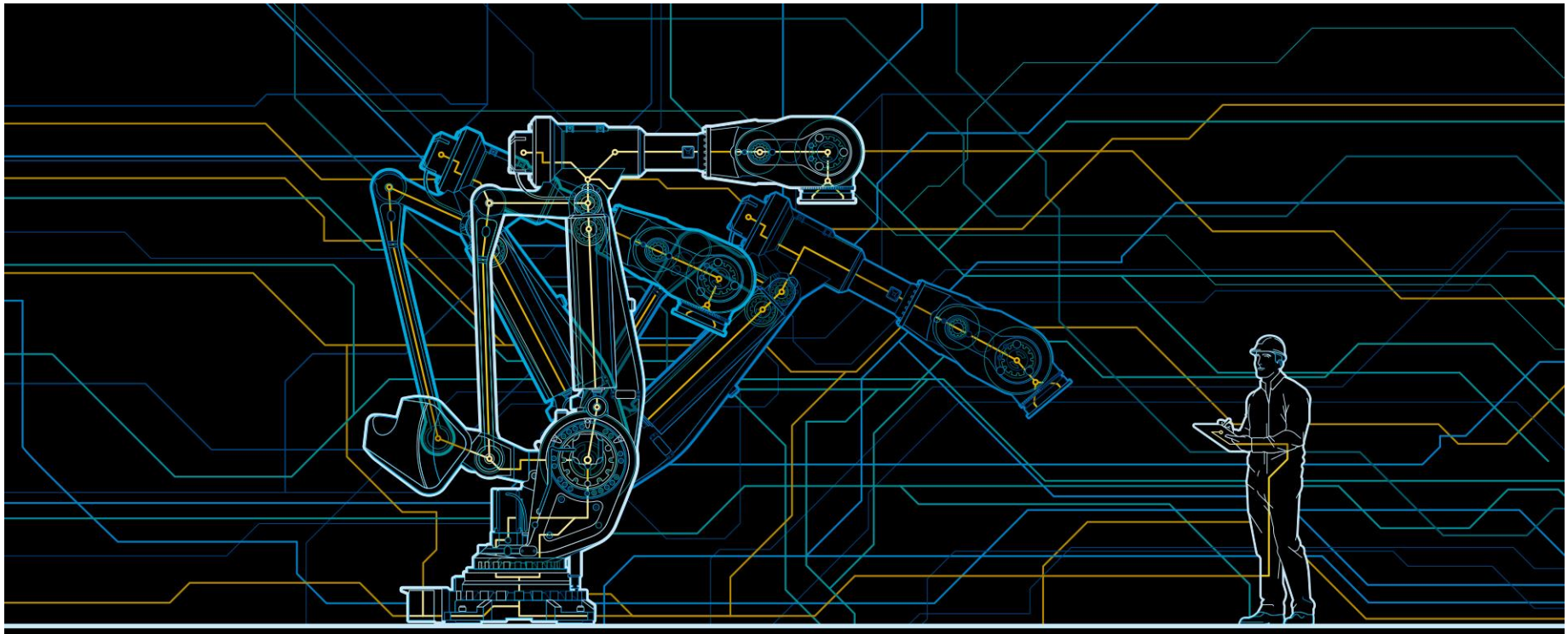

ABB Robotics

IRB 8700
Highest payload robot

Content

Introduction

- Targeted applications
- Key differentiators
- Technical data
- Summary

Introduction
Differentiated value proposition

- Lower Total Cost of Ownership (TCO)
  - Design focused on uptime and reliability
  - Reduced maintenance
- 25 % faster than any competitor in its size

Introduction
Fit in ABB product range

Introduction
IRB 8700

Introduction
Variants

IRB 8700 550/4.2

- Payload 550 kg
  - 620 kg with wrist down
  - 475 kg with LeanID
- Moment of inertia 725 kgm^2
- Reach 4.2 m
- Additional arm load 50 kg

IRB 8700 800/3.5

- Payload 800 kg
  - 1000 kg with wrist down
  - 630 kg with LeanID
- Moment of inertia 725 kgm^2
- Reach 3.5 m
- Additional arm load 50 kg

Overview
With LeanID

IRB 8700 550/4.2

- Payload 475 kg
  - 660 kg with wrist down
- Moment of inertia 725 kgm^2
- Reach 4.2 m
- Additional arm load 100 kg

IRB 8700 800/3.5

- Payload 630 kg
  - 930 kg with wrist down
- Moment of inertia 725 kgm^2
- Reach 3.5 m
- Additional arm load 100 kg

Introduction
Lower TCO: Payloads standard and LeanID

	IRB 8700	IRB 8700 Lean ID
Payload range (kg)	550-800	475-630
Reach range (m)	3.50-4.20	3.50-4.20
Variants	550 kg / 4.20 m 800 kg / 3.50 m	475 kg / 4.20 m 630 kg / 3.50 m

Lowest TCO
Difference between variants: An arm extender

Content
Target application

- Introduction
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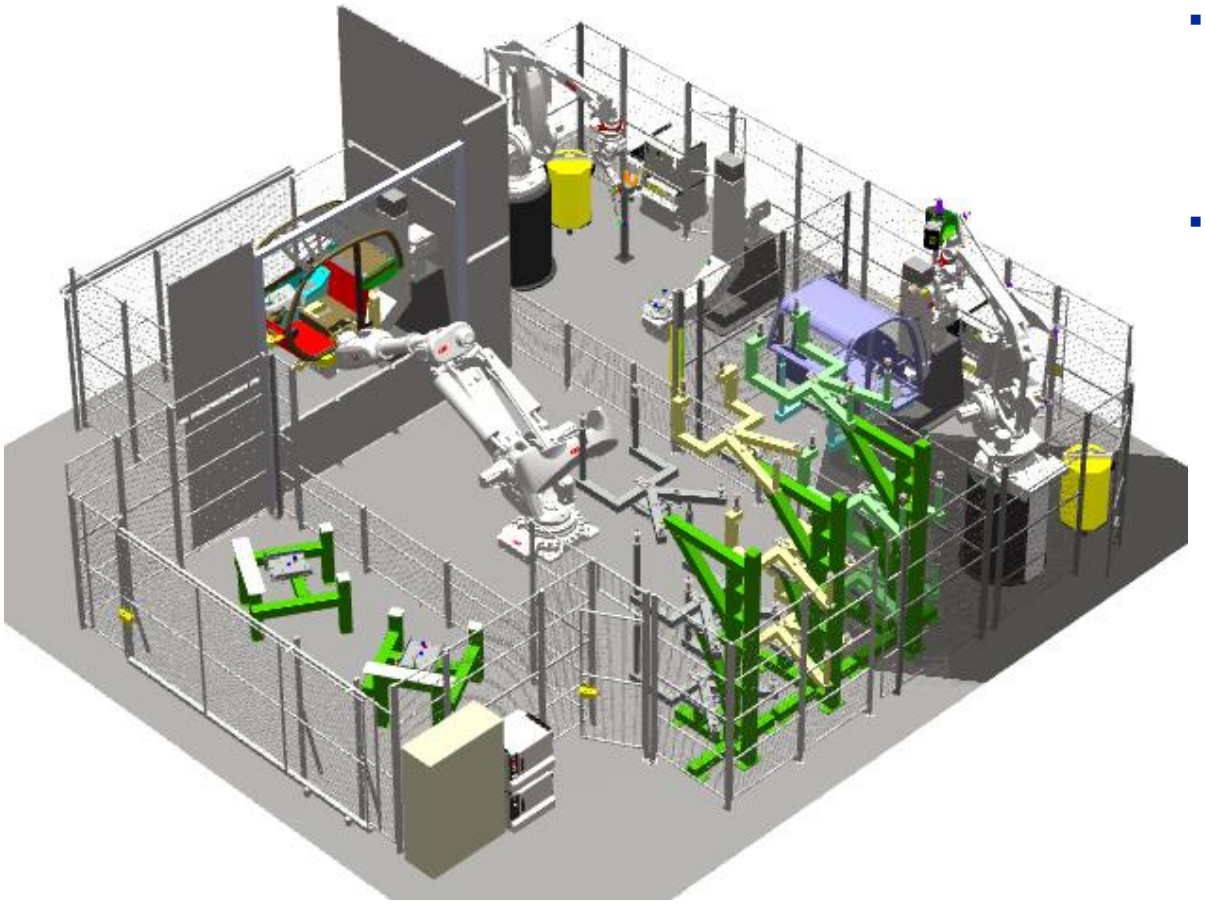
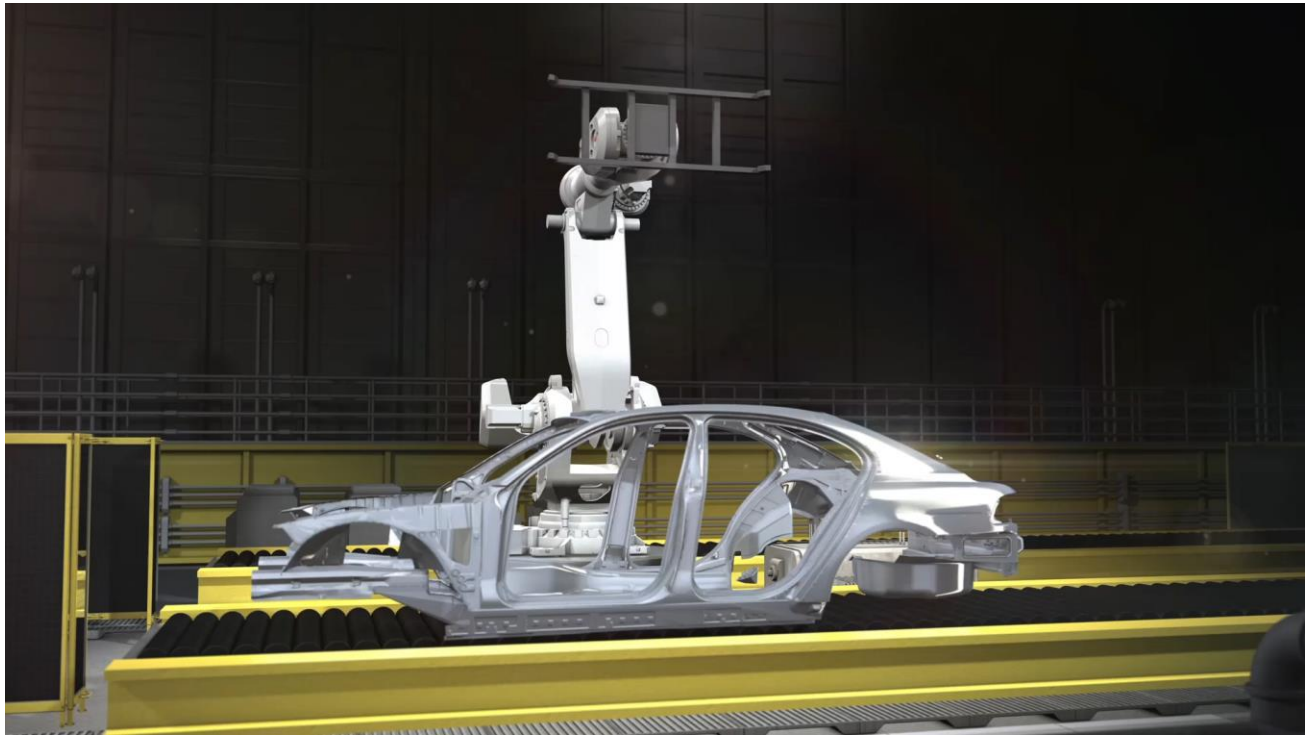
Target applications
Material Handling



- Tractor cabin moved between welding station by an IRB 8700
- Shortest cycle times a key feature in this application

Target applications
Materials Handling



- Large car body moved between transfer lines
- High uptime and running quality a key feature in highly automated expensive car lines

Content
Key differentiators

- Introduction
- Targeted applications
- **Key differentiators**
- Technical data
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Key differentiators

Lowest Total Cost of Ownership

- Outstanding reliability
- LeanID on both variants
- Long maintenance intervals and easy service
- Many components shared with IRB 6700 reduces # service procedures and # of spare parts

Faster

- By far the fastest high payload robot – 25% faster than competitors

Sustainable

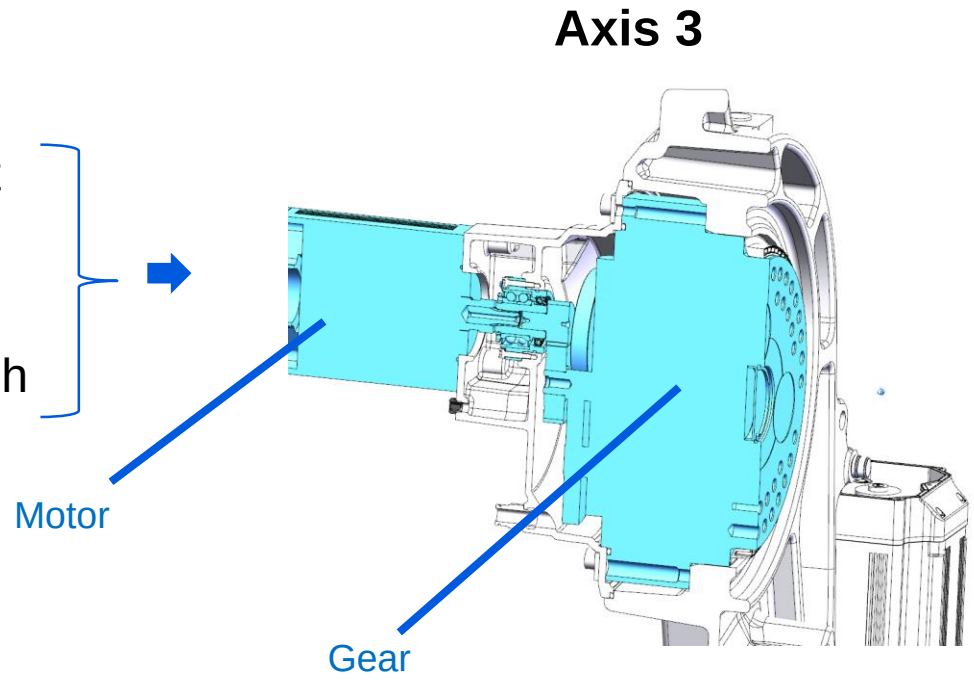
- No use of hazardous materials - Used materials within environmental directives (RoHS 2002/95/EC and Reach No1907/2006 directives)
- Modern components from world class suppliers to secure availability of spare parts

Key differentiators
Lowest TCO: outstanding reliability

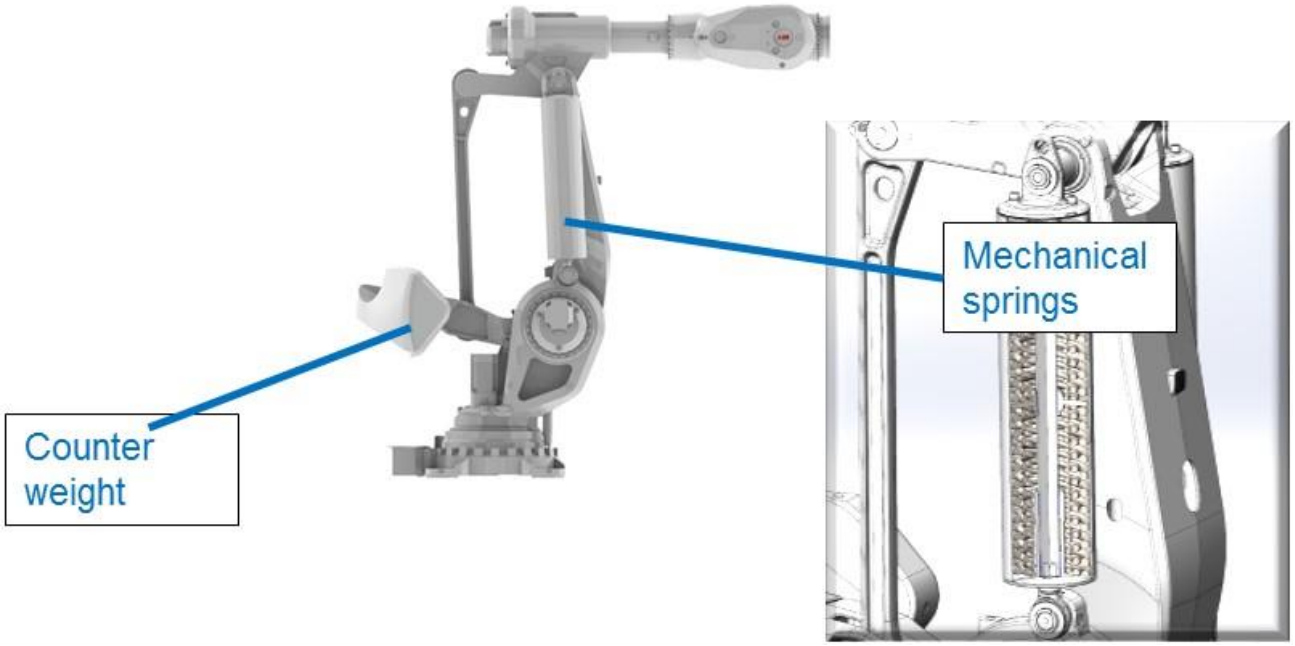
- Straight forward and uncomplicated design using world class components
  - One motor and gear per robot axis
  - Counter balancing only with mechanical springs and counterweight – no gas springs used
- LeanID for best dress pack endurance
- Foundry Plus 2 protection as standard

Key differentiators
Lowest TCO: uncomplicated and straightforward design

- One motor and one gear per robot axis
- Competitors use dual motors and/or gears for some axes on high payload robots
- IRB 8700
  - Has less components to fail
  - Gets shorter cycle times and higher accuracy
  - Less difficult to service

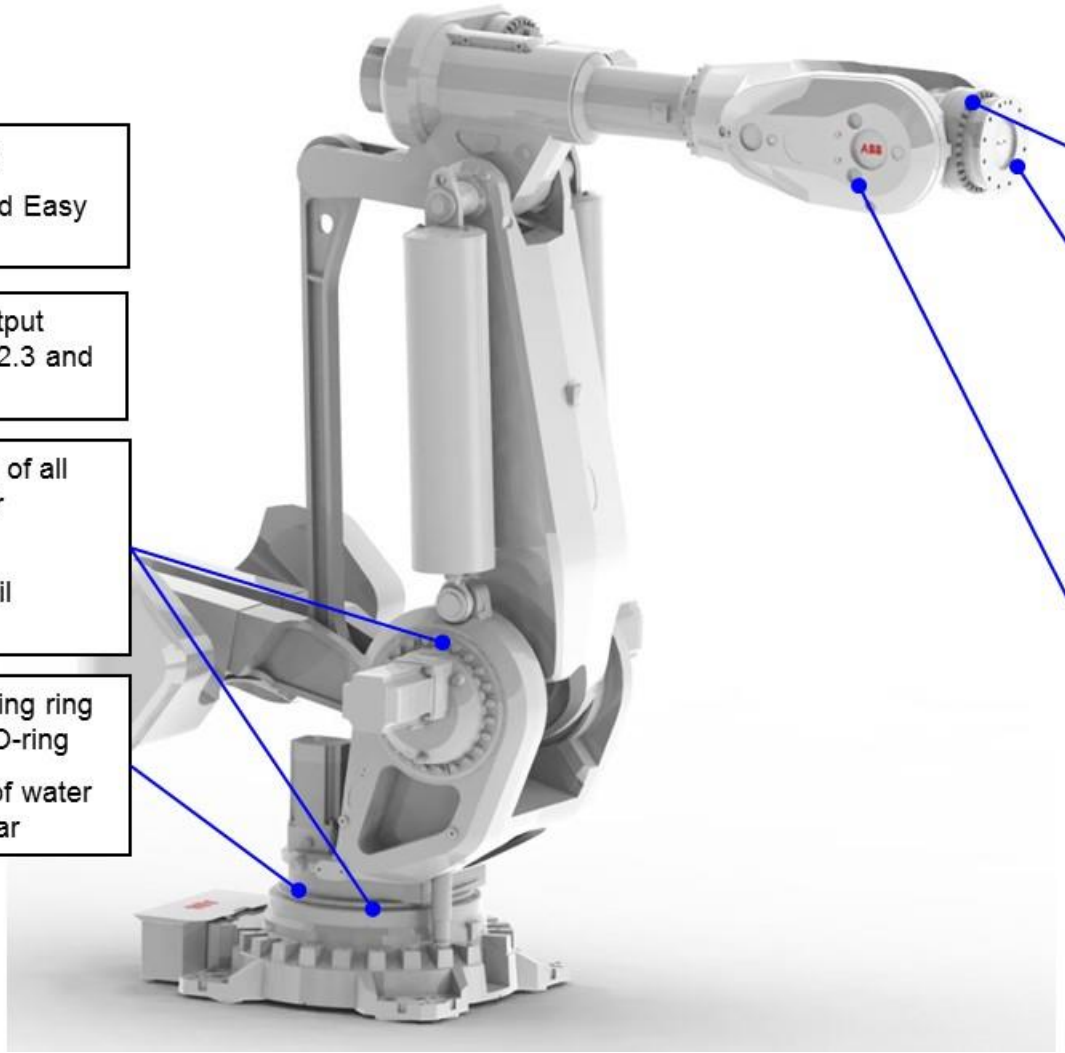


Key differentiators
Lowest TCO: most robust, no gas balancing cylinder



- No gas springs used – Very reliable counter weight and mechanical springs for counter balancing
- Gas springs (used by some competitors) can leak and may cause safety problems

Key differentiators
Lowest TCO: outstanding reliability



New Axis Calibration

=> High accuracy and Easy to Use

Improved sealing output shaft for gears axes 2.3 and 6

Complete machining of all surfaces exposed for gearbox oil ax 1-3

=> reduced risk for oil contamination

Improved upper sealing ring ax 1 with additional O-ring

=> reduces the risk of water getting inside the gear

Improved sealing axis 5 support side

Lean ID dresspack with controlled movements

=> less wear and damage of both dresspack and wrist

Fully sealed gearbox / turning disc

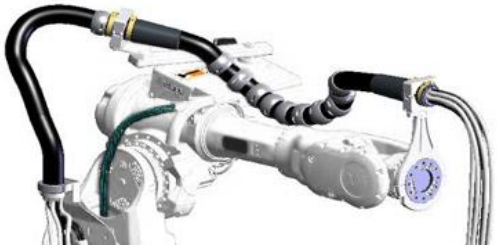
=> No oil leakage

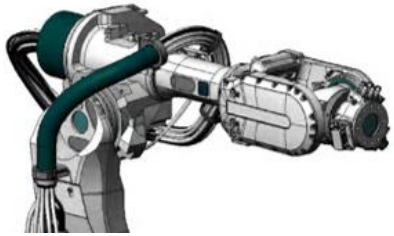
Smooth wrist shape and surfaces with recessed screw heads

=> less wear of both dresspack and wrist

Key differentiators
Lowest TCO: LeanID, next generation dress packs

High uptime and flexible production



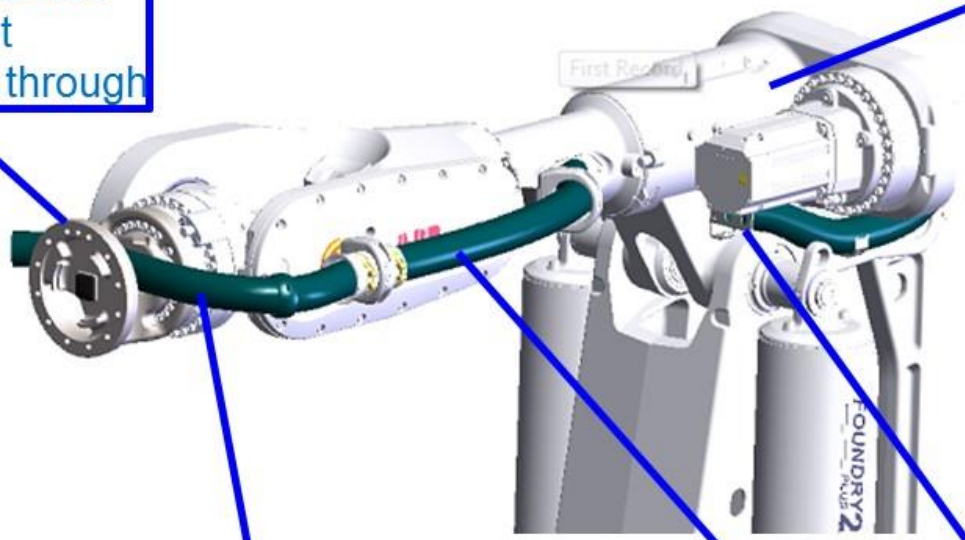


External dress pack
- Low cost
- Scalable - solutions for all robot variants available
- Short dress pack life time
- Does not support flexible production – small working range
- Bulky
- Difficult to simulate

Integrated dress pack
- High cost
- Not scalable in size –available for 2 robot variants
- Long dress pack life time
- Supports flexible production – working range improved
- Compact
- Easy to simulate
- Unique wrist design with unique spare parts and service procedures

LeanID dress pack
- Medium cost
- Scalable – available for all robot variