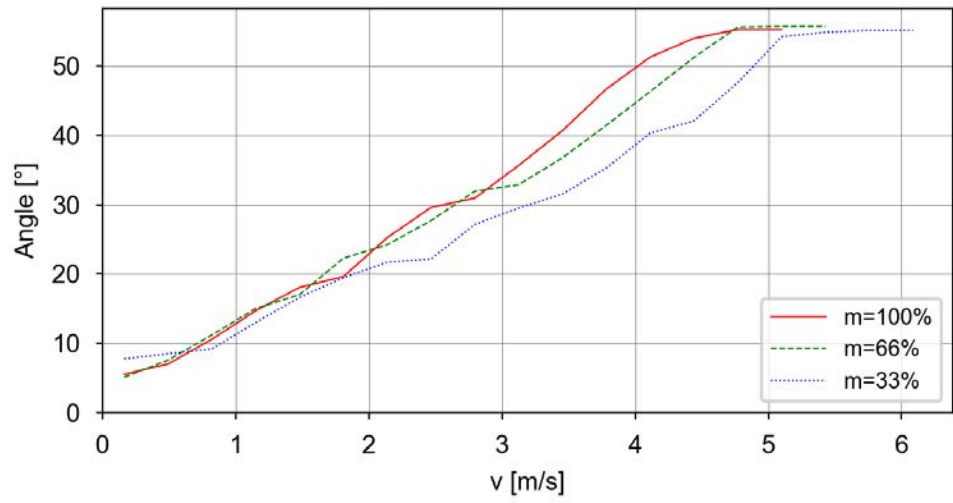
#### Category 1, Axis 1, Extension zone 1, stopping distance and stopping time



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Category 1, Axis 1, Extension zone 2, stopping distance and stopping time



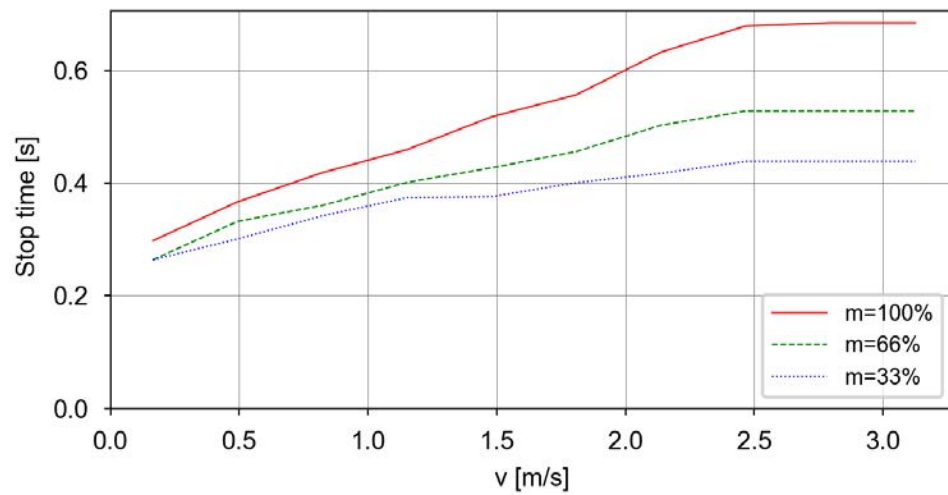
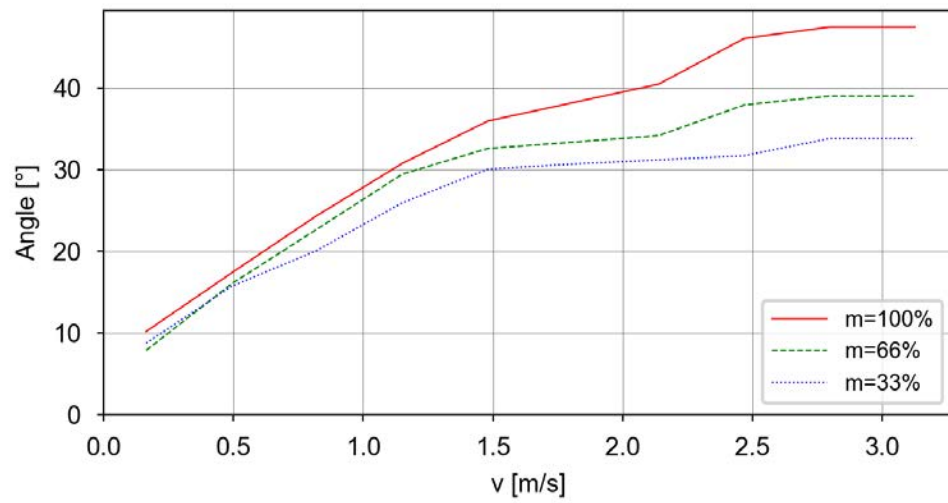
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## 2 Technical data for IRB 6710

### 2.10.5 IRB 6710-175/2.65 LID

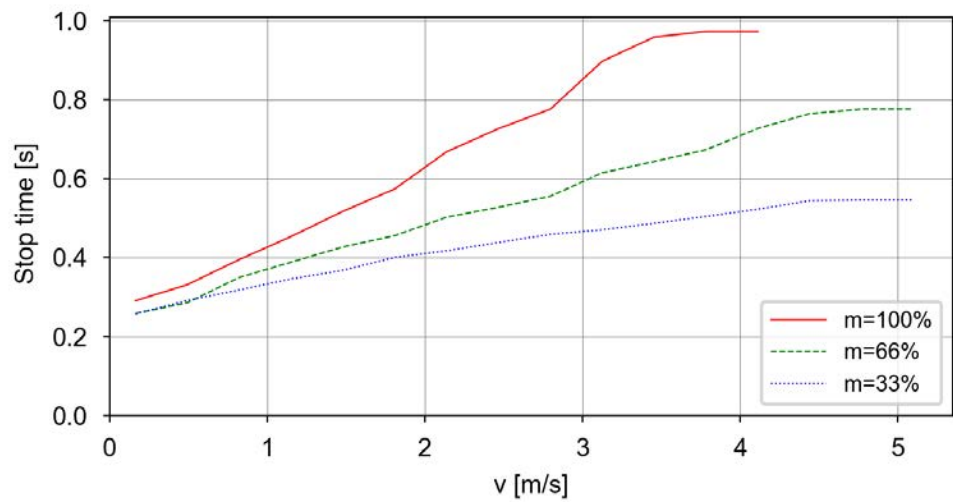
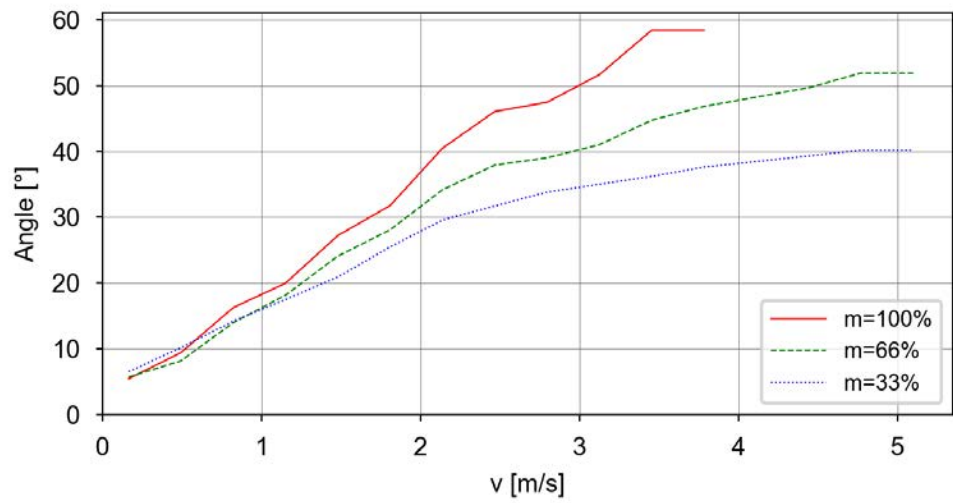
Continued

#### Category 1, Axis 2, Extension zone 0, stopping distance and stopping time



Continues on next page

Category 1, Axis 2, Extension zone 1, stopping distance and stopping time



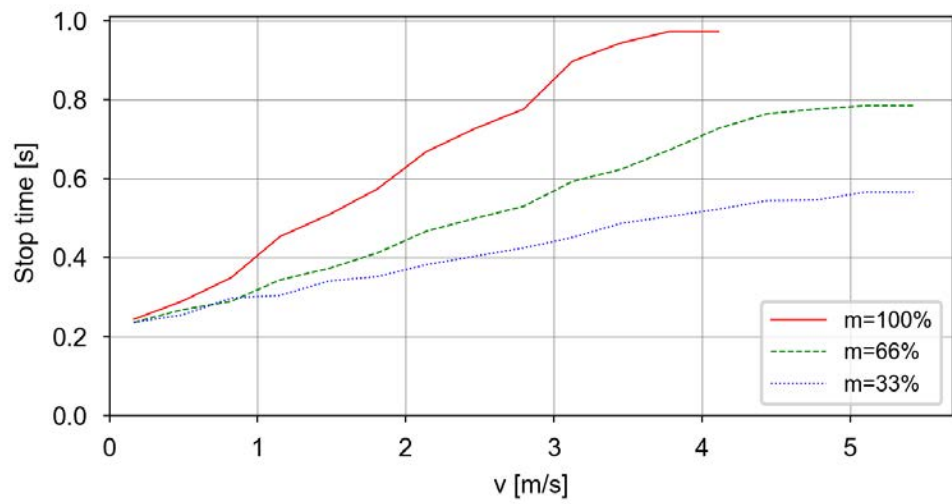
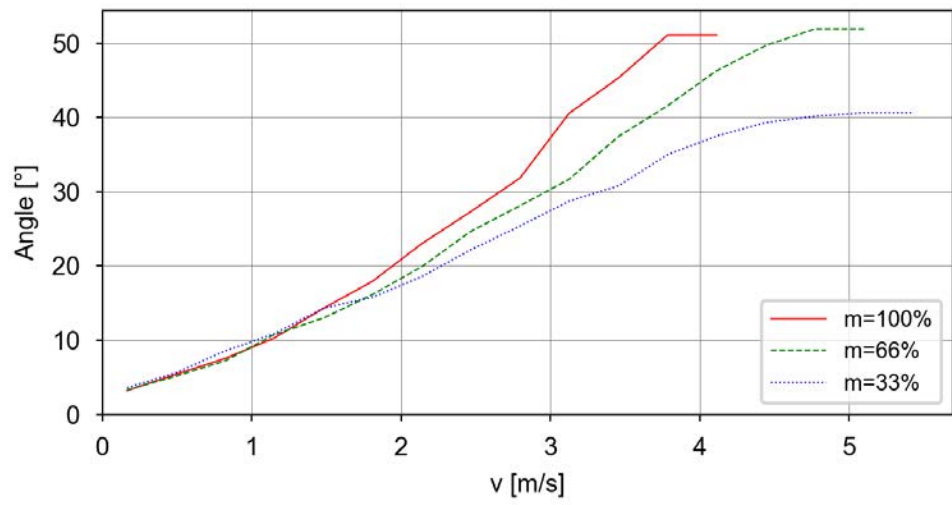
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## 2 Technical data for IRB 6710

### 2.10.5 IRB 6710-175/2.65 LID

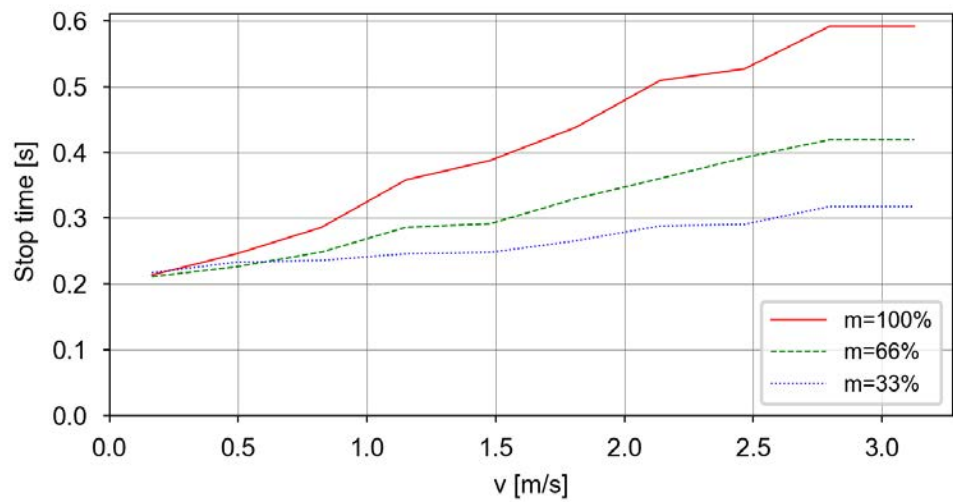
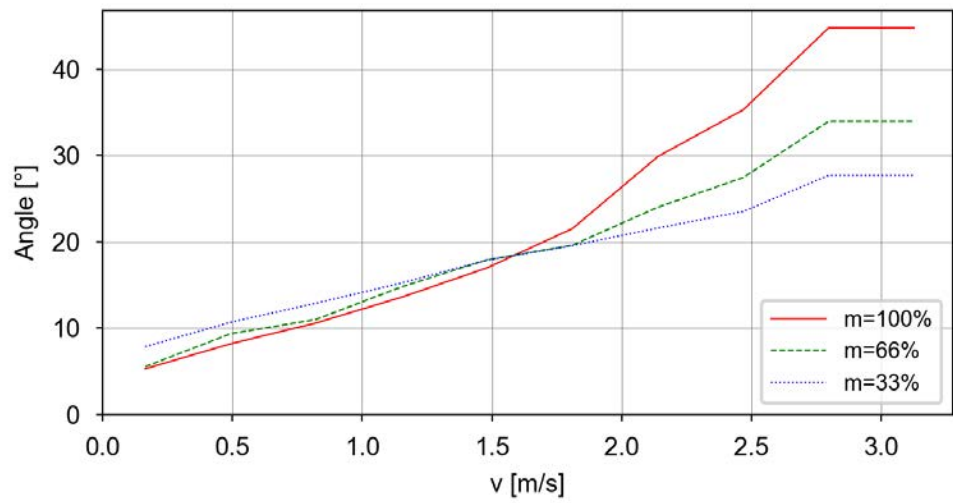
Continued

#### Category 1, Axis 2, Extension zone 2, stopping distance and stopping time



Continues on next page

Category 1, Axis 3, Extension zone 0, stopping distance and stopping time



## 2 Technical data for IRB 6710

### 2.10.6 IRB 6710-175/2.95 LID

#### 2.10.6 IRB 6710-175/2.95 LID

##### Used tooldata

```
PERS tooldata P100:= [ TRUE, [[0, 0, 0], [1, 0, 0 ,0]], [175, [0,
0, 300], [1, 0, 0, 0], 2.6, 2.6, 2.6]];
PERS tooldata P66:= [ TRUE, [[0, 0, 0], [1, 0, 0 ,0]], [117, [0,
0, 200], [1, 0, 0, 0], 1.2, 1.2, 1.2]];
PERS tooldata P33:= [ TRUE, [[0, 0, 0], [1, 0, 0 ,0]], [58, [0, 0,
100], [1, 0, 0, 0], 0.29, 0.29, 0.29]];
```

##### Category 0

The following table describes the stopping distance and time for category 0 stop.

| Axis | Distance | Stop time |
|------|----------|-----------|
| 1    | 33.0°    | 0.56 s    |
| 2    | 26.5°    | 0.43 s    |
| 3    | 18.3°    | 0.28 s    |

##### Category 1, extension zones

For definitions of the zones, see [Extension zones on page 81](#).

The zone border is the mounting interface location for axis 2 and axis 3.

##### Axis 1

| Zone border | Axis 2 | Axis 3 |
|-------------|--------|--------|
| z0-z1       | -42°   | 42°    |
| z1-z2       | 6°     | -6°    |

##### Axis 2

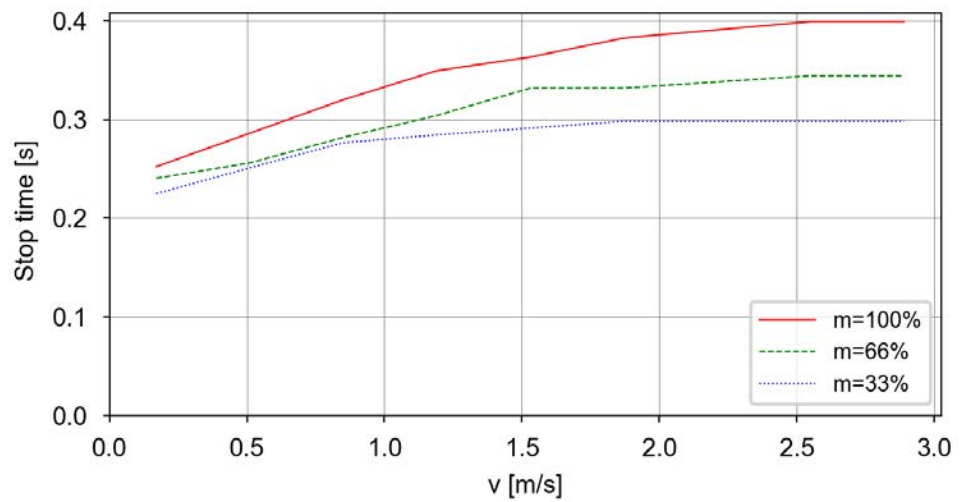
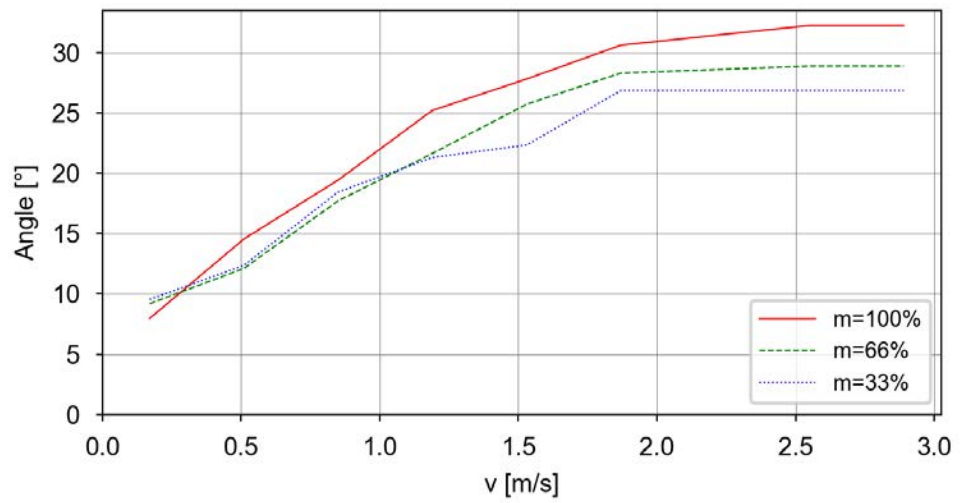
| Zone border | Axis 2 | Axis 3 |
|-------------|--------|--------|
| z0-z1       | 48°    | 30°    |
| z1-z2       | 85°    | -30°   |

##### Axis 3

Only one zone exists.

*Continues on next page*

Category 1, Axis 1, Extension zone 0, stopping distance and stopping time



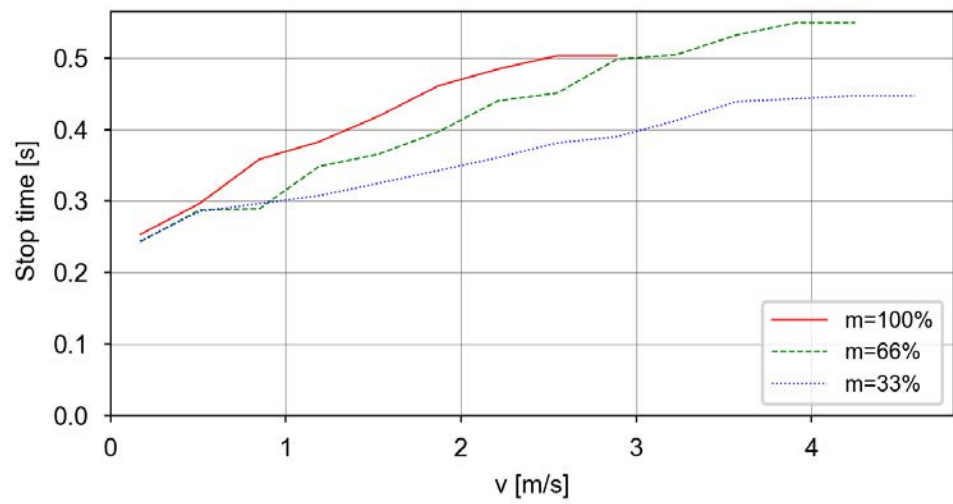
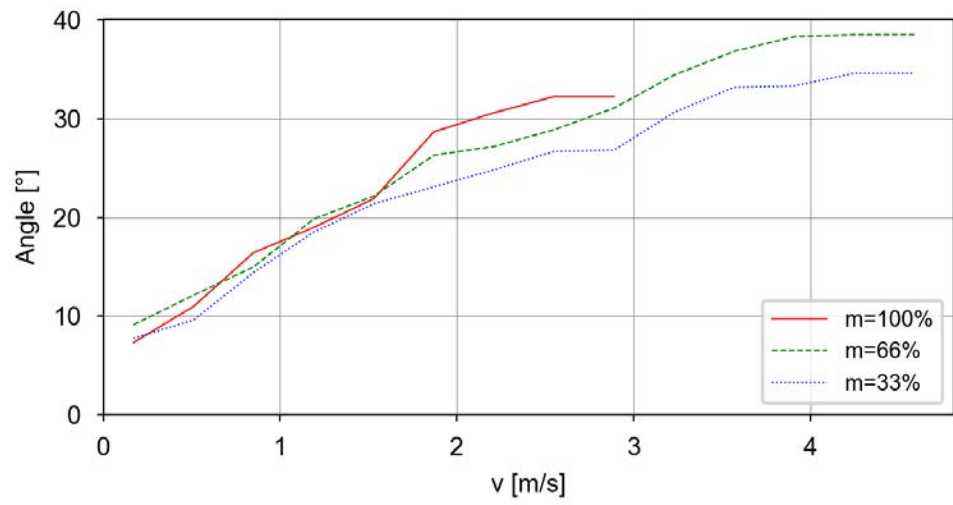
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## 2 Technical data for IRB 6710

### 2.10.6 IRB 6710-175/2.95 LID

Continued

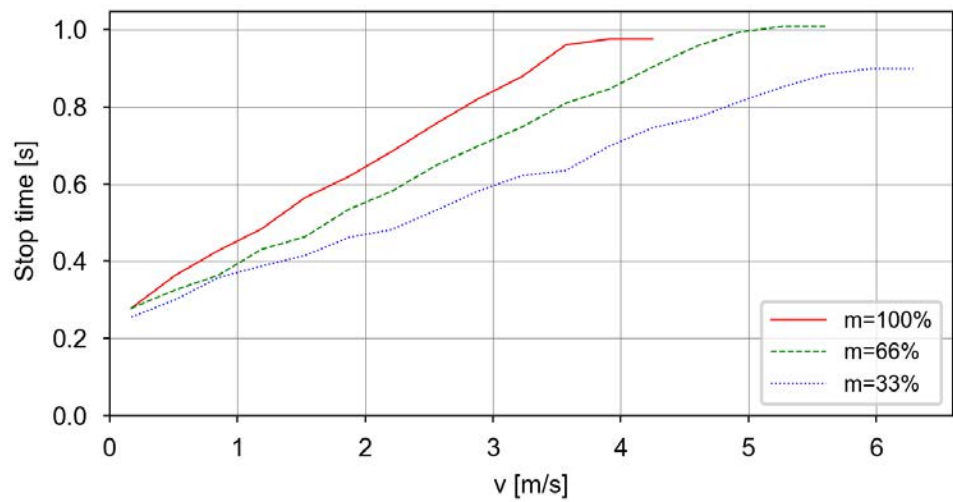
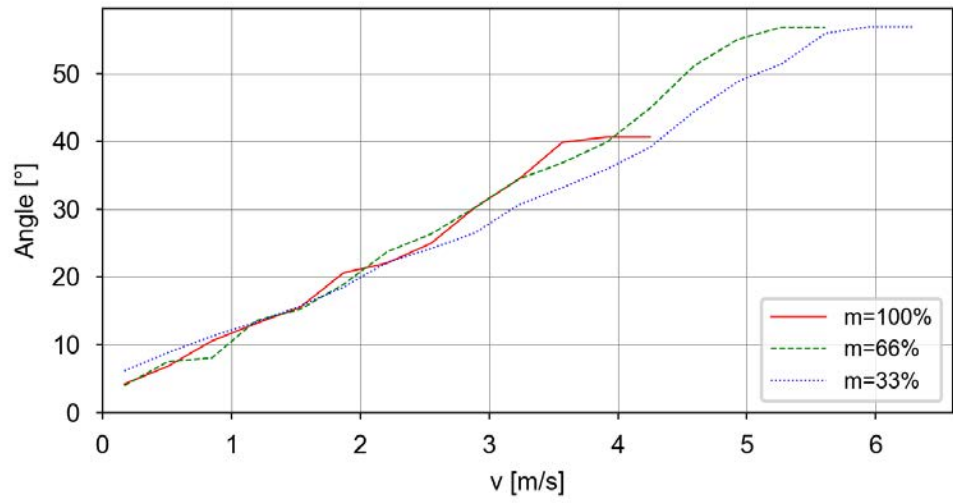
#### Category 1, Axis 1, Extension zone 1, stopping distance and stopping time



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Category 1, Axis 1, Extension zone 2, stopping distance and stopping time



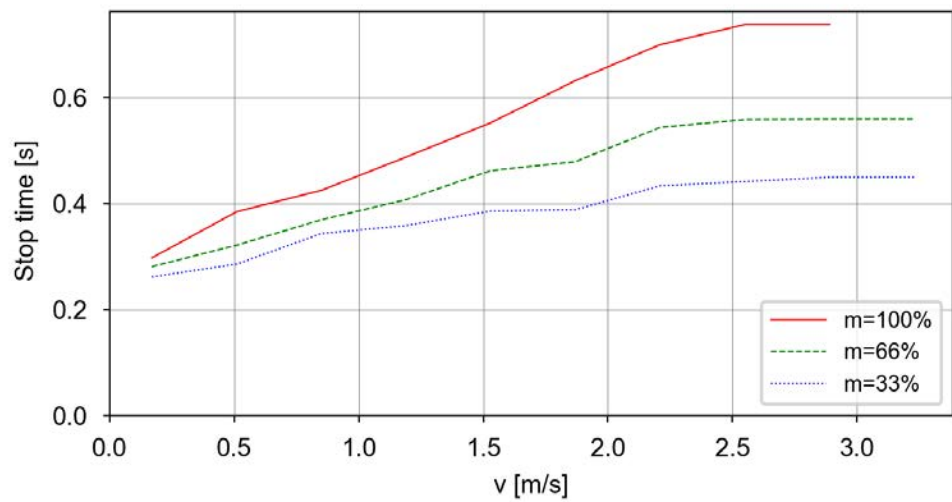
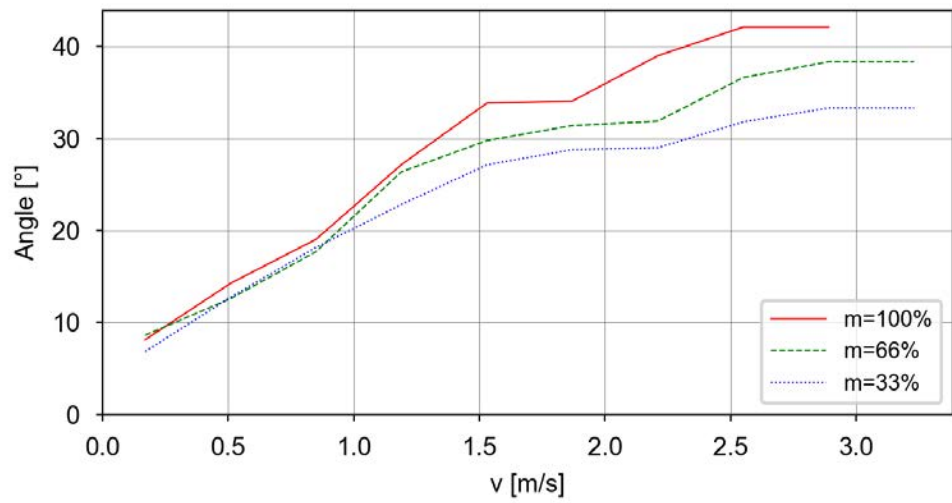
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## 2 Technical data for IRB 6710

### 2.10.6 IRB 6710-175/2.95 LID

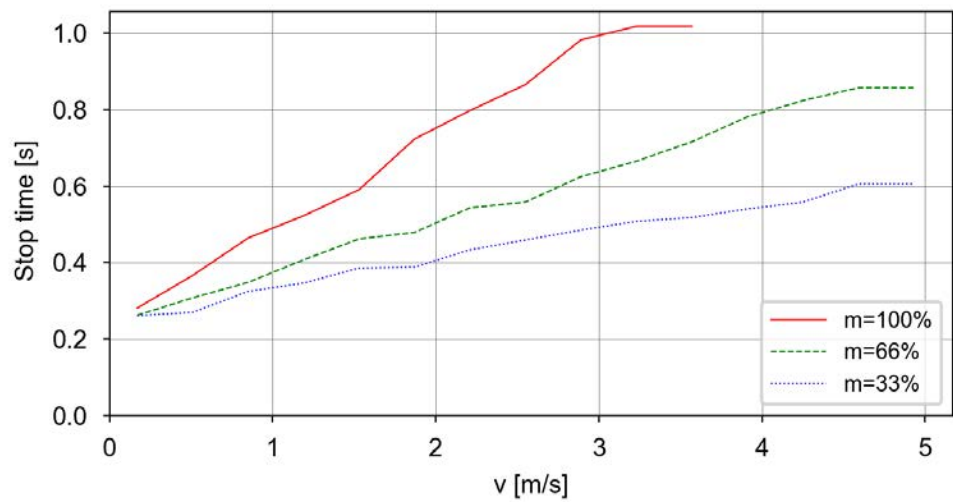
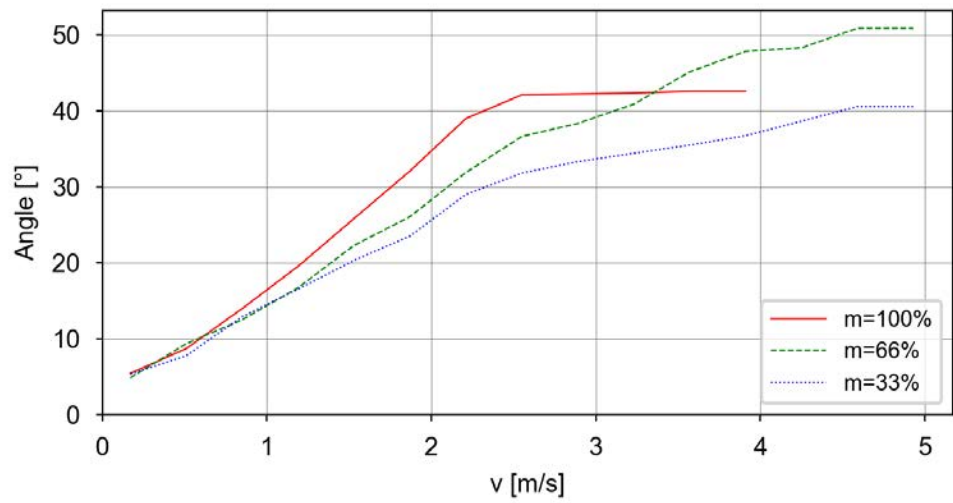
Continued

#### Category 1, Axis 2, Extension zone 0, stopping distance and stopping time



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Category 1, Axis 2, Extension zone 1, stopping distance and stopping time



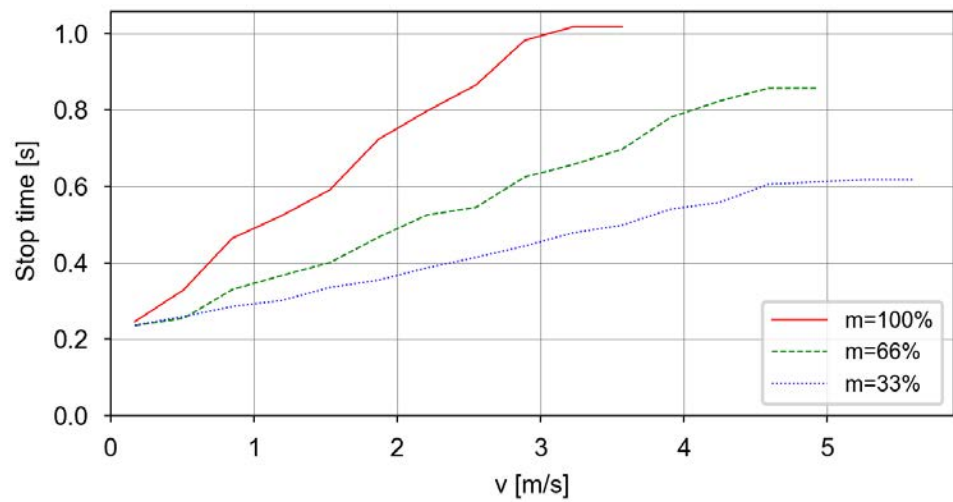
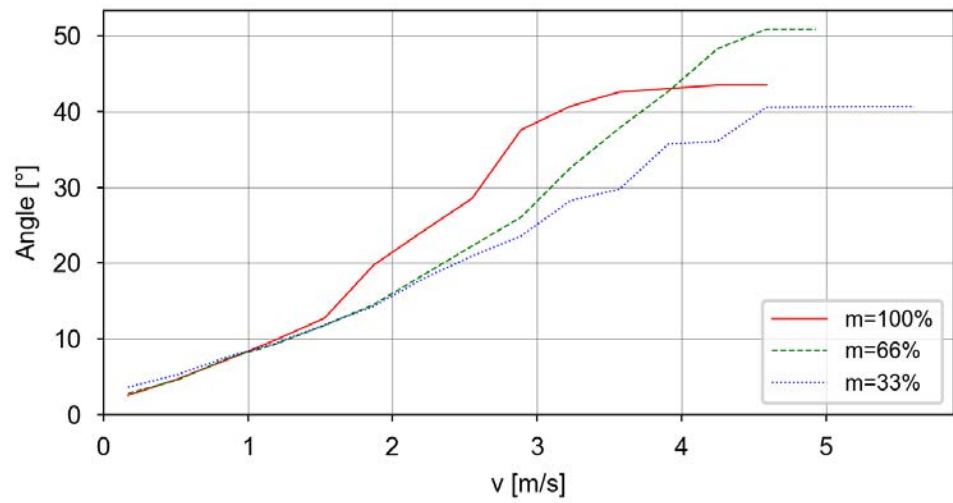
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## 2 Technical data for IRB 6710

### 2.10.6 IRB 6710-175/2.95 LID

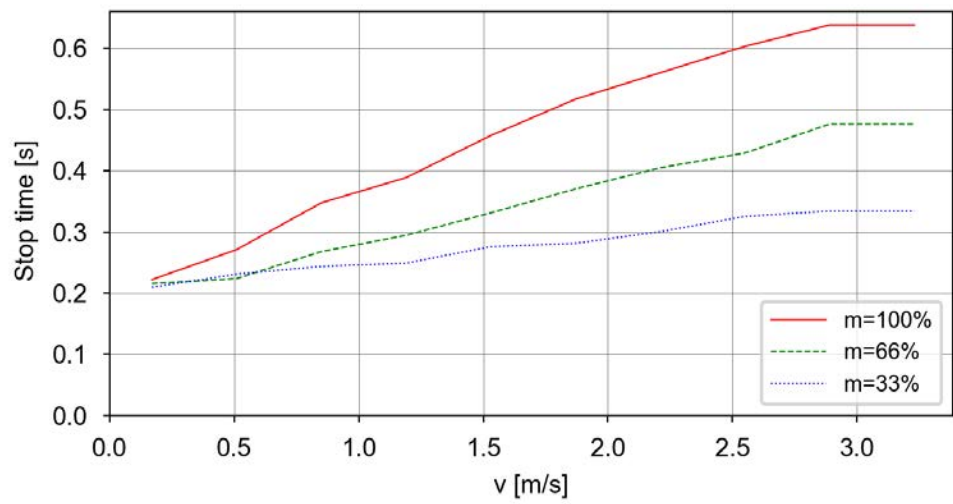
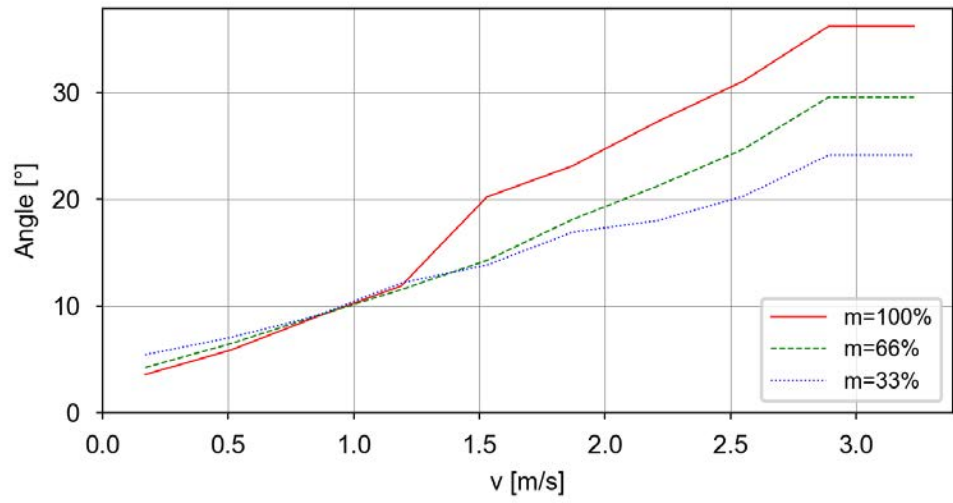
Continued

#### Category 1, Axis 2, Extension zone 2, stopping distance and stopping time



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Category 1, Axis 3, Extension zone 0, stopping distance and stopping time



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## 3 Specification of variants and options

### 3.1 Introduction to variants and options

---

#### General

The different variants and options for the IRB 6710 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.

## 3 Specification of variants and options

### 3.2 Manipulator

### 3.2 Manipulator

#### Variants

| Option number         | IRB Type | Handling capacity (kg) | Reach (m) | Remark       |
|-----------------------|----------|------------------------|-----------|--------------|
| 3300-330              | 6710     | 210 kg                 | 2.65 m    |              |
| 3300-331              | 6710     | 200 kg                 | 2.95 m    |              |
| 3300-332 <sup>i</sup> | 6710     | 175 kg                 | 2.65 m    | LID (LeanID) |
| 3300-333 <sup>i</sup> | 6710     | 175 kg                 | 2.95 m    | LID (LeanID) |

<sup>i</sup> The options 3300-332 and 3300-333 require option DressPack axis 3-6 [3326-x]

#### Color options

For our robots, Graphite White is the standard default color, option 209-202. Colors according to the RAL color system are available.

| Option            | Color  | RAL code <sup>i</sup> |
|-------------------|--|-----------------------|
| 209-1             | ABB orange standard<br>Standard color with protection option 3352-10<br>Foundry Plus2 67 | NCS 2070-Y60R         |
| 209-202           | ABB Graphite White std<br>Standard color with protection option 3350-670<br>Base 67      | RAL 7035              |
| 209 <sup>ii</sup> | RAL code should be specified (ABB non-standard colors)                                   |                       |

<sup>i</sup> The colors can differ depending on supplier and the material on which the paint is applied.

<sup>ii</sup> Only for robots with protection type *Base 67*.

For foundry applications or other extra tough environment, the orange color is recommended there is a risk of color changes over time. This is not affecting the function, only the visual impression.

The above colors are valid for manipulators. The accessories and spare parts are normally available in the standard color.



#### Note

The delivery time for painted spare parts is longer for non-standard colors.



xx2300000238 xx2300000239

#### Manipulator protection

The manipulator is available with the following protection types.

| Option   | Description      | Note |
|----------|------------------|------|
| 3350-670 | Base 67          | IP67 |
| 3352-10  | Foundry Plus2 67 | IP67 |

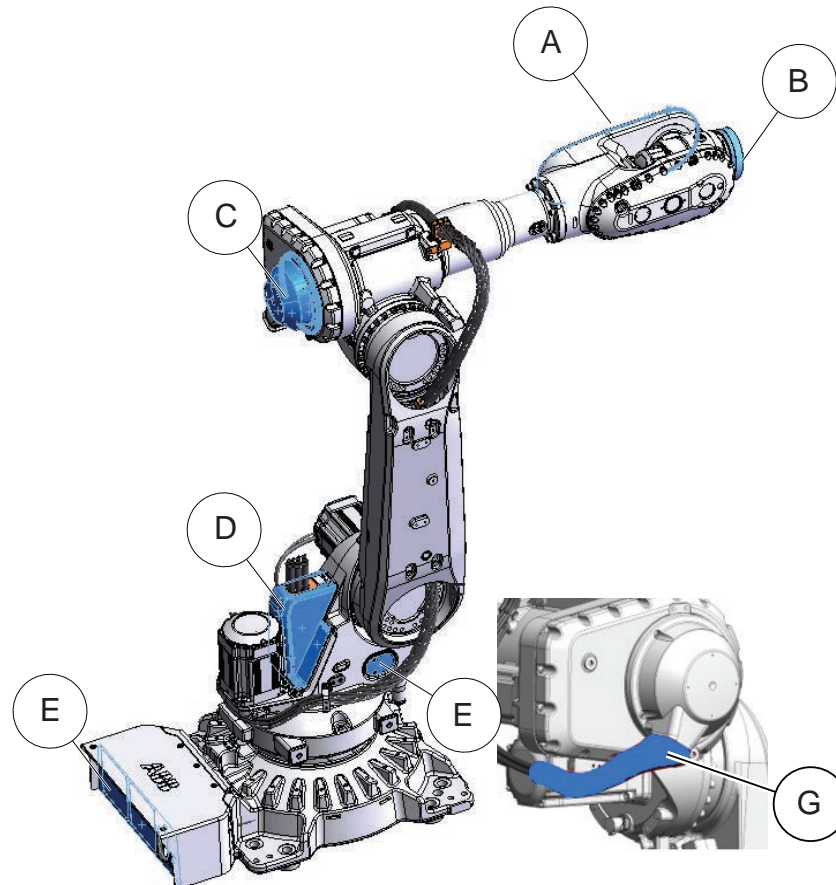
*Continues on next page*



The basic design (IP67) is well prepared for normal or tough environment. This includes electrical design following the IP67 standard, and stainless steel screw used for all add-on parts after painting.

For the extra tough environment, for example, foundry industries, the option *Foundry Plus2 67* is recommended. This has on top of the basic robot, also added extra protection of cables, extra sealings, protection plugs in customers or unused holes, added rust preventive, and special paint/surface treatment.

The below picture shows additional parts when choosing *Foundry Plus2 67*.



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| Pos | Description                                 |
|-----|---|
| A   | Rubber gasket                               |
| B   | Turning disc with Nickel-phosphorus coating |
| C   | Upgraded protective cover (polymer)         |
| D   | Protective cover (polymer)                  |
| E   | Sheet metal in stainless steel              |
| F   | Cover (polymer)                             |
| G   | Cable protection                            |

#### Requirements

The option *Foundry Plus2* requires option *Upper arm cover* [3316-1].

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### 3 Specification of variants and options

#### 3.2 Manipulator

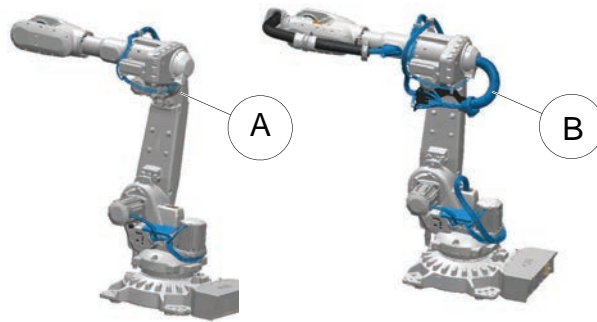
*Continued*

##### Foundry cable guard

| Option | Description         |
|--------|---------------------|
| 3315-1 | Foundry cable guard |

The manipulator can be equipped with additional cable guards for extra tough environmental conditions, for example, metals spits or frequent weld spatter. These additional covers will prolong cable lifetime and simplify service/maintenance as the robot is kept more clean under the covers.

The option *Foundry Cable Guard* is recommended for *Foundry Plus2*.



xx2100002623

|   |                                       |
|---|---------------------------------------|
| A | Foundry cable guard without DressPack |
| B | Foundry cable guard with DressPack    |

##### Requirements

The option *Foundry Cable Guard* requires option *Upper arm cover* [3316-1].

##### Upper arm cover

| Option | Description     |
|--------|-----------------|
| 3316-1 | Upper arm cover |

The manipulator can be equipped with additional upper arm covers for environmental conditions, where you want to further seal off the upper arm in wet

*Continues on next page*

or dirty conditions. These additional covers will prolong the lifetime of the cables, and simplify service/maintenance as the robot is kept more clean under the covers.



xx2100002592

#### Requirements

This option is mandatory to order with the option *Foundry Plus2* [3352-10].

This option is mandatory to order with the option *Foundry Cable Guard* [3315-1].

This option is mandatory to order with the option *DressPack axis 3-6* [3326-x].

#### Limitations

#### Forklift device

The manipulator can be delivered with forklift devices, allowing a forklift to be used when moving the manipulator.

| Option | Description   |                     |
|--------|---|---------------------|
| 3318-1 | Forklift device on base<br>Forklift pockets placed on the base gives a low lifting point. | <p>xx2300001244</p> |

#### Resolver connection 7th axis

| Option | Description   |
|--------|---|
| 3322-1 | On base   |
| 3322-2 | In servo DressPack<br>Requires options for DressPack base-axis 3. |

Continues on next page

### 3 Specification of variants and options

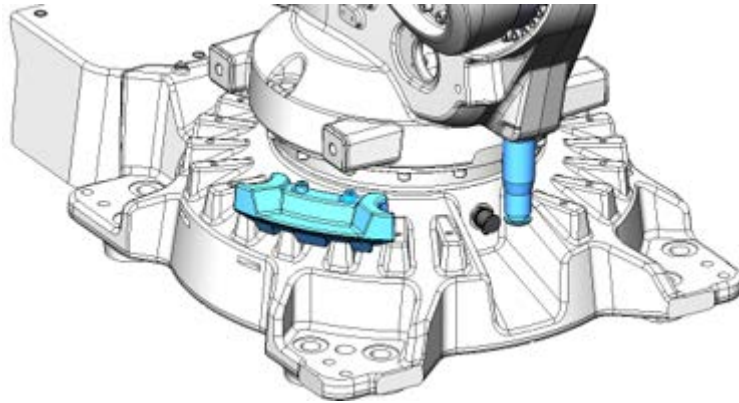
#### 3.2 Manipulator

*Continued*

##### Limited working range

| Option | Description           |
|--------|-----------------------|
| 3323-1 | Axis 1 adjustable 15° |

The manipulator can be equipped with adjustable mechanical stops. This is to mechanically limit the working range on axis 1. The mechanical stops are delivered alongside the robot (not installed). The stops can be placed in steps of 15 degrees. For detailed information see [Installing movable mechanical stops on axis 1 \(option 3323-1\) on page 53](#).



xx2100002595

##### Extended working range

| Option | Description               |  |
|--------|---------------------------|--|
| 3324-1 | Axis 1 to $\pm 220^\circ$ | The option extends the working range on axis 1 from $\pm 170^\circ$ to $\pm 220^\circ$ . |



#### CAUTION

The option *Extended work range* enables an extension of the working range for axis 1, through a software configuration. With this option installed, the working range can exceed the range limited by the mechanical stop on axis 1. The working range shall be limited through the option *SafeMove*.

A risk analysis must be done to ensure that no risks remain when using option *Extended work range*, to limit the working range, and before removing the mechanical stops.

For information about the option *SafeMove*, see *Application manual - Functional safety and SafeMove*.

If the mechanical stop is removed, then the manipulator should have a marking for this, for example, a label. If the robot is delivered with the option *Extended work range*, then such a label is included on delivery.

##### Requirements

This option requires the option *SafeMove* [3043-x].

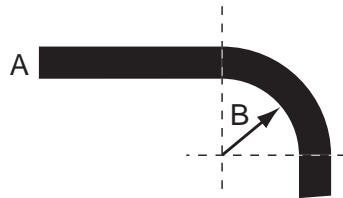
3.3 Floor cables

Manipulator cable - Length

| Option | Description |
|--------|-------------|
| 3200-2 | 7 m         |
| 3200-3 | 15 m        |
| 3200-4 | 22 m        |
| 3200-5 | 30 m        |

Bending radius for static floor cables

The minimum bending radius is 10 times the cable diameter for static floor cables.



xx1600002016

|   |              |
|---|--------------|
| A | Diameter     |
| B | Diameter x10 |

## 3 Specification of variants and options

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### 3.4.1 Overview of DressPack options

## 3.4 Application

### 3.4.1 Overview of DressPack options

---

#### General

The DressPack is built in sections with connection interfaces in between. The cables for customer connection are partly integrated in the robot and the connectors are placed at axis 6, axis 3, and at the base. Depending on what signals are required, there are different variants available (Parallel, EtherNet) with corresponding connections at axis 6, axis 3, and at the base interface.

|          |   |
|----------|---|
| Parallel | PROC1 (1/2" Hose for compressed air) & CP/CS<br>Hose (1/2") for compressed air is included in all DressPack variants. There is one inlet at the base (M22x1.5), one outlet at axis 3 (M22x1.5), and a free end at axis 6. |
| EtherNet | PROC1, CP/CS, EtherNet & FE (functional earth)  |

#### Requirements

Upper arm DressPack requires lower arm DressPack.

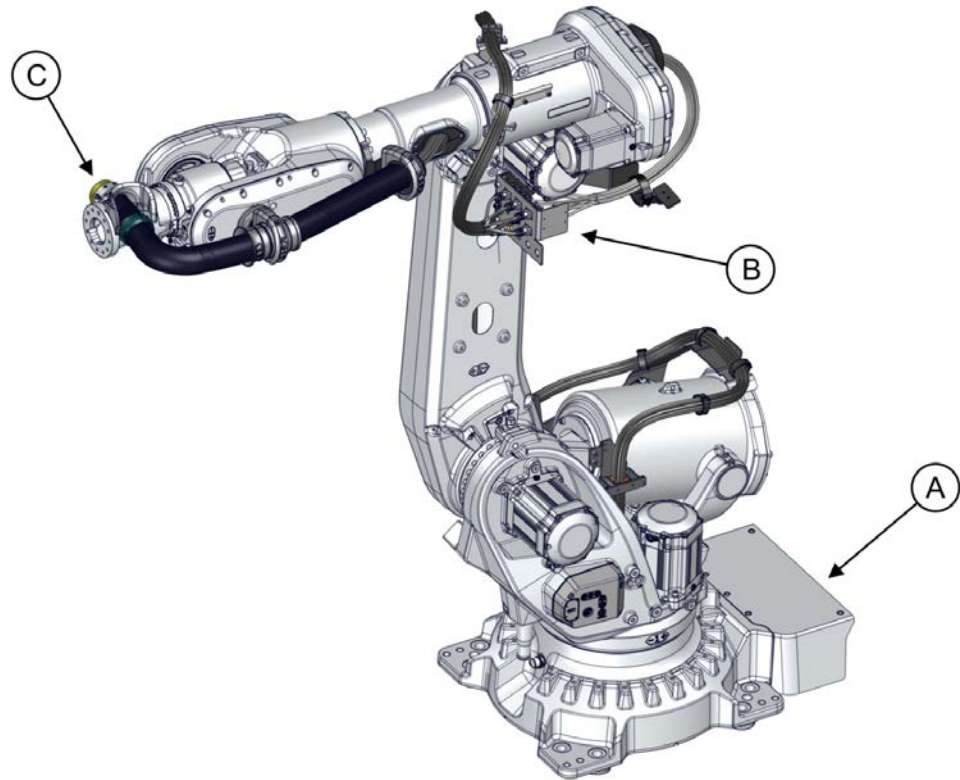
LID manipulator variants can only use LID DressPack.

LID manipulator variants require both lower and upper arm DressPack.

#### 3.4.2 DressPack for material handling

##### Connection interfaces

Below is an overview showing the DressPack connection points. For detailed information see *Circuit diagram - IRB 6710/IRB 6720/IRB 6730/IRB 6740*, listed in [References on page 7](#).



xx2300001353

|   |        |
|---|--------|
| A | Base   |
| B | Axis 3 |
| C | Axis 6 |

##### Manipulator DressPack MH

| Base to axis 3 | Axis 3 to axis 6               |
|----------------|--------------------------------|
| 3325-11        | 3326-11 (MH3)                  |
|                | 3326-30 (LeanID empty conduit) |
|                | 3326-31 (LeanID - MH)          |
| 3325-13        | 3326-13 (MH3)                  |
|                | 3326-30 (LeanID empty conduit) |
|                | 3326-33 (LeanID - MH)          |

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### 3 Specification of variants and options

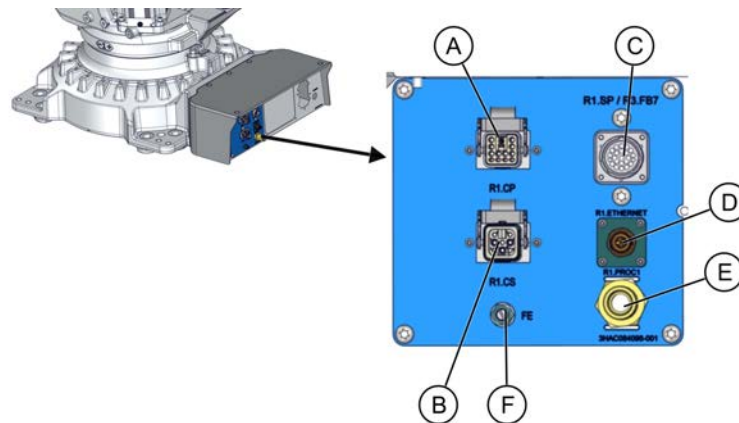
#### 3.4.2 DressPack for material handling

Continued

#### DressPack MH base to axis 3

| Option  | Description | Note  | Connectors  |
|---------|-------------|---|---|
| 3325-11 | MH Parallel | Lower arm MH  | Customer power (CP), customer signal (CS), and PROC1                                  |
| 3325-13 | MH EtherNet | Lower arm MH<br>Includes parallel signals.<br>Supports ProfiNet, EtherNet/IP. | Customer power (CP), customer signal (CS), ETHERNET, PROC1, and functional earth (FE) |

#### Connection plate at base for DressPack MH



xx2300000241

|   |                       |
|---|-----------------------|
| A | Customer power (CP)   |
| B | Customer signal (CS)  |
| C | Servo Power (SP)      |
| D | ETHERNET              |
| E | PROC1 (1/2" hose)     |
| F | Functional earth (FE) |

For corresponding parts of the tool, see [Connector kits manipulator on page 139](#).

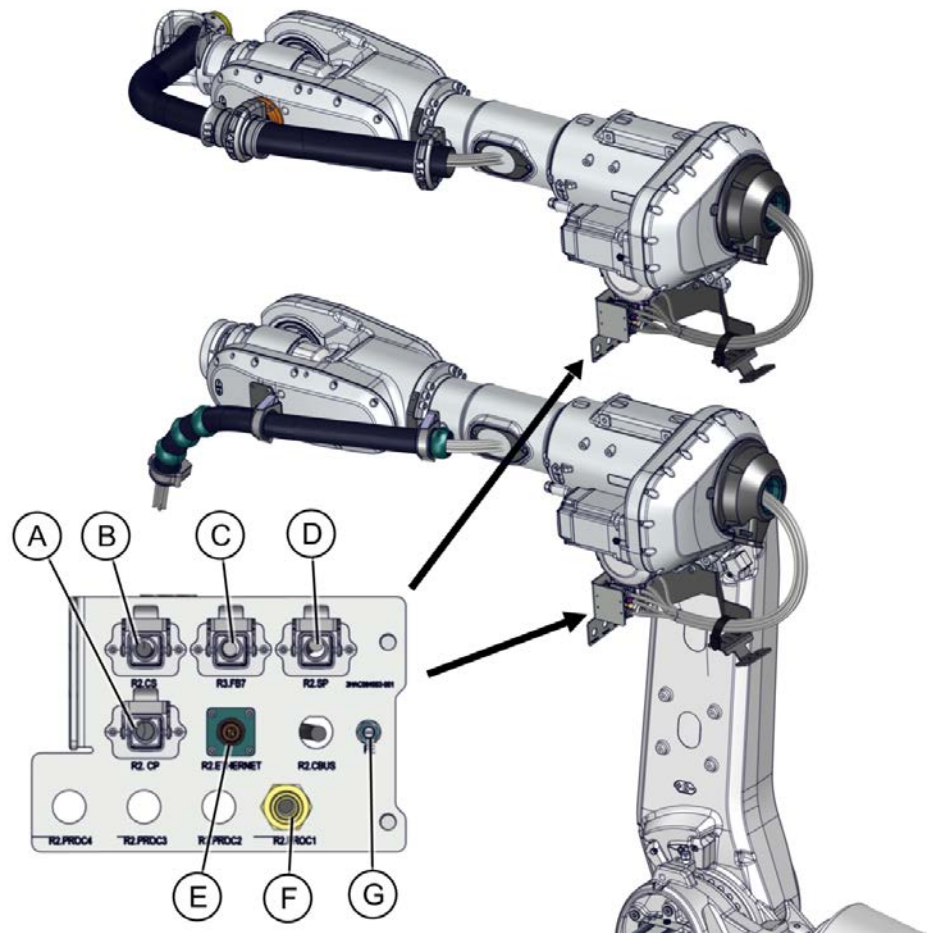
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### 3 Specification of variants and options

#### 3.4.2 DressPack for material handling Continued

Connection plate at axis 3 for DressPack MH, MH3 and LeanID MH



xx2300000246

|   |                       |
|---|-----------------------|
| A | Customer power (CP)   |
| B | Customer signal (CS)  |
| C | Servo feedback (FB)   |
| D | Servo power (SP)      |
| E | ETHERNET              |
| F | PROC 1 (1/2" hose)    |
| G | Functional earth (FE) |

For corresponding parts of the tool, see [Connector kits manipulator on page 139](#).

#### DressPack axis 3 to axis 6

| Option  | Description  | Note          | Connectors   |
|---------|--------------|---------------|--|
| 3326-11 | MH3 Parallel | Upper arm MH3 | Customer power (CP), customer signal (CS), and PROC1 |

Continues on next page

### 3 Specification of variants and options

#### 3.4.2 DressPack for material handling

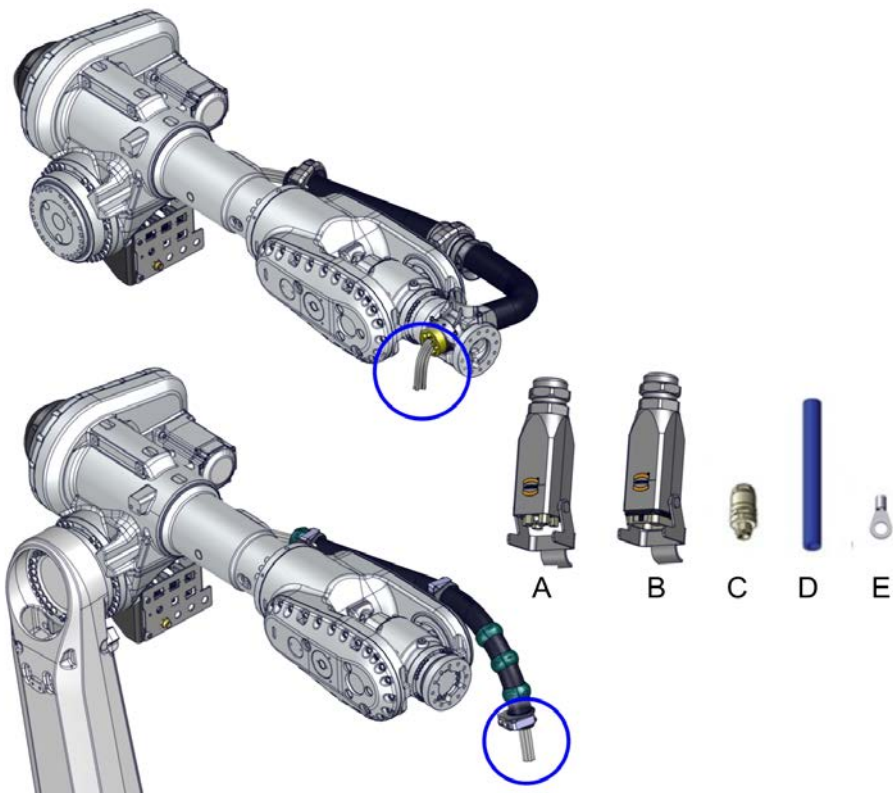
Continued

| Option  | Description          | Note  | Connectors   |
|---------|----------------------|---|--|
| 3326-13 | MH3 EtherNet         | Upper arm MH3<br>Includes parallel signals,<br>Supports ProfiNet, EtherNet/IP | Customer power (CP),<br>customer signal (CS),<br>ETHERNET, PROC1, and<br>functional earth (FE) |
| 3326-30 | MH LID Empty Conduit | LeanID  |  |
| 3326-31 | MH LID Parallel      | LeanID MH   | Customer power (CP),<br>customer signal (CS), and<br>PROC1                                     |
| 3326-33 | MH LID EtherNet      | LeanID MH<br>Includes parallel signals,<br>Supports ProfiNet, EtherNet/IP     | Customer power (CP),<br>customer signal (CS),<br>ETHERNET, PROC1, and<br>functional earth (FE) |

End connectors at axis 6 for DressPack MH3 and LeanID MH

MH3: Hose and cable free length, 1,000 mm

LID: Hose and cable free length, 1,000 mm



xx2300000247

|   |                       |
|---|-----------------------|
| A | Customer power (CP)   |
| B | Customer signal (CS)  |
| C | ETHERNET              |
| D | PROC 1 (1/2" hose)    |
| E | FE (functional earth) |

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### 3 Specification of variants and options

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#### 3.4.2 DressPack for material handling

*Continued*

For corresponding parts of the tool, see [Connector kits manipulator on page 139](#).

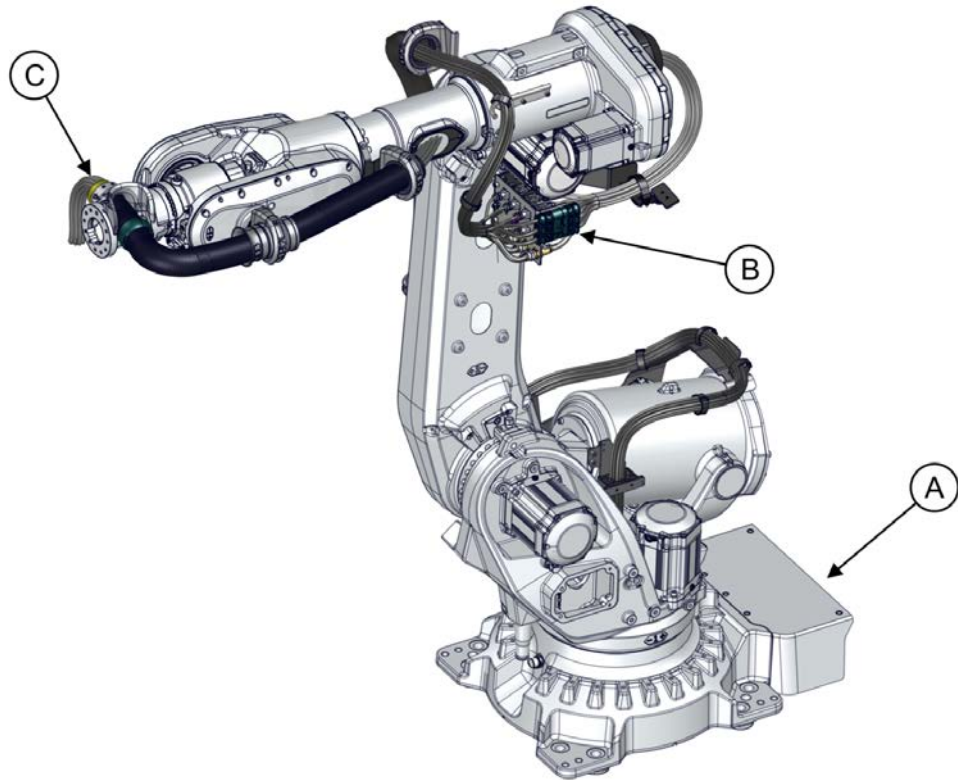
### 3 Specification of variants and options

#### 3.4.3 DressPack for spotwelding

#### 3.4.3 DressPack for spotwelding

##### Connection interfaces

Below is an overview showing the DressPack connection points. For detailed information see *Circuit diagram - IRB 6710/IRB 6720/IRB 6730/IRB 6740*, listed in [References on page 7](#).



xx2300001354

|   |        |
|---|--------|
| A | Base   |
| B | Axis 3 |
| C | Axis 6 |

##### Manipulator DressPack SW

| Base to axis 3 | Axis 3 to axis 6               |
|----------------|--------------------------------|
| 3325-61        | 3326-61 (LeanID SW)            |
|                | 3326-50 (LeanID Empty Conduit) |
| 3325-63        | 3326-63 (LeanID SW)            |
|                | 3326-50 (LeanID Empty Conduit) |

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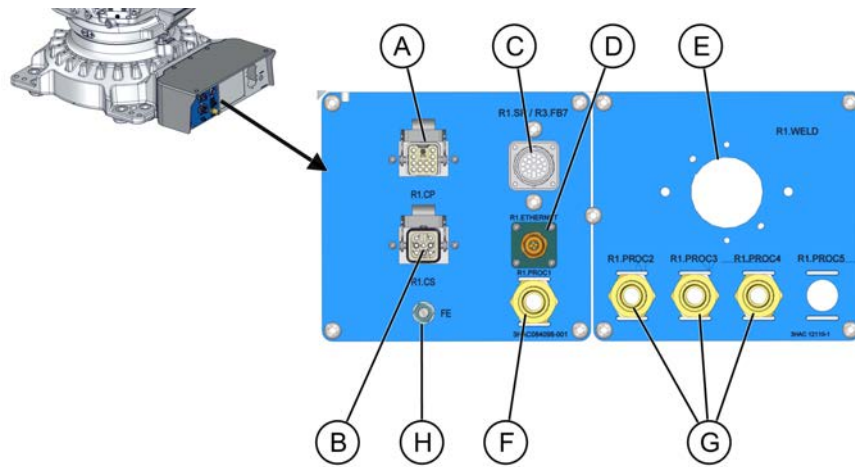
### 3 Specification of variants and options

#### 3.4.3 DressPack for spotwelding Continued

#### DressPack SW base to axis 3

| Option  | Description       | Note   | Connectors   |
|---------|-------------------|--|--|
| 3325-61 | SW Parallel-Servo | Lower arm SW   | Customer power (CP), customer signal (CS), Servo power (SP), Servo feedback (FB) |
| 3325-63 | SW Ethernet-Servo | Lower arm SW<br>Includes parallel signals.<br>Supports ProfiNet, Ether-<br>tIP | Customer power (CP), customer signal (CS), Servo power (SP), Servo feedback (FB) |

#### Connection plate at base for DressPack SW



xx2300000250

|   |  |
|---|--|
| A | Customer power (CP)                                    |
| B | Customer signal (CS)                                   |
| C | Servo Power (SP)                                       |
| D | ETHERNET   |
| E | WELD3 x 35 mm <sup>2</sup> (spot welding)              |
| F | PROC1 (1/2" hose)                                      |
| G | PROC2-4 (spot welding 1/2", M22 x 1.5, 24 degree seal) |
| H | Functioning earth (FE)                                 |

For corresponding parts of the tool, see [Connector kits manipulator on page 139](#).

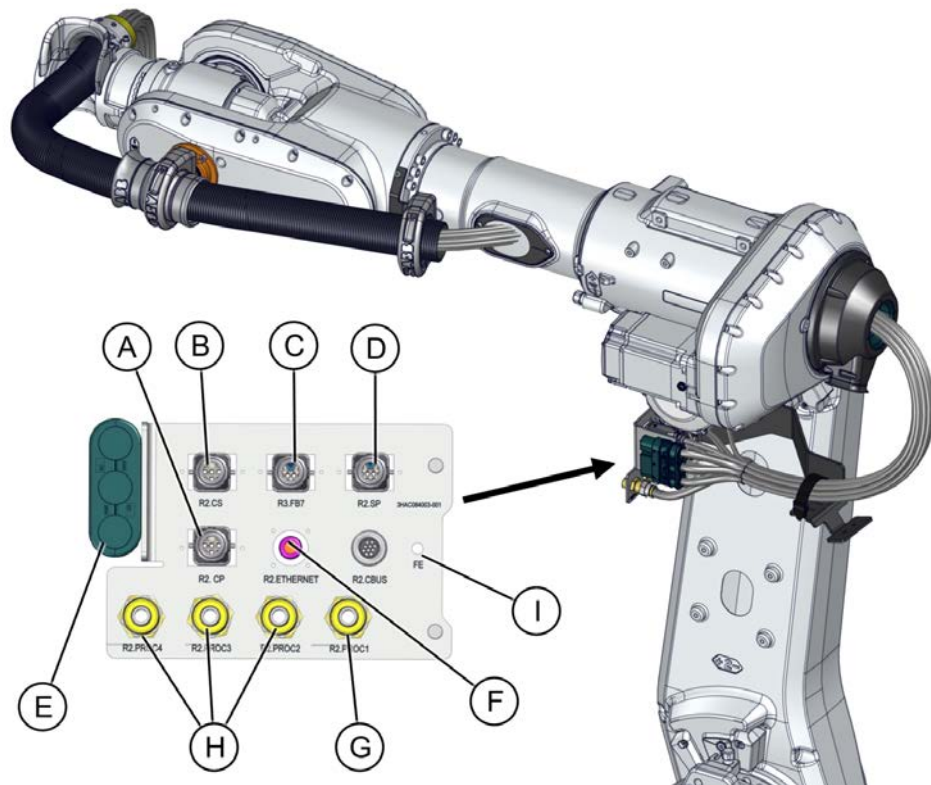
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### 3 Specification of variants and options

#### 3.4.3 DressPack for spotwelding

Continued

Connection plate at axis 3 for DressPack SW and LeanID SW



xx2300000251

|   |  |
|---|--|
| A | Customer power (CP)                                    |
| B | Customer signal (CS)                                   |
| C | Servo feedback (FB)                                    |
| D | Servo power (SP)                                       |
| E | ETHERNET   |
| F | WELD3 x 25 mm <sup>2</sup> (spot welding)              |
| G | PROC1 (1/2" hose)                                      |
| H | PROC2-4 (spot welding 1/2", M22 x 1.5, 24 degree seal) |
| I | Functional earth (FE)                                  |

For corresponding parts of the tool, see [Connector kits manipulator on page 139](#).

#### DressPack axis 3 to axis 6

| Option  | Description           | Note             | Connectors                                |
|---------|-----------------------|------------------|---|
| 3326-50 | LeanID Empty Conduit  | Upper arm        |   |
| 3326-61 | SW LID Parallel-Servo | Upper arm SW LID | Customer power (CP), customer signal (CS) |

Continues on next page

### 3 Specification of variants and options

#### 3.4.3 DressPack for spotwelding

*Continued*

| Option  | Description           | Note   | Connectors                                   |
|---------|-----------------------|--|--|
| 3326-63 | SW LID EtherNet-Servo | Upper arm SW LID<br>Includes parallel signals.<br>Supports ProfiNet, EtherNet-IP | Customer power (CP),<br>customer signal (CS) |

End connectors at axis 6 for DressPack LeanID SW

For corresponding parts of the tool, see [Connector kits manipulator on page 139](#).

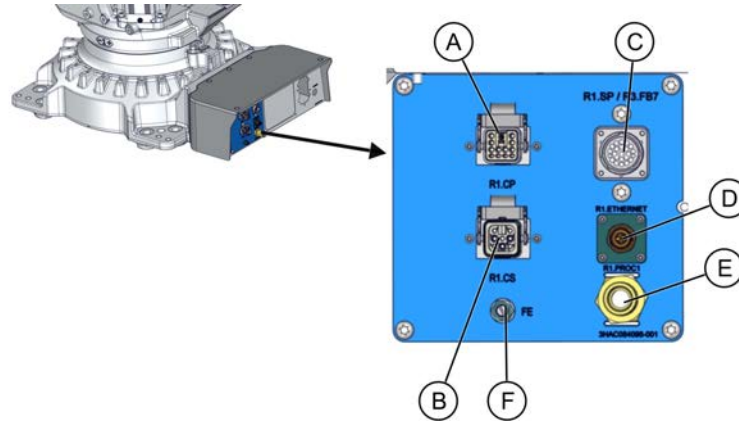
### 3 Specification of variants and options

#### 3.4.4 Configuration result of DressPack options

#### 3.4.4 Configuration result of DressPack options

##### DressPack options for material handling (MH)

The DressPack contents will differ depending on selected options. See table for signal content below.



xx2300000241

|   |                       |
|---|-----------------------|
| A | Customer power (CP)   |
| B | Customer signal (CS)  |
| C | Servo Power (SP)      |
| D | ETHERNET              |
| E | PROC1 (1/2" hose)     |
| F | Functional earth (FE) |

|   | Type                                 | At terminals in cabinet | At connection point; base, axis 3, or axis 6 | Cable/part area        | Allowed capacity                       |
|---|--------------------------------------|-------------------------|--|------------------------|--|
| A | <b>Customer Power (CP)</b>           |                         |  |                        |  |
|   | Utility power                        | 2+2                     | 2+2  | 0.75 mm <sup>2</sup>   | 250 V AC, 5 A rms                      |
|   | Protective earth                     |                         | 1  | 0.75 mm <sup>2</sup>   | 250 V AC                               |
| B | <b>Customer Signal (CS)</b>          |                         |  |                        |  |
|   | Signals                              | 13                      | 13   | 0.2 mm <sup>2</sup>    | 50 V DC, 1 A rms                       |
|   | Signals separate shielded            | 8                       | 8 (4x2)                                      | 0.2 mm <sup>2</sup>    | 50 V DC, 1 A rms                       |
| D | <b>Customer bus (Ethernet)</b>       |                         |  |                        |  |
|   | Bus signals                          | 4                       | 4  | 0.4 mm <sup>2</sup>    | Ethernet CAT 5e, 100 Mbit <sup>i</sup> |
| E | <b>Media</b>                         |                         |  |                        |  |
|   | Air (PROC 1)                         |                         | 1  | 12.5 mm inner diameter | Max. air pressure 16 bar/230 PSI       |
| F | <b>Functional Earth<sup>ii</sup></b> |                         | 1  | 10 mm <sup>2</sup>     | 600 V AC RMS                           |

<sup>i</sup> Ethernet with wire colors according to PROFINET standard, M12-connectors.

<sup>ii</sup> When EtherNet is selected.

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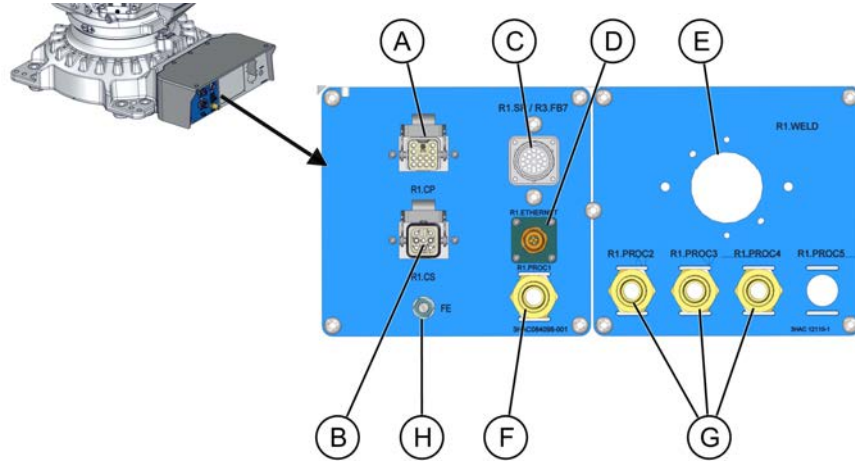
### 3 Specification of variants and options

#### 3.4.4 Configuration result of DressPack options

*Continued*

#### DressPack options for spotwelding (SW)

The DressPack contents will differ depending on selected options. See table for signal content below.



xx230000250

|   |  |
|---|--|
| A | Customer power (CP)                                    |
| B | Customer signal (CS)                                   |
| C | Servo Power (SP)                                       |
| D | ETHERNET   |
| E | WELD3 x 35 mm <sup>2</sup> (spot welding)              |
| F | PROC1 (1/2" hose)                                      |
| G | PROC2-4 (spot welding 1/2", M22 x 1.5, 24 degree seal) |
| H | Functional earth (FE)                                  |

|   | Type                              | At terminals in cabinet | At connection point; base, axis 3, or axis 6 | Cable/part area      | Allowed capacity          |
|---|-----------------------------------|-------------------------|--|----------------------|---------------------------|
| A | <b>Customer Power (CP)</b>        |                         |  |                      |                           |
|   | Utility power                     | 3                       | 3  | 1.5 mm <sup>2</sup>  | 250 V AC, 5 A rms         |
|   | Protective earth                  | 1                       | 1  | 1.5 mm <sup>2</sup>  | 250 V AC                  |
|   | Utility power                     | 4                       | 4  | 0.5 mm <sup>2</sup>  | 50 V DC, 1 A rms          |
| B | <b>Customer Signal (CS)</b>       |                         |  |                      |                           |
|   | Signals shielded                  |                         | 8 (4x2)                                      | 0.24 mm <sup>2</sup> | 30 V AC, 42 V DC, 1 A rms |
| C | <b>Servo motor signals (SP)</b>   |                         |  |                      |                           |
|   | Servo motor power                 | At drive                | 3  | 1.5 mm <sup>2</sup>  | 600 VAC, 12 A rms         |
|   | Protective earth                  | At drive                | 1  | 1.5 mm <sup>2</sup>  | 600 VAC                   |
|   | Signals twisted pair for resolver |                         | 6  | 0.23 mm <sup>2</sup> | 50 V DC, 1 A rms          |
|   | Brake                             |                         | 2  | 0.5 mm <sup>2</sup>  | 50 V DC, 1 A rms          |
|   | Temperature control/PTC           |                         | 2  | 0.5 mm <sup>2</sup>  | 50 V DC, 1 A rms          |

*Continues on next page*

### 3 Specification of variants and options

#### 3.4.4 Configuration result of DressPack options

Continued

|   | Type   | At terminals in cabinet | At connection point; base, axis 3, or axis 6 | Cable/part area                                     | Allowed capacity                       |
|---|--|-------------------------|--|---|--|
| D | <b>Customer bus (Ethernet)</b>                   |                         |  |   |  |
|   | Bus signals                                      | 4                       | 4  | 0.4 mm <sup>2</sup>                                 | Ethernet CAT 5e, 100 Mbit <sup>i</sup> |
| E | <b>Welding power (WELD3 x 35 mm<sup>2</sup>)</b> |                         |  |   |  |
|   | Lower and upper arm                              |                         | 2  | 35 mm <sup>2</sup> ii                               | 600 VAC, 150 A rms at 20°C (68°F)      |
|   | Protective earth (lower and upper arm)           |                         | 1  |   |  |
| F | <b>Media</b>                                     |                         |  |   |  |
|   | Air (PROC 1)                                     |                         | 1  | 12.5 mm inner diameter                              | Max. air pressure 16 bar/230 PSI       |
| G | <b>Media</b>                                     |                         |  |   |  |
|   | (PROC2-4)  |                         | 3  | 12.5 mm inner diameter<br>M22 x 1.5, 24 degree seal | Max. air pressure 16 bar/230 PSI       |
| H | <b>Functional Earth</b> iii                      |                         | 1  | 10 mm <sup>2</sup>                                  | 600 V AC RMS                           |

i Ethernet with wire colors according to PROFINET standard, M12-connectors.

ii For LeanID upper arm 25 mm<sup>2</sup>, 135 A rms

iii When EtherNet is selected.

#### Empty conduit options

The dimension and requirements for empty cable conduit options are described in the product manual for the DressPack, see [References on page 7](#).



### 3 Specification of variants and options

#### 3.4.5.1 Base - Connector kits

#### 3.4.5.1 Base - Connector kits

##### Available options

| Option | Name               | DressPack options |            |            |
|--------|--------------------|-------------------|------------|------------|
|        |                    | 3325-11/13        | 3325-51/53 | 3325-61/63 |
| 3330-2 | CP/CS, Proc 1 base | X                 | X          |            |
| 3331-1 | Weld Proc 2-4 base |                   | X          | X          |
| 3332-1 | FB7 on base        |                   |            |            |



##### Note

Servo power connector kits are not available.

##### Option 3330-2, CP/CS, Proc 1 on base

This option offers a kit with connectors. This must be assembled by the customer. The kit contains the following components.

##### CP

| Amount | Description          | Size, material, etc.    | Brand   |
|--------|----------------------|-------------------------|---------|
| 1      | Hood pegs, Han 3A    |                         | Harting |
| 1      | Insert, female, 12p  |                         | Harting |
| 8      | Crimp contact female | For 0.5 mm <sup>2</sup> |         |
| 8      | Crimp contact female | For 1.0 mm <sup>2</sup> |         |
| 8      | Crimp contact female | For 1.5 mm <sup>2</sup> |         |
| 8      | Crimp contact female | For 2.5 mm <sup>2</sup> |         |
| 2      | Coding pin, Han      |                         | Harting |
| 1      | Screw M3 with seal   |                         | Harting |

##### CS

| Amount | Description          | Size, material, etc.          | Brand   |
|--------|----------------------|-------------------------------|---------|
| 1      | Hood pegs, Han 3A    |                               | Harting |
| 1      | Insert, female, 8p   |                               | Harting |
| 8      | Crimp contact female | For 0.14–0.37 mm <sup>2</sup> |         |
| 1      | Screw M3 with seal   |                               | Harting |

##### Media

| Amount | Description   | Size, material, etc.  | Brand |
|--------|---------------|-----------------------|-------|
| 1      | Hose coupling | 1/2", M22 x 1.5 Brass |       |

##### Ethernet

| Amount | Description                 | Size, material, etc.          | Brand |
|--------|-----------------------------|-------------------------------|-------|
| 1      | M12 Connector, Male, D-code | For 0.14–0.34 mm <sup>2</sup> |       |

Continues on next page

### 3 Specification of variants and options

#### 3.4.5.1 Base - Connector kits

*Continued*

#### Option 3331-1, Weld Proc 2-4 base

This option offers a kit with connectors. This must be assembled by the customer. The kit contains the following components.

#### WELD

| Amount | Description               | Size, material, etc.        | Brand   |
|--------|---------------------------|-----------------------------|---------|
| 1      | Welding connector, female | For 3x35 mm <sup>2</sup>    | Stäubli |
| 1      | Shrinking hose with glue  | 20 mm                       |         |
| 1      | End-housing               |                             | Stäubli |
| 1      | Cable gland               | For cable diameter 24-28 mm |         |
| 1      | Reducing coupling         | PG36/PG29                   |         |
| 4      | Hose fitting              | 1/2", M22 x 1.5 Brass       |         |
| 1      | Adapter                   | M50x1.5 / PG 36             |         |

#### Option 3332-1, FB7 on base

This option offers a kit with connectors. This must be assembled by the customer. The kit contains the following components.

#### FB

| Amount | Description               | Size, material, etc.          | Brand |
|--------|---------------------------|-------------------------------|-------|
| 1      | Connector, 8p, Male       | UTOW                          |       |
| 15     | Pin                       | For 0.13–0.26 mm <sup>2</sup> |       |
| 1      | Shrink boot adapter       |                               |       |
| 1      | Bottle shaped shrink boot |                               |       |

### 3 Specification of variants and options

#### 3.4.5.2 Axis 3 - Connector kits

#### 3.4.5.2 Axis 3 - Connector kits

##### Available options

| Option | Name                     | DressPack options |            |            |
|--------|--------------------------|-------------------|------------|------------|
|        |                          | 3326-11/13        | 3326-51/53 | 3326-61/63 |
| 3333-2 | CP/CS bus, Proc 1 axis 3 | X                 |            |            |
| 3333-3 | CP/CS Proc1, Servo & FB  |                   |            | X          |

##### Option 3333-2, CP/CS/CBus, Proc 1 axis 3

This option offers a kit with connectors. This must be assembled by the customer. The kit contains the following components.

##### CP

| Amount | Description        | Size, material, etc.    | Brand   |
|--------|--------------------|-------------------------|---------|
| 1      | Hood pegs, Han 3A  |                         | Harting |
| 1      | Insert, male, 12p  |                         | Harting |
| 8      | Crimp contact male | For 0.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.0 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 2.5 mm <sup>2</sup> |         |
| 2      | Coding pin, Han    |                         | Harting |
| 1      | Screw M3 with seal |                         | Harting |

##### CS

| Amount | Description        | Size, material, etc.          | Brand   |
|--------|--------------------|-------------------------------|---------|
| 1      | Hood pegs, Han 3A  |                               | Harting |
| 1      | Insert, male, 8p   |                               | Harting |
| 8      | Crimp contact male | For 0.14–0.37 mm <sup>2</sup> |         |
| 1      | Screw M3 with seal |                               | Harting |

##### Media

| Amount | Description                       | Size, material, etc.  | Brand |
|--------|-----------------------------------|-----------------------|-------|
| 1      | Hose coupling<br>Parker Push lock | 1/2", M22 x 1.5 Brass |       |

##### Ethernet

| Amount | Description                 | Size, material, etc.          | Brand |
|--------|-----------------------------|-------------------------------|-------|
| 1      | M12 Connector, Male, D-code | For 0.14–0.34 mm <sup>2</sup> |       |

*Continues on next page*

### 3 Specification of variants and options

#### 3.4.5.2 Axis 3 - Connector kits

*Continued*

#### Option 3333-3, CP/CS Proc1, Servo & FB

This option offers a kit with connectors. This must be assembled by the customer. The kit contains the following components.

#### CP

| Amount | Description        | Size, material, etc.    | Brand   |
|--------|--------------------|-------------------------|---------|
| 1      | Hood pegs, Han 3A  |                         | Harting |
| 1      | Insert, male, 12p  |                         | Harting |
| 8      | Crimp contact male | For 0.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.0 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 2.5 mm <sup>2</sup> |         |
| 2      | Coding pin, Han    |                         | Harting |
| 1      | Screw M3 with seal |                         | Harting |

#### CS

| Amount | Description        | Size, material, etc.          | Brand   |
|--------|--------------------|-------------------------------|---------|
| 1      | Hood pegs, Han 3A  |                               | Harting |
| 1      | Insert, male, 8p   |                               | Harting |
| 8      | Crimp contact male | For 0.14–0.37 mm <sup>2</sup> |         |
| 1      | Screw M3 with seal |                               | Harting |

#### Media

| Amount | Description                       | Size, material, etc.  | Brand |
|--------|-----------------------------------|-----------------------|-------|
| 1      | Hose coupling<br>Parker Push lock | 1/2", M22 x 1.5 Brass |       |

#### Ethernet

| Amount | Description                 | Size, material, etc.          | Brand |
|--------|-----------------------------|-------------------------------|-------|
| 1      | M12 Connector, Male, D-code | For 0.14–0.34 mm <sup>2</sup> |       |

#### SP

| Amount | Description        | Size, material, etc.    | Brand   |
|--------|--------------------|-------------------------|---------|
| 1      | Hood pegs, Han 3A  |                         | Harting |
| 1      | Insert, male, 12p  |                         | Harting |
| 8      | Crimp contact male | For 0.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.0 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 2.5 mm <sup>2</sup> |         |
| 2      | Coding pin, Han    |                         | Harting |
| 1      | Screw M3 with seal |                         | Harting |

*Continues on next page*

### 3 Specification of variants and options

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#### 3.4.5.2 Axis 3 - Connector kits

*Continued*

FB

| <b>Amount</b> | <b>Description</b>        | <b>Size, material, etc.</b>   | <b>Brand</b> |
|---------------|---------------------------|-------------------------------|--------------|
| 1             | Hood pegs, Han 3A         |                               | Harting      |
| 1             | Insert, male, 8p          |                               | Harting      |
| 8             | Crimp contact male        | For 0.14–0.37 mm <sup>2</sup> |              |
| 1             | Screw M3 with seal        |                               | Harting      |
| 1             | Coding pin, Han D, female |                               | Harting      |



#### 3.4.5.3 Axis 6 - Connector kits

##### Available options

| Option | Name                       | DressPack options |            |            |
|--------|----------------------------|-------------------|------------|------------|
|        |                            | 3326-11/13        | 3326-51/53 | 3326-61/63 |
| 3334-2 | CP/CS bus axis 6           | X                 | X          |            |
| 3334-3 | CP/CS Proc1,<br>Servo & FB |                   |            | X          |
| 3335-1 | Weld Proc 2-4 ax-<br>is6   |                   | X          | X          |

##### Option 3334-2, CP/CS/CBus, Proc 1 axis 6

This option offers a kit with connectors. This must be assembled by the customer. The kit contains the following components.

##### CP

| Amount | Description        | Size, material, etc.    | Brand   |
|--------|--------------------|-------------------------|---------|
| 1      | Hood pegs, Han 3A  |                         | Harting |
| 1      | Insert, male, 12p  |                         | Harting |
| 8      | Crimp contact male | For 0.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.0 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 2.5 mm <sup>2</sup> |         |
| 2      | Coding pin, Han    |                         | Harting |
| 1      | Screw M3 with seal |                         | Harting |

##### CS

| Amount | Description        | Size, material, etc.          | Brand   |
|--------|--------------------|-------------------------------|---------|
| 1      | Hood pegs, Han 3A  |                               | Harting |
| 1      | Insert, male, 8p   |                               | Harting |
| 8      | Crimp contact male | For 0.14–0.37 mm <sup>2</sup> |         |
| 1      | Screw M3 with seal |                               | Harting |

##### Media

| Amount | Description                       | Size, material, etc.  | Brand |
|--------|-----------------------------------|-----------------------|-------|
| 1      | Hose coupling<br>Parker Push lock | 1/2", M22 x 1.5 Brass |       |

##### Ethernet

| Amount | Description                   | Size, material, etc.                       | Brand   |
|--------|-------------------------------|--|---------|
| 1      | M12 Connector, Female, D-code | For cable diameter 5.7–8.8 mm <sup>2</sup> | Harting |
| 4      | Socket                        |  |         |

*Continues on next page*

### 3 Specification of variants and options

#### 3.4.5.3 Axis 6 - Connector kits

Continued

#### Option 3334-3, CP/CS Proc 1, Servo & FB

This option offers a kit with connectors. This must be assembled by the customer. The kit contains the following components.

#### CP

| Amount | Description        | Size, material, etc.    | Brand   |
|--------|--------------------|-------------------------|---------|
| 1      | Hood pegs, Han 3A  |                         | Harting |
| 1      | Insert, male, 12p  |                         | Harting |
| 8      | Crimp contact male | For 0.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.0 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 1.5 mm <sup>2</sup> |         |
| 8      | Crimp contact male | For 2.5 mm <sup>2</sup> |         |
| 2      | Coding pin, Han    |                         | Harting |
| 1      | Screw M3 with seal |                         | Harting |

#### CS

| Amount | Description        | Size, material, etc.          | Brand   |
|--------|--------------------|-------------------------------|---------|
| 1      | Hood pegs, Han 3A  |                               | Harting |
| 1      | Insert, male, 8p   |                               | Harting |
| 8      | Crimp contact male | For 0.14–0.37 mm <sup>2</sup> |         |
| 1      | Screw M3 with seal |                               | Harting |

#### Media

| Amount | Description                       | Size, material, etc.  | Brand |
|--------|-----------------------------------|-----------------------|-------|
| 1      | Hose coupling<br>Parker Push lock | 1/2", M22 x 1.5 Brass |       |

#### Ethernet

| Amount | Description                   | Size, material, etc.                       | Brand   |
|--------|-------------------------------|--|---------|
| 1      | M12 Connector, Female, D-code | For cable diameter 5.7–8.8 mm <sup>2</sup> | Harting |
| 4      | Socket                        | For 0.13–0.33 mm <sup>2</sup>              |         |

#### SP

| Amount | Description                          | Size, material, etc.                        | Brand  |
|--------|--------------------------------------|---|--------|
| 1      | M23 Hybrid Panel Connector, 8p, Male | For cable diameter 7.0–12.0 mm <sup>2</sup> | Hummel |
| 4      | Crimp pin 1 mm, AWG 24-17            | For 0.25–1.0 mm <sup>2</sup>                |        |
| 4      | Crimp pin 2 mm, AWG 18-24            | For 0.75–2.5 mm <sup>2</sup>                |        |
| 4      | Crimp pin 2 mm, AWG 14-12            | For 2.5–4.0 mm <sup>2</sup>                 |        |

Continues on next page

### 3 Specification of variants and options

#### 3.4.5.3 Axis 6 - Connector kits

*Continued*

FB

| Amount | Description                           | Size, material, etc.                        | Brand  |
|--------|---------------------------------------|---|--------|
| 1      | M23 Signal Panel Connector, 12p, Male | For cable diameter 7.0–12.0 mm <sup>2</sup> | Hummel |
| 12     | Pin AWG 28-20                         | For 0.08–0.56 mm <sup>2</sup>               |        |
| 12     | Pin AWG 26-17                         | For 0.14–1.0 mm <sup>2</sup>                |        |
| 12     | Pin AWG 18-16                         | For 0.75–1.5 mm <sup>2</sup>                |        |

#### Option 3335-1, Weld Proc 2-4 axis6

This option offers a kit with connectors. This must be assembled by the customer. The kit contains the following components.

WELD

| Amount | Description       | Size, material, etc.   | Brand   |
|--------|-------------------|------------------------|---------|
| 1      | Welding connector | RobiFix-B-L            | Stäubli |
| 3      | Socket            | For 25 mm <sup>2</sup> | Stäubli |

Media

| Amount | Description                       | Size, material, etc.  | Brand |
|--------|-----------------------------------|-----------------------|-------|
| 4      | Hose coupling<br>Parker Push lock | 1/2", M22 x 1.5 Brass |       |

### 3 Specification of variants and options

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#### 3.4.6 Application floor cables

RobotWare - OS

#### 3.4.6 Application floor cables

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##### Parallel cable - Length

| Option | Description |
|--------|-------------|
| 3201-2 | 7 m         |
| 3201-3 | 15 m        |
| 3201-5 | 30 m        |

##### Ethernet cable - Length



##### Note

Occupies 1 Ethernet port.

| Option | Description | Note |
|--------|-------------|------|
| 3202-2 | 7 m         |      |
| 3202-3 | 15 m        |      |
| 3202-5 | 30 m        |      |

##### Servo cable 1 axis - Length

| Option | Description | Note |
|--------|-------------|------|
| 3206-2 | 7 m         |      |
| 3206-3 | 15 m        |      |
| 3206-5 | 30 m        |      |

### 3.5 Warranty

#### 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.   |
| 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 data-bbox="826 1836 888 1897" data-label="Image"> </div> <div data-bbox="909 1850 976 1883" data-label="Section-Header"> <h4>Note</h4> </div> <div data-bbox="820 1904 1453 1962" data-label="Text"> <p>Special conditions are applicable, see <i>Robotics Warranty Directives</i>.</p> </div> |

*Continues on next page*

### 3 Specification of variants and options

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#### 3.5 Warranty

*Continued*

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#### Warranty for DressPack



#### Note

Option 3326-11/13 upper arm DressPack MH3 is not covered by the warranty.  
Option 3326-30/50 upper arm DressPack empty conduit is not covered by warranty.

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