ABB ROBOTICS

IRB 6700

New generation of robots with a lifetime of affordability and reliability

Agenda

Overview

Targeted applications

Key differentiators

IRB 6700INV

IRB 6790

Sustainable

Technical data

Foundry Plus

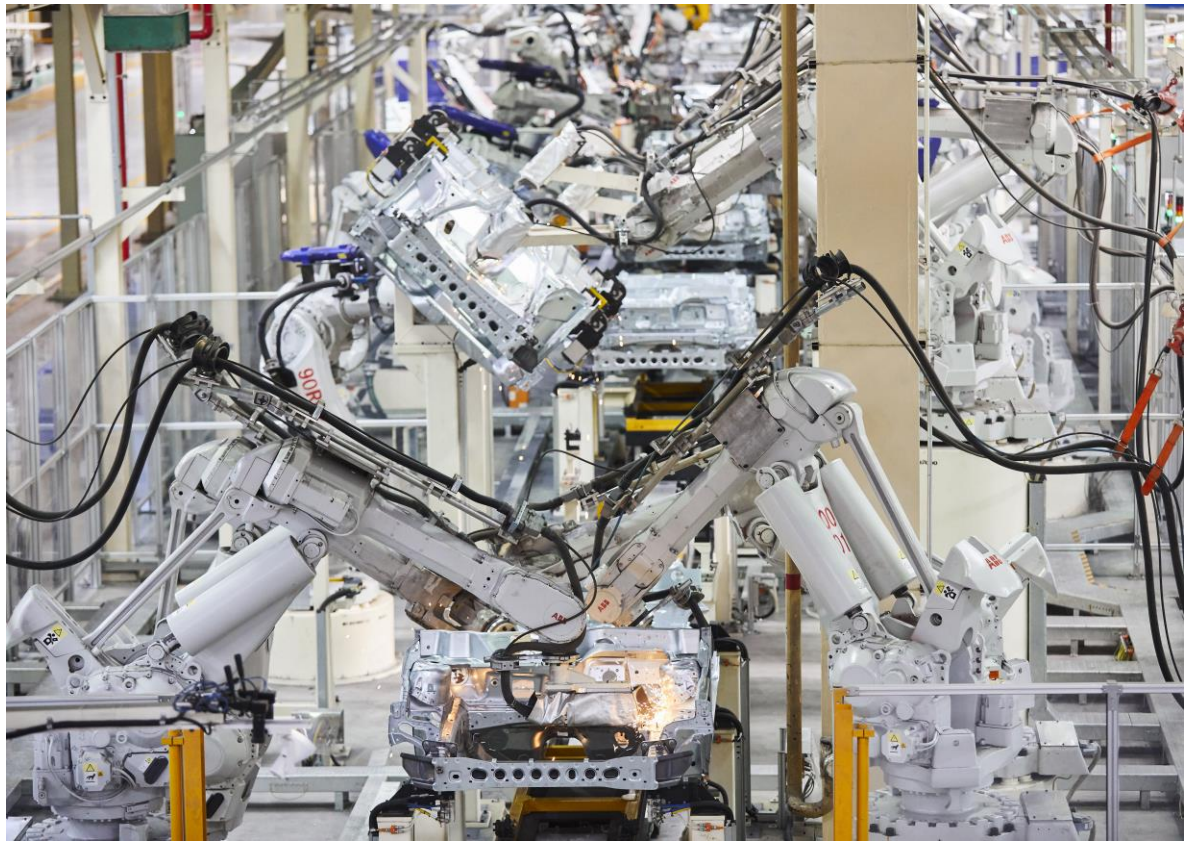
Summary

Seventh generation of robots

Overview

Differentiated value proposition

Overview



The highest performance robot with the lowest total cost of ownership.

The IRB 6700 family is the highest performance robot in the 150-300 kg segment.

It has 20 % lower TCO thanks to a more robust design, longer service intervals and simplified maintenance.

Four ranges, ten variants without LeanID

Overview

High Line 235 kg

150 kg 3.20 m

175 kg 3.05 m

205 kg 2.80 m*

235 kg 2.65 m*

Low Line 200 kg

155 kg 2.85 m

200 kg 2.60 m

Power Line 300 kg

245 kg 3.00 m

300 kg 2.70 m

Inverted 300 kg

245 kg 2.90 m

300 kg 2.60 m

* This version is available with Foundry Prime 3 in the robot IRB 6790 family.

Four ranges, ten variants with LeanID

Overview

High Line 235 kg

145 kg 3.20 m

155 kg 3.05 m

200 kg 2.80 m

220 kg 2.65 m

Low Line 200 kg

140 kg 2.85 m

175 kg 2.60 m

Power Line 300 kg

220 kg 3.00 m

270 kg 2.70 m

Inverted 300 kg

210 kg 2.90 m

270 kg 2.60 m

Spot welding

Targeted applications

In car body shops.

All variants needed to support spot welding needs from mass production to flexible premium car production.

Lowest TCO

- Design is focused on uptime, reliability and reduced maintenance
- LeanID for longer spot welding dress pack life time on all variants
- Robot family including inverted versions
- 150 kg at 3.2 m up to 300 kg at 2.7 m

Material handling

Targeted applications

Material handling in both automotive and general industries.

An array of robot variants to cover different needs with just one family of robots.

Short cycle times

– Cycle times 4 – 5 % shorter than previous generation (IRB 6640)

Machine tending

Targeted applications

An array of robot variants to cover different needs in just one robot family.

Foundry Plus 2 protection increases reliability and life time expectancy of the robot in e.g. die cast Machine Tending.

Shorter cycle times

– An average 4 - 5 % shorter than IRB 6640

Key differentiators

Lowest TCO

LeanID on all variants

– Long and predictable life time of dress packs - Significantly reduced downtime because of less dress pack failures.

Outstanding reliability

– Design focused on uptime and fault free operation – Robot designed for MTBF* of 400000 h.

Stronger

– 150 kg payload at 3.2 m reach

– 300 kg payload at 2.7 m reach

Sustainable

– 15 % lower power consumption

* Mean Time Between Failure

Lower TCO: LeanID on all variants

Key differentiators

High performing dress packs on complete range of robots

- IRB 6700 available LeanID
  - 140 kg to 270 kg payload
  - 2.60 m to 3.20 m reach

Dynamic 3D models

- RobotStudio®, Delmia V5 Robotics, Process simulate, RobCAD

Static 3D models

- IGES, STEP, Parasolid, ACIS

All arm variants available in 4 versions

- Std
- MH3
- LeanID SW
- LeanID MH

LeanID

Key differentiators

Traditional dress pack

Short, unpredictable life time

Bulky

Difficult to simulate

Smaller working range → More difficult to add new parts in line

Adjustments needed for new parts

LeanID

Long and predictable life time

Compact

Accurate simulation

Larger working range

Easier to add new parts in line

No adjustments needed

Outstanding reliability

Key differentiators

Trusted design based on 30,000 units and 15 years production.

Each IRB 6640 failure report analyzed so IRB 6700 would not repeat.

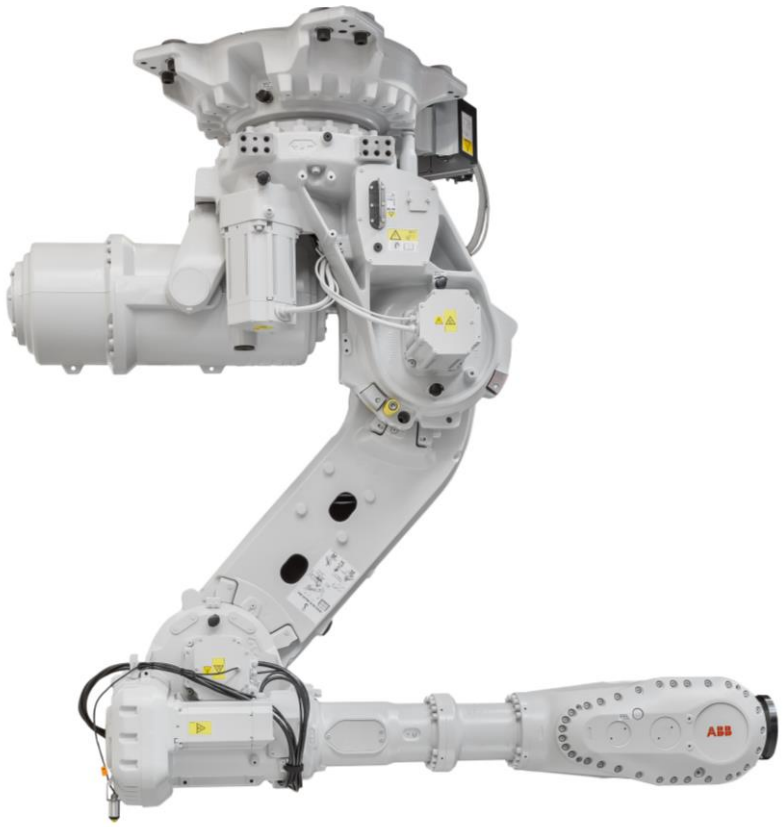
TCO model driving force behind redesign and incorporation of new solutions.

Robot testing most stringent ever

- Operation
- Components

IRB 6700 Inverted

Customer value

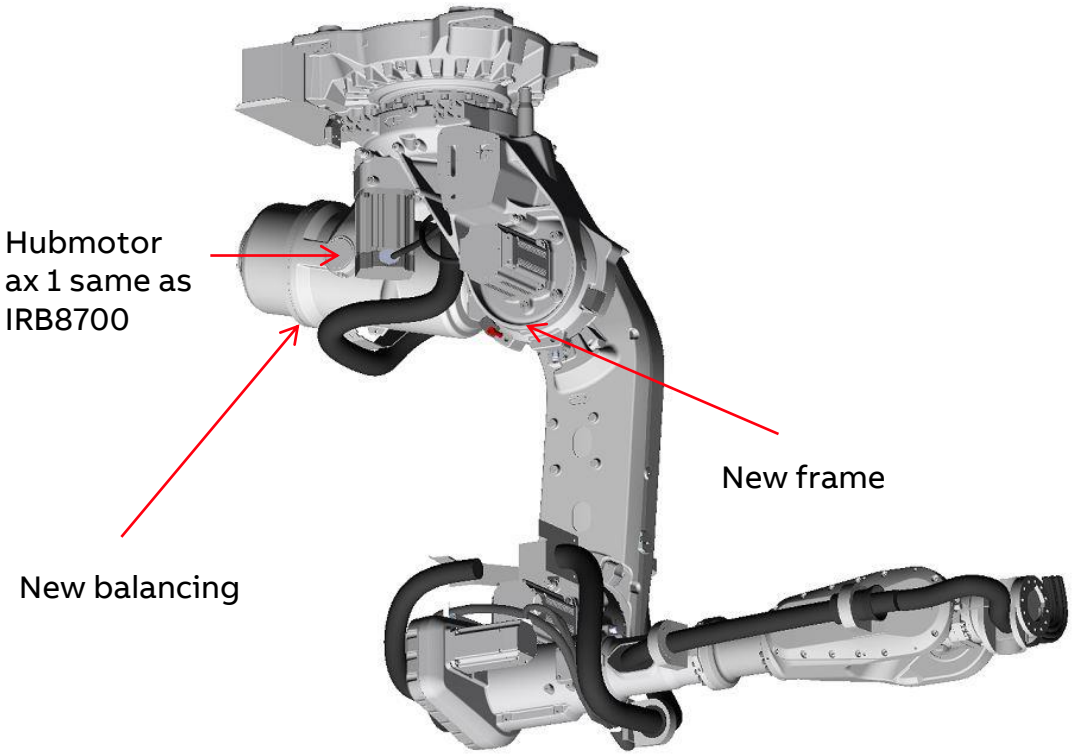


The IRB 6700INV robot enables new and more flexible possibilities regarding reach and density in the factories.

- Possibility to reach large objects from above.
- High robot density – for example up to 18 robots around a car body.
- Flexible body shop solution allowing different car variants.
- Spare part coordination within IRB 6700 family.
- LeanID with improved production uptime and more accurate simulations.

IRB 6700INV vs. Powerline

Inverted is part of the IRB 6700 family, with few new parts



Modularity with IRB 6700 Powerline

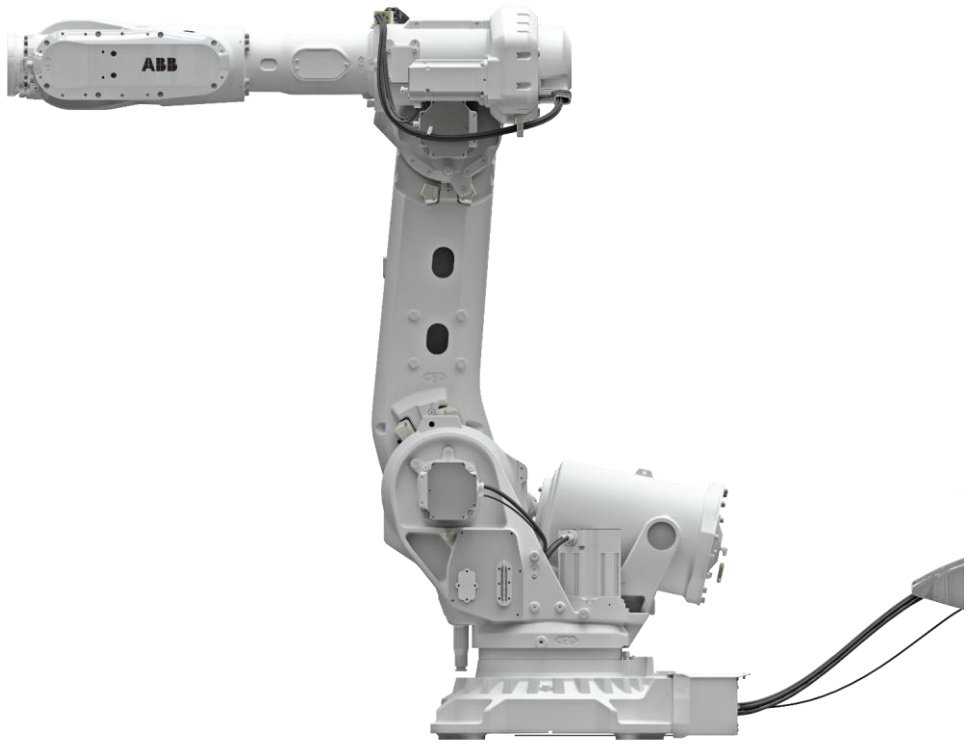
- Same base
- Same gears ax. 1-6
- Same motors ax. 2-6
- Same lower arm
- Same upper arm (arm housing, tube shaft, wrist etc.)
- Same cable harness
- Same dress pack (LeanID SW, LeanID MH, MH3)

Options

- New fork lift pockets
- New turning tool
- No AbsAcc
- No Baseplate

IRB 6790

Customer value



The IRB 6790 robot targets washing and cleaning applications in harshest industrial environments with 100% humidity.

- High protection against liquids and solids with IP 69.
- Reduced risk of washing detergent penetration by extending robot connectors outside washing cell
- Increased tolerance in harsh environments by being compatible with pH levels of up to 10.
- Improved safety as all warning and instruction signs are etched to withstand the environment.
- All electrical encapsulations, wrist and balancing unit are pressurized and supervised.
- Eliminates needs for protective covers

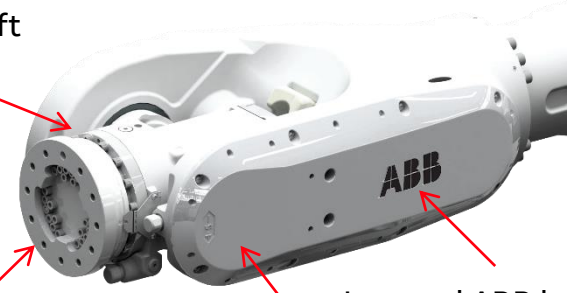
IRB 6790

Selected features

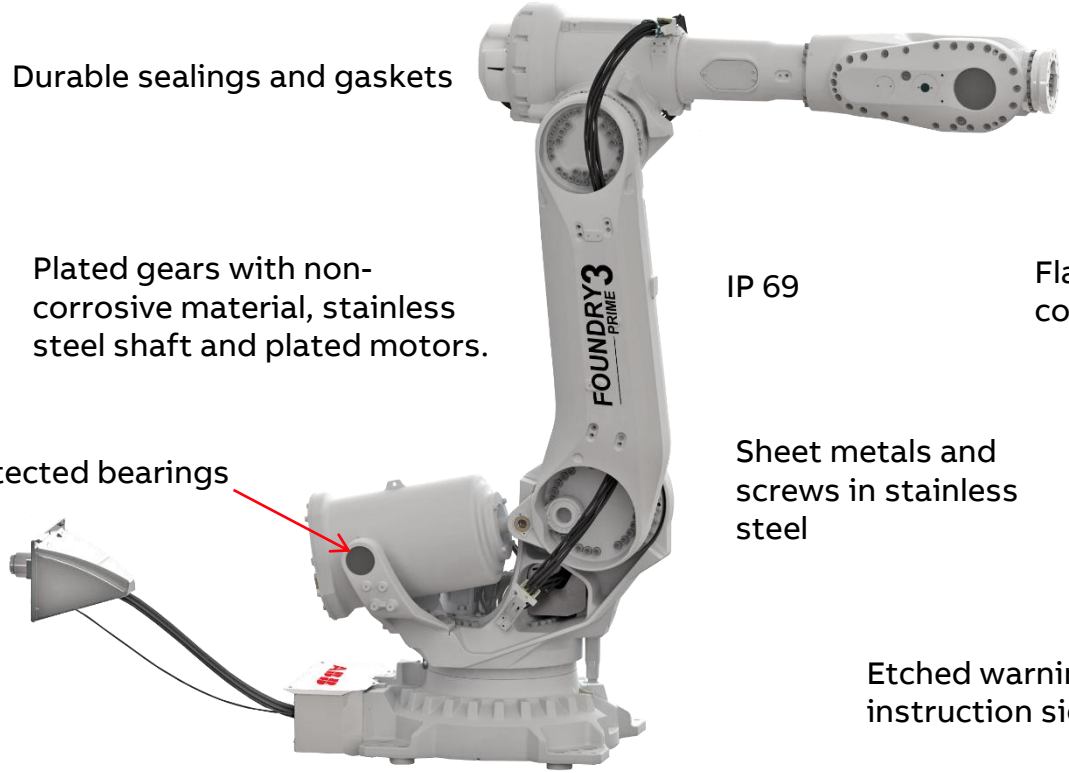
Extended robot connectors and pressurized power and signal cables.

Plated castings with non- corrosive material

Plated gear with non-corrosive material and stainless steel shaft



Durable sealings and gaskets



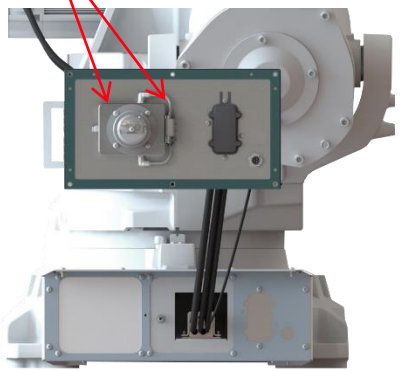
IP 69

Lasered ABB logo

Flange in non-corrosive material

Pressurized wrist

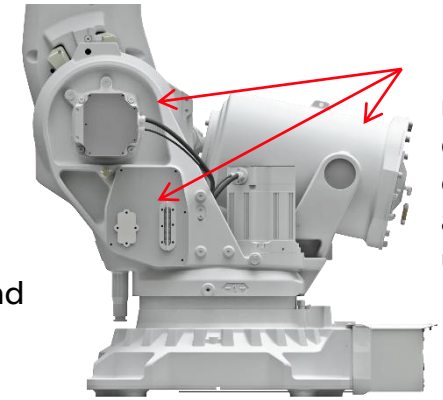
Pressure relief valve and air flow sensor



Plated gears with non-corrosive material, stainless steel shaft and plated motors.

Protected bearings

Sheet metals and screws in stainless steel



Pressurized motors, electronic compartments and balancing unit

Etched warning and instruction signs

Double service intervals

Key Differentiators

Gear box oil change interval axes 1-3, 6	After 20,000 hours. Quick connections on axes 1-3 to reduce time for draining/filling oil (previous generation IRB 6640 ref 6,000 hours + 24,000 hours)
Gear box oil change interval axes 4-5, after 20,000 hours	After 20,000 hours
Battery change	After 4 years, 3 shifts (previous generation IRB 6640 ref. at low alert after 2 years)
Counter balancing cylinder	Lubrication after 4 years, 3 shifts (previous generation IRB 6640 ref 2.5 years)
Gear lifetime	After 8 years and 3 shifts in normal BIW operation an inspection /overhaul is needed
Annual inspection	20 min. Gear box oil levels, harnesses, labels, balancing device, mech. stops

15 % reduced energy consumption

Sustainable

IRB 6640

A front runner in low energy consumption

IRB 6700

15 % less energy consumption compared with IRB 6640

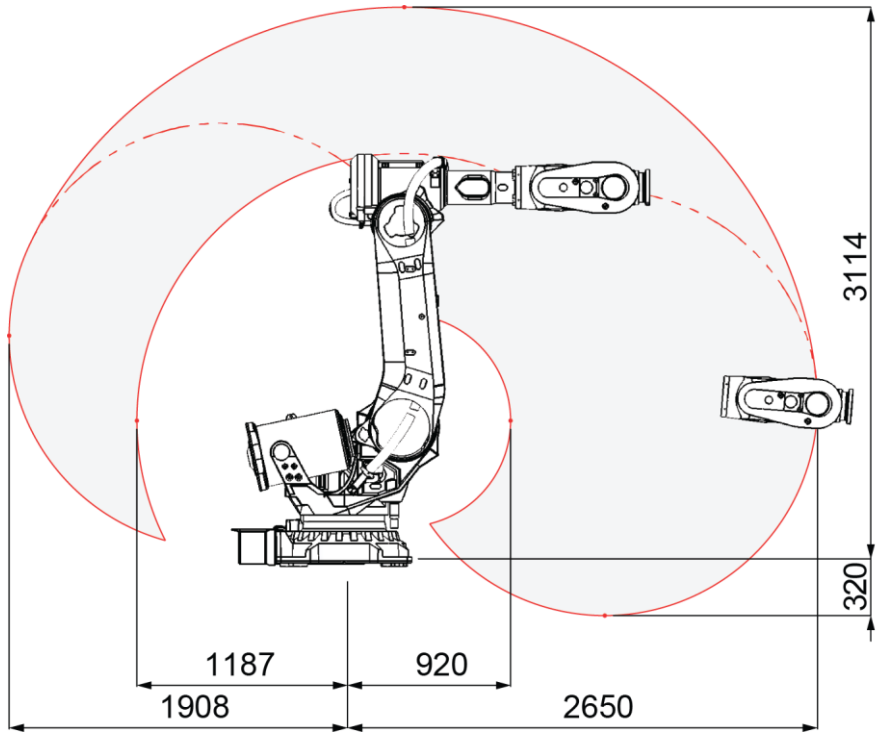
Built from non-hazardous materials

Sustainable

Fully complies with environmental directives RoHS 2002/95/EC and Reach No1907/2006 directives.

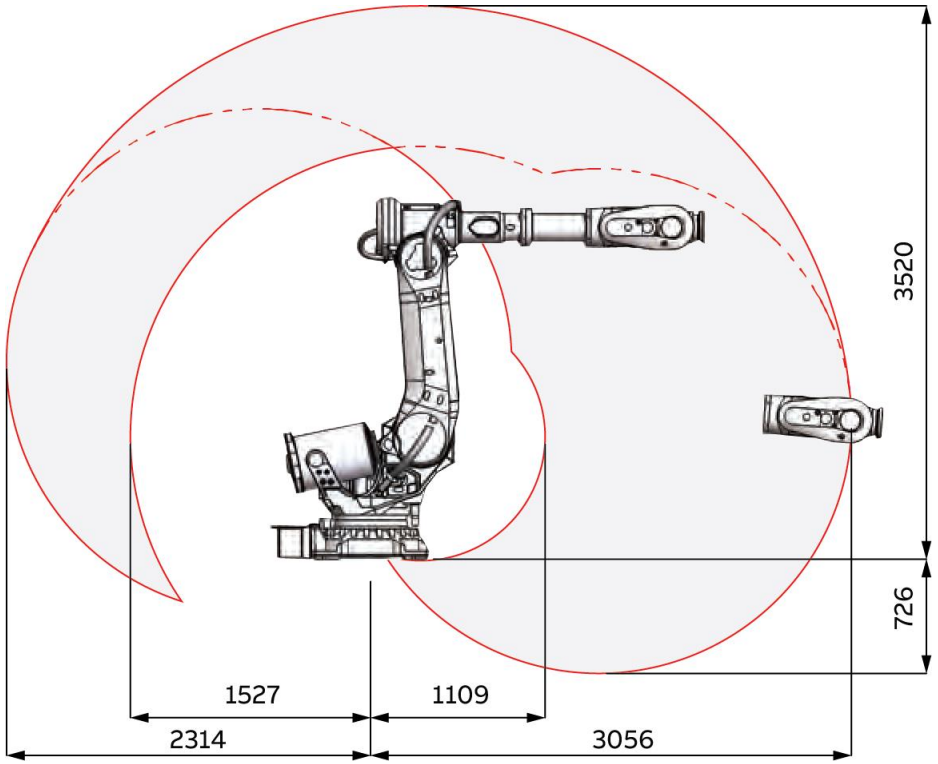
Working range IRB 6700-235/2.65

Technical data



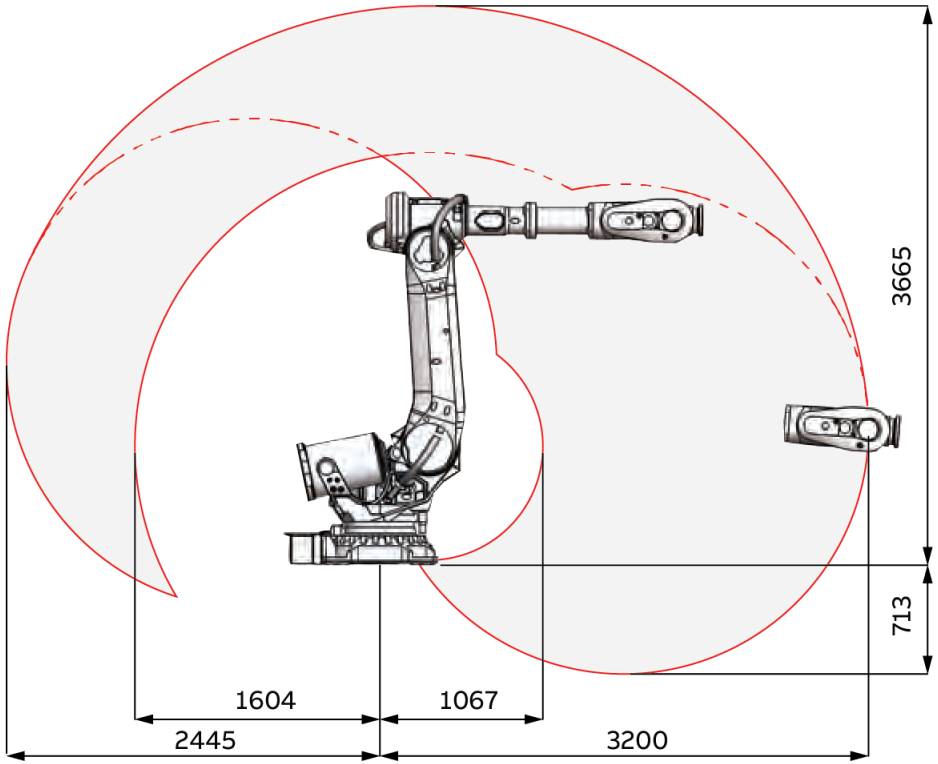
Working range IRB 6700-175/3.05

Technical data



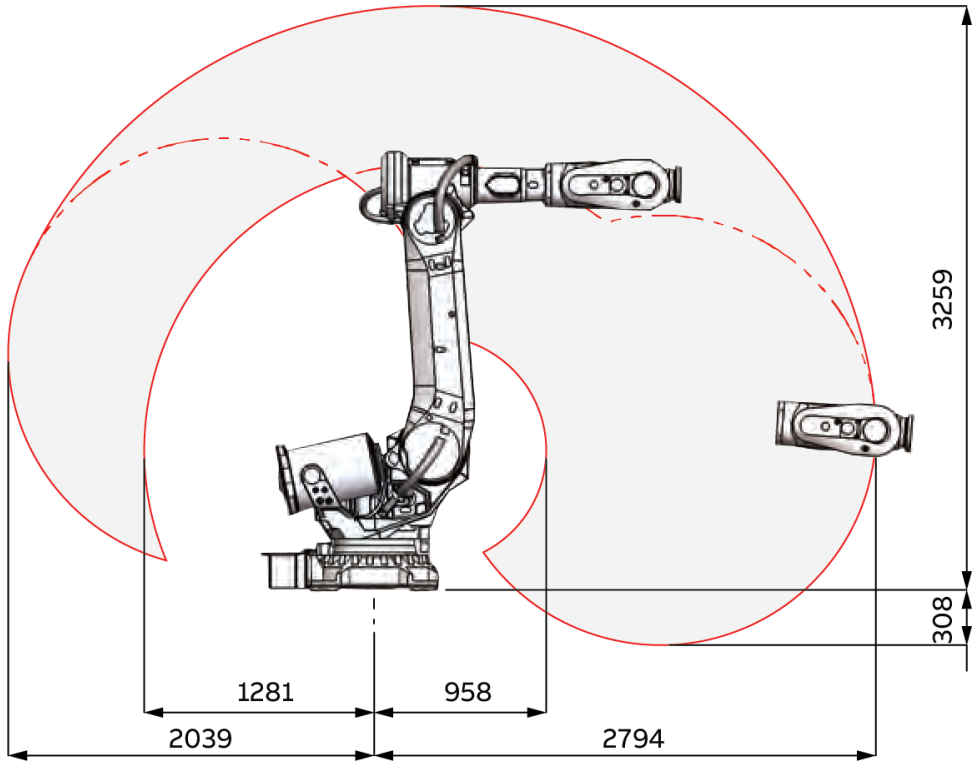
Working range IRB 6700-150/3.20

Technical data



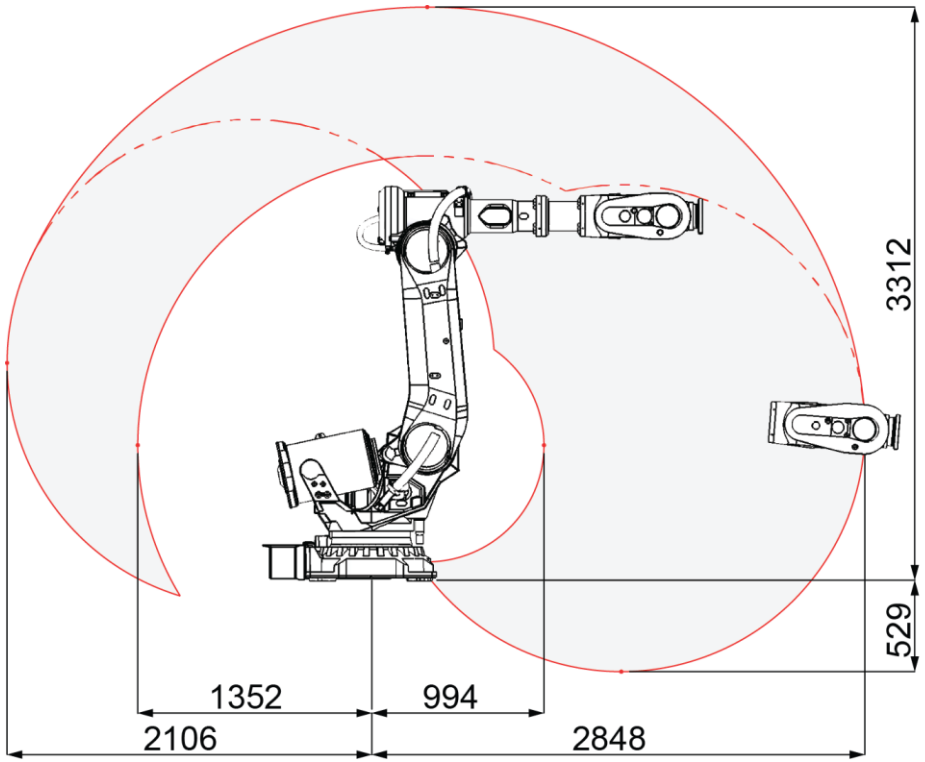
Working range IRB 6700-205/2.80

Technical data



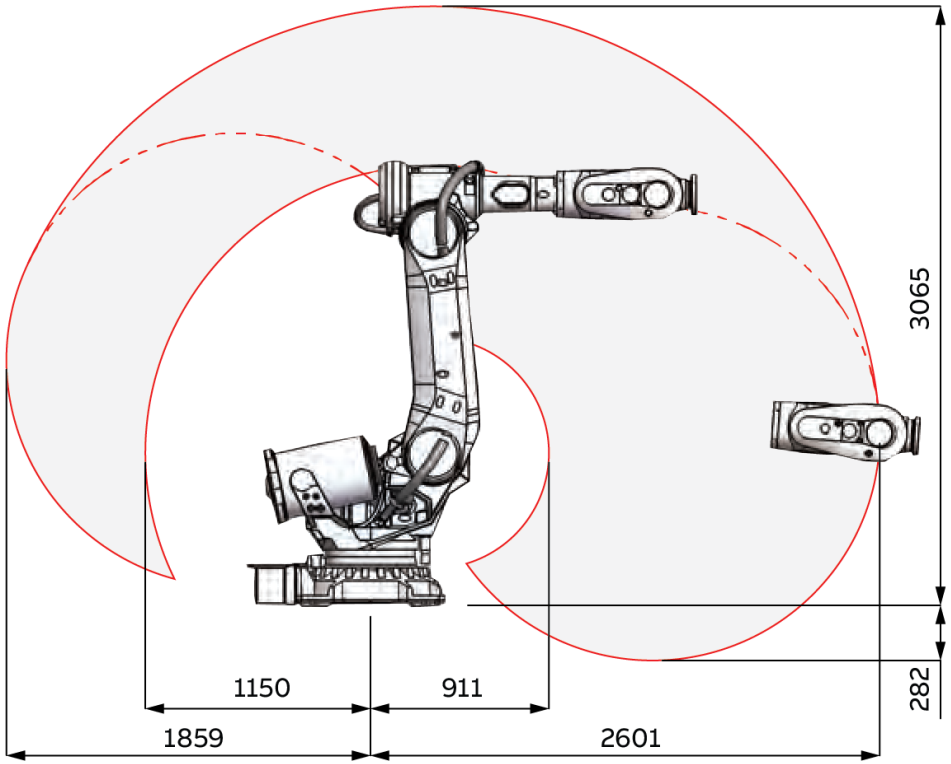
Working range IRB 6700-155/2.85

Technical data



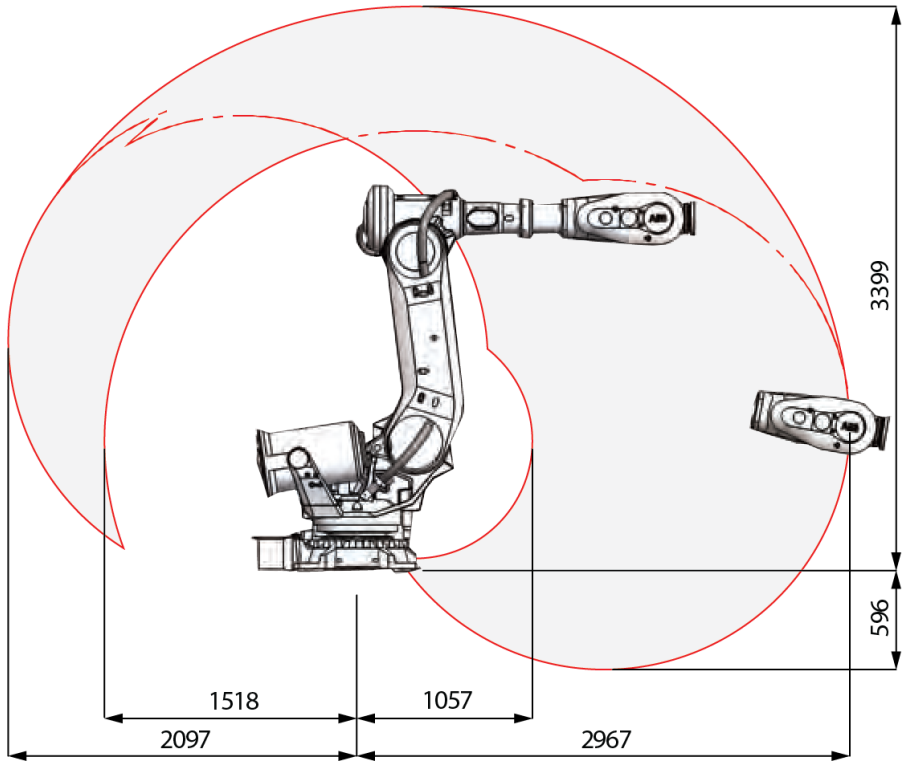
Working range IRB 6700-200/2.60

Technical data



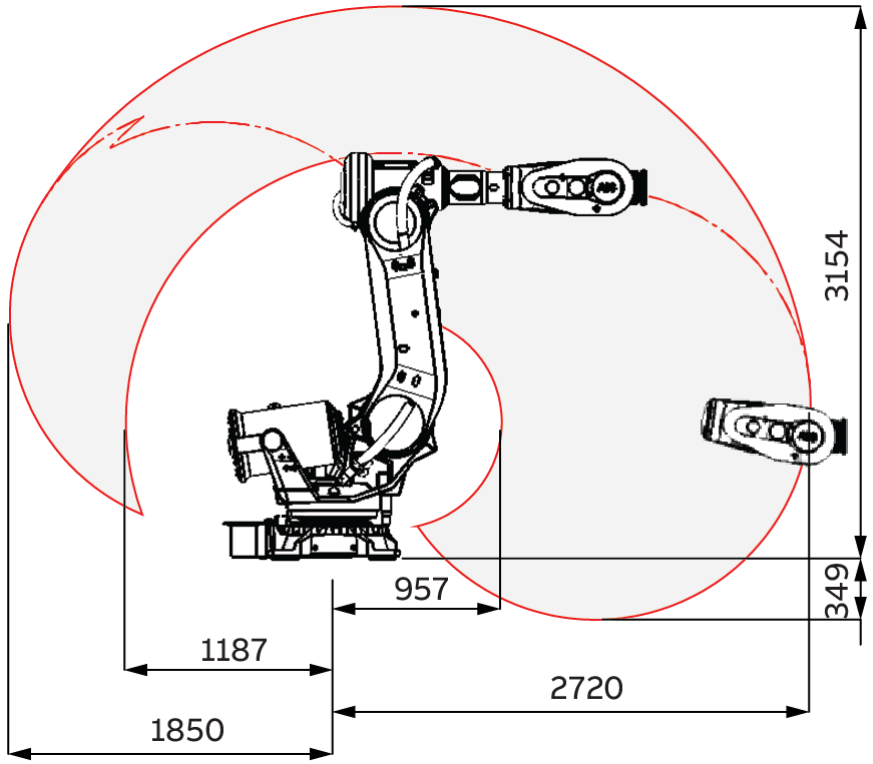
Working range IRB 6700-245/3.00

Technical data



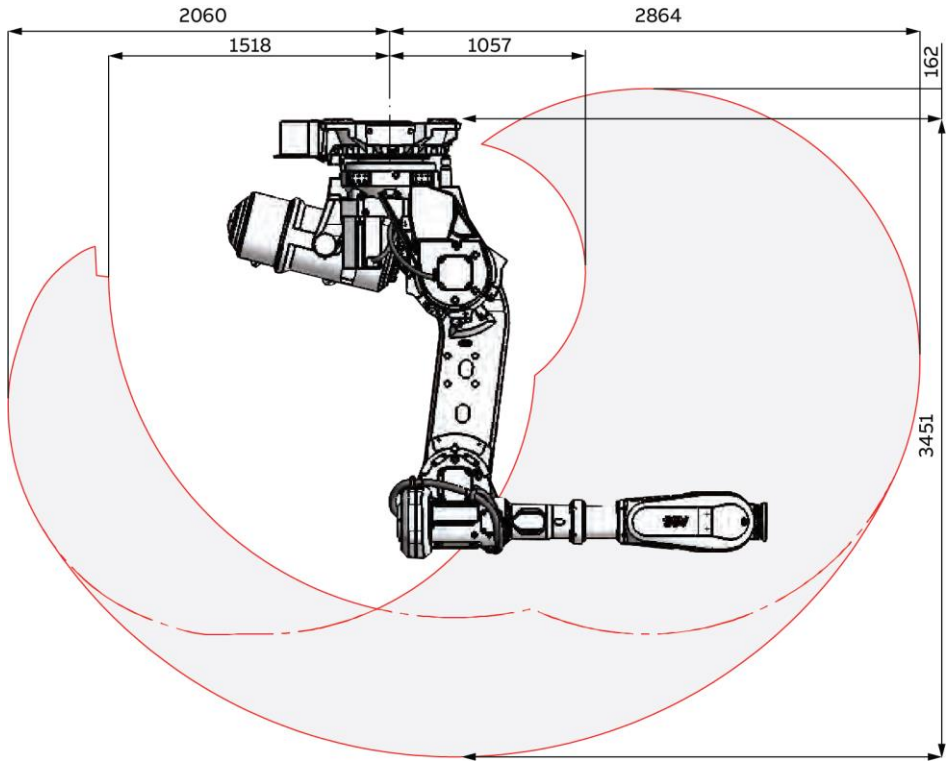
Working range IRB 6700-300/2.70

Technical data



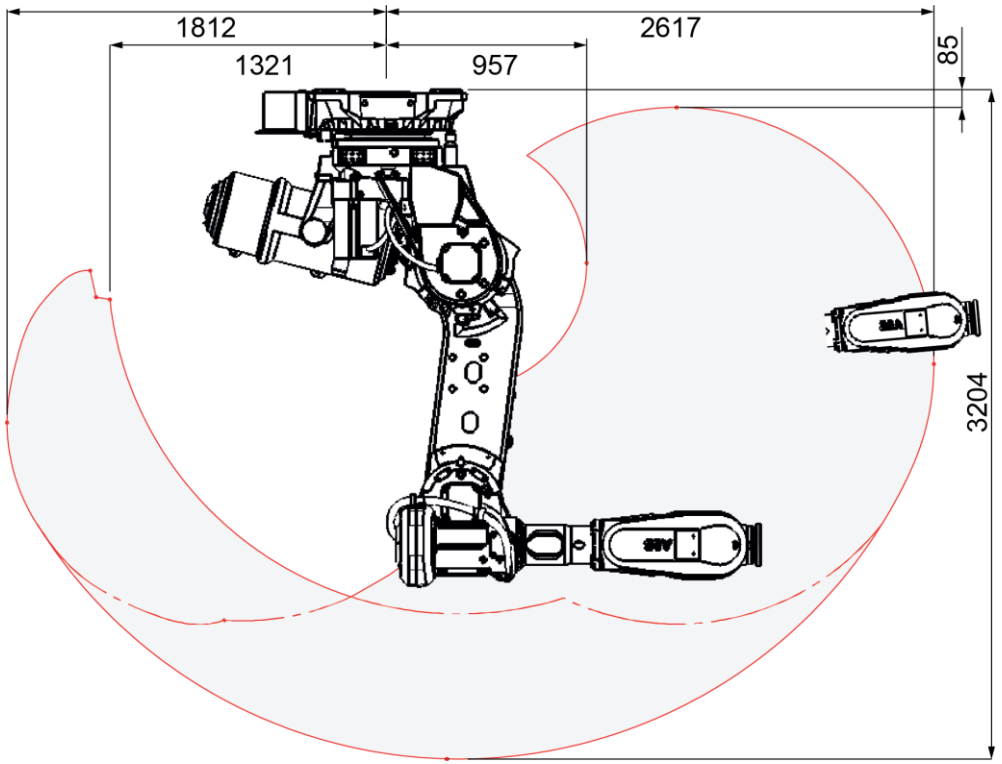
Working range IRB 6700INV-245/2.90

Technical data



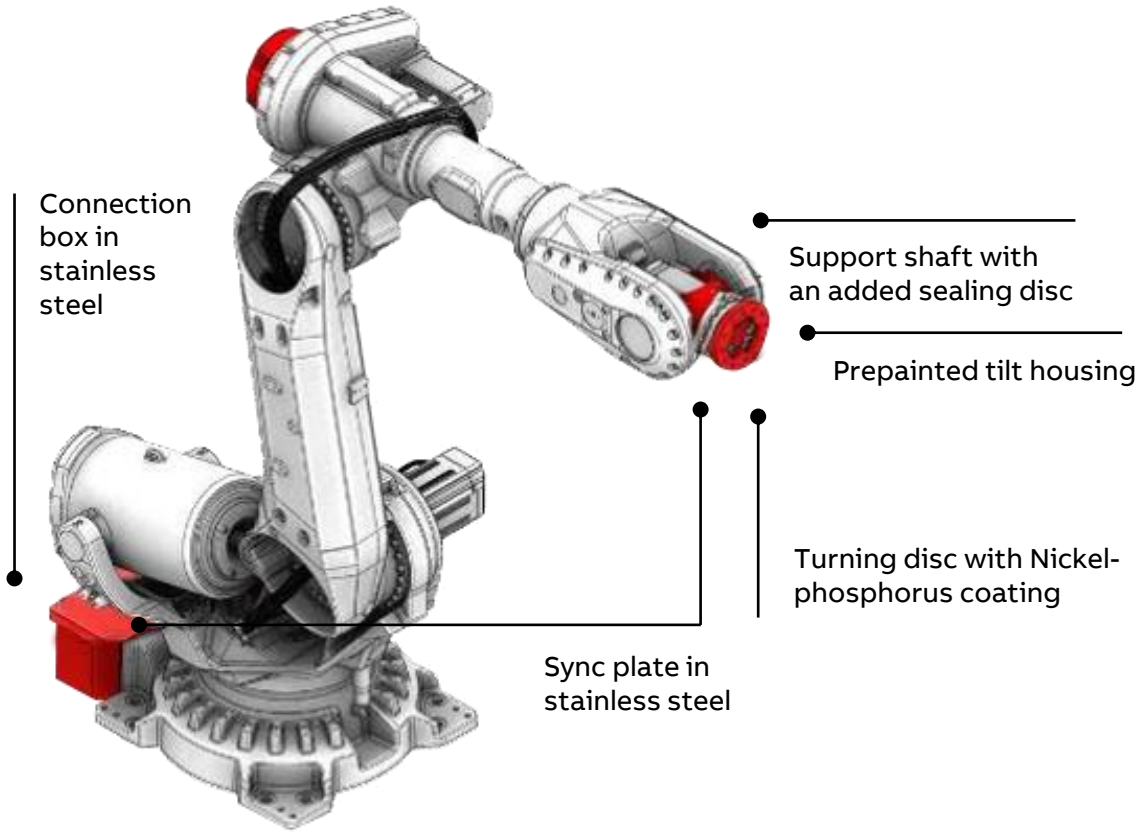
Working range IRB 6700INV-300/2.60

Technical data



Reuse of proven protection

Foundry Plus



Paint
- Foundry paint

Screws
- Motor cover
- Armhouse cover
- Sync plates
- Lubrication holes
- Connection boxes
- UL-bracket

Protection plugs
- Customer holes
- Not used gears holes
- Screw heads at back of balancing cylinder

Rust preventive
- Gears
- “Hidden surfaces”
- Cable hole axis 1
- Tubular shaft side
- Tubular shaft flange

Flange sealing
- Motors (std on 6700, except ax. 5, 6)
- Tubular shaft cover on both sides

Sealant (Sikaflex)
- Cable hole axis 1

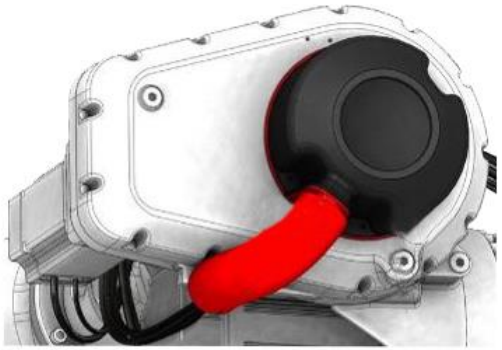
Additional protection of axis 1 and 4

Foundry Plus

Improved sealing upper arm

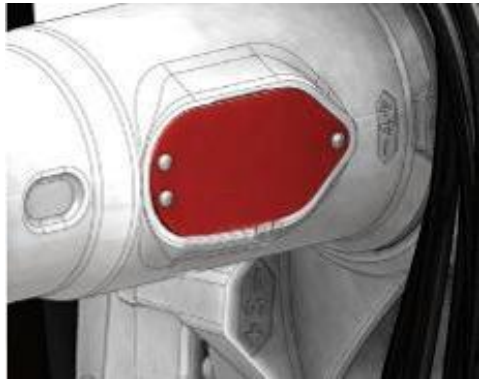
Gasket added under the protection cover.

Two inserts fitting the existing cover reduces the cabling passage and creates a flange for easy mounting of protection leather.



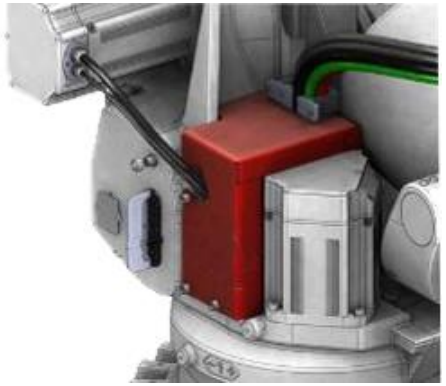
Improved sealing upper arm

Gasket added under the side cover. Std. cover replaced with a stainless cover.



Improved protection axis 1

Sheet metal covers protects the cablings in the axis 1 center hole from cuttings etc.

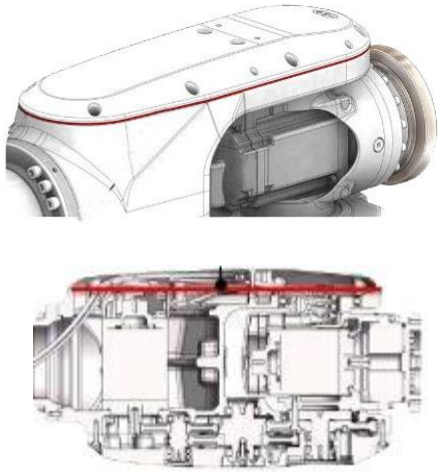


Improved wrist protection

Foundry Plus

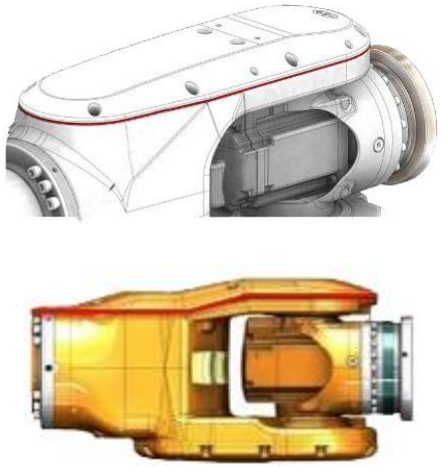
Axis 5 motor and cabling

Flat sealing surface for complete cover (compare 6640 non-flat sealing surface).



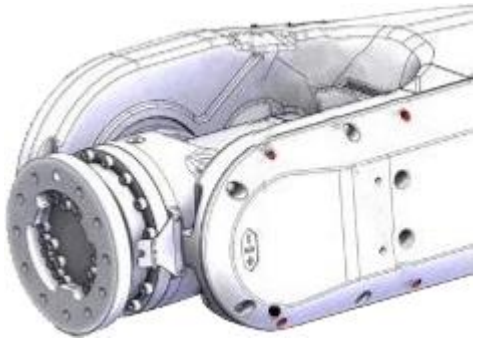
Axis 6 motor and axis 5 gear support side

Rubber gasket between wrist housing and cover.



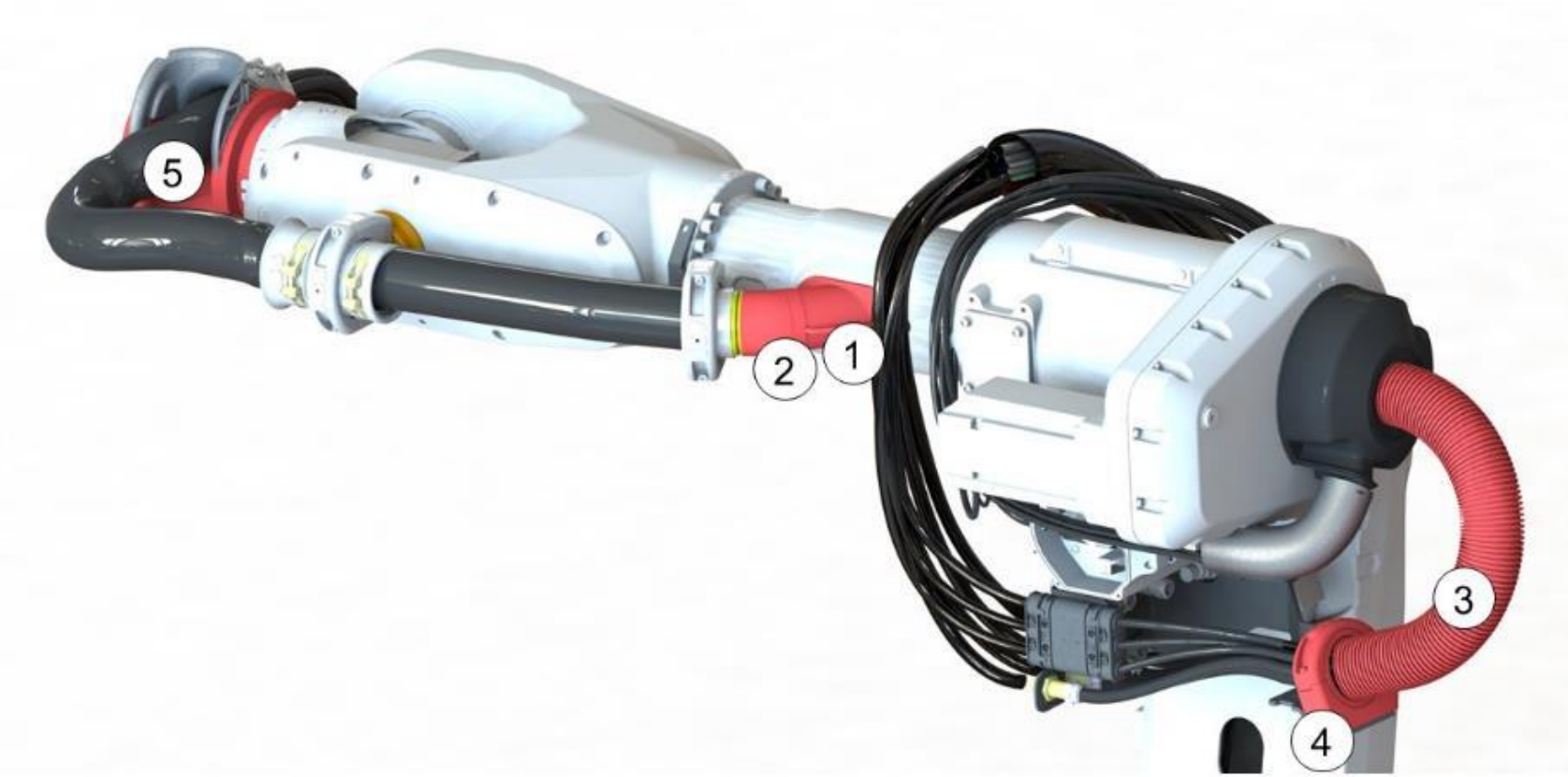
Drainage

Predefined holes for emptying of water if needed.



Additional protection with LeanID

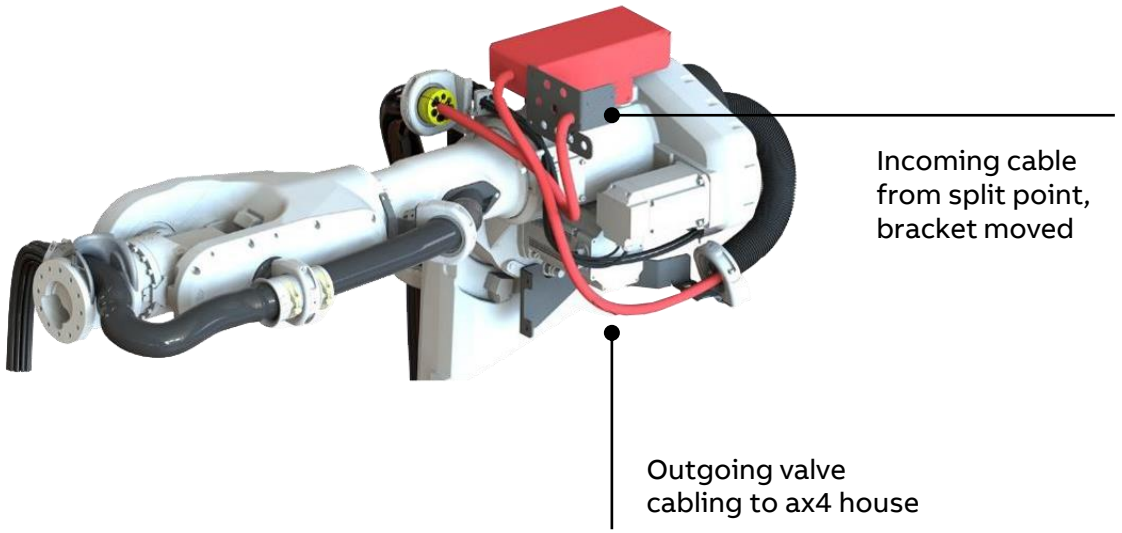
Foundry Plus



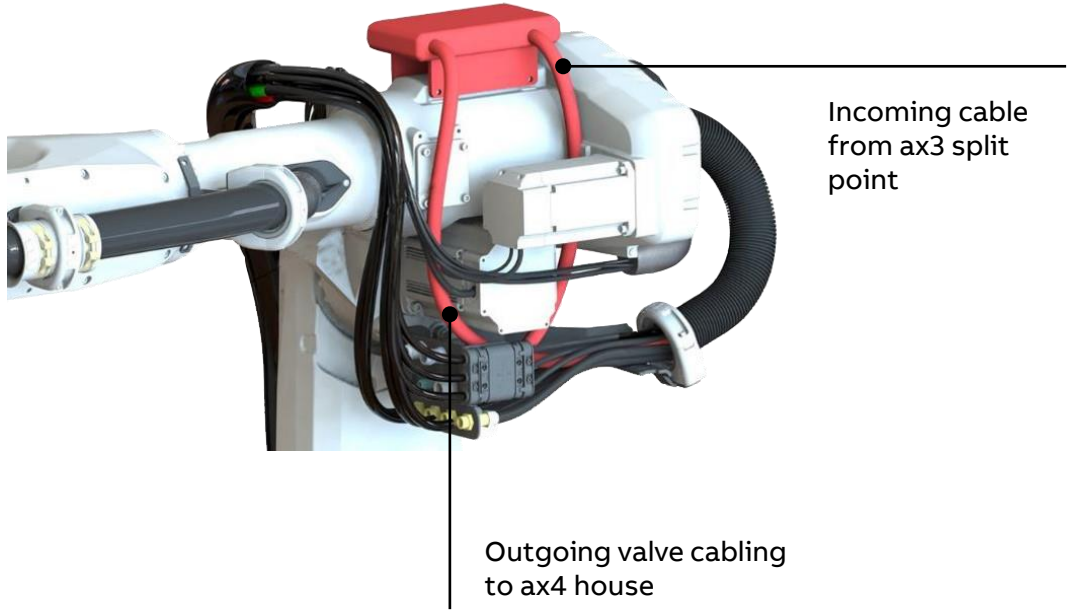
Additional protection with LeanID: external valve package

Foundry Plus

Principle I*



Principle II*

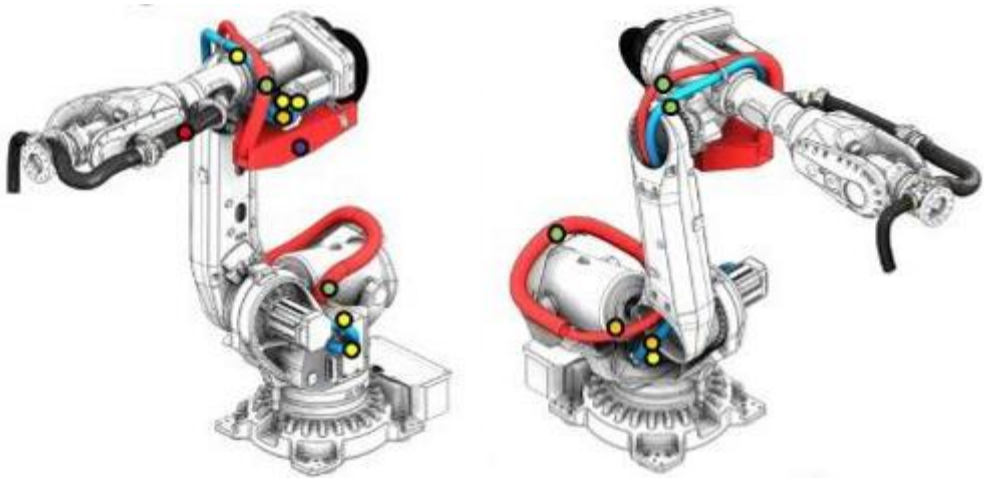


* These are concept images and are not available as standard options.

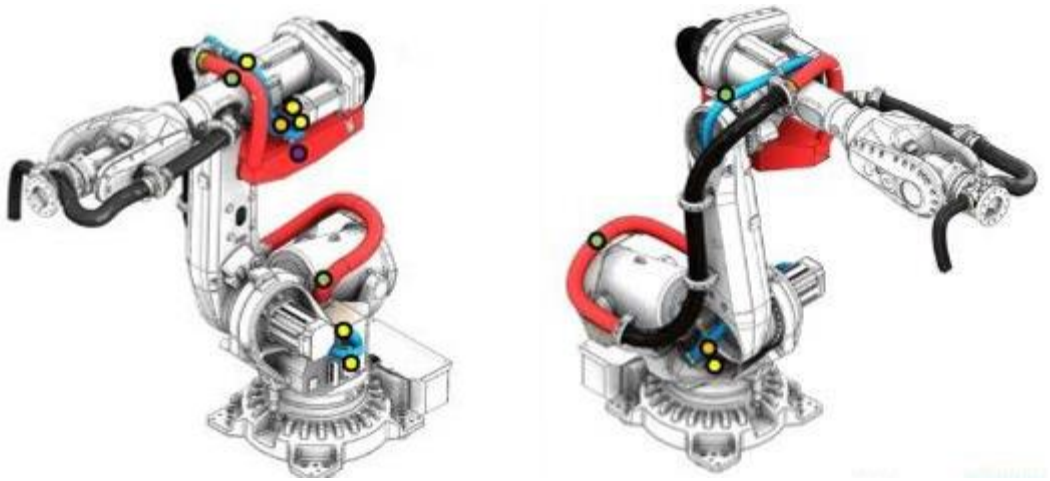
Cable Guard

Available option combined with Foundry Plus

MH3

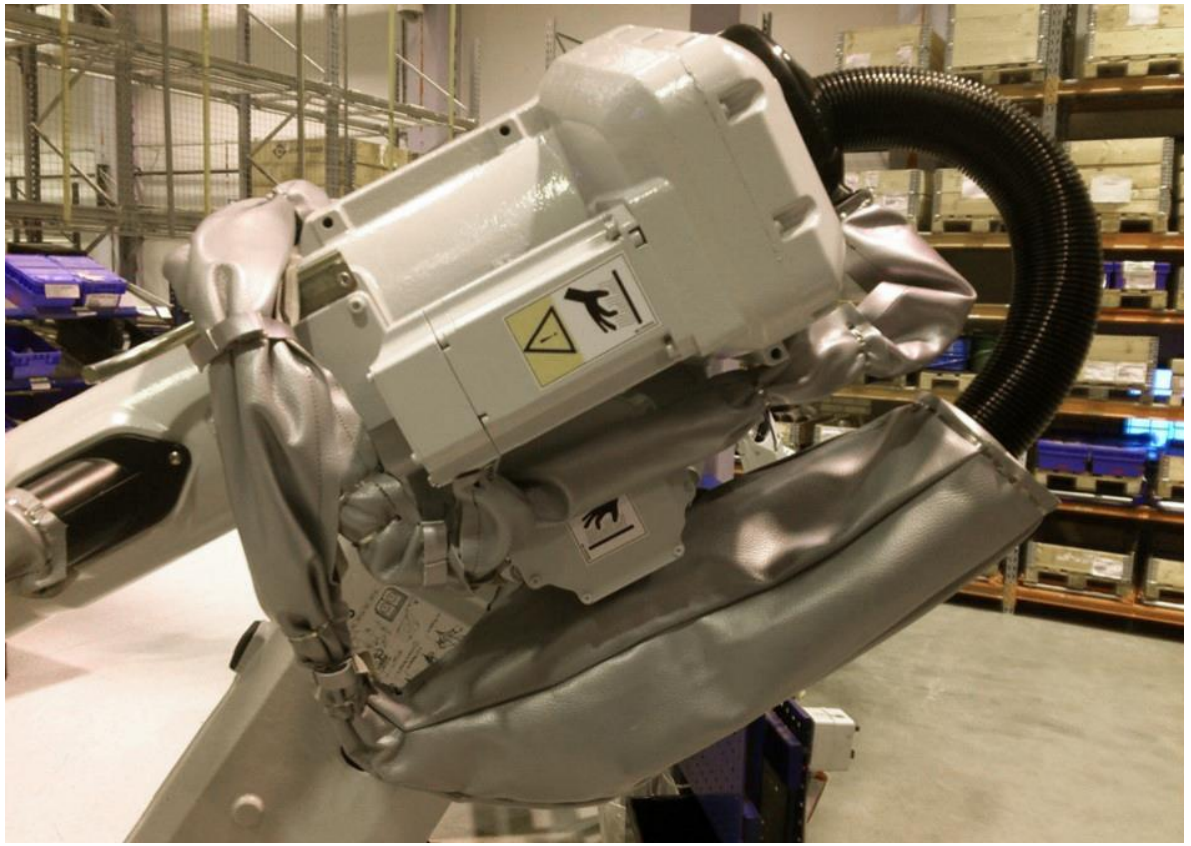


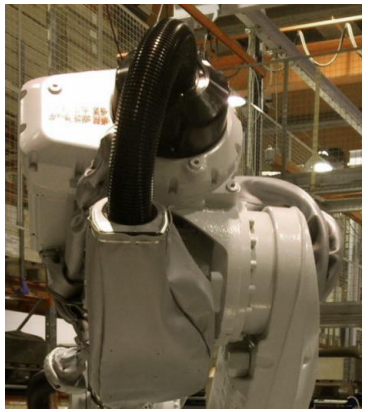
MH6/SW6



Cable Guard and LeanID MH

Foundry Plus





Summary

The numbers tell the story

20 % lower TCO

- Design focused on uptime and reliability
- Annual service time reduced 15 %
- 15 % less power consumption

Unmatched reliability

- 400,000 MTBF

High performance

- 4 - 5 % faster


ABB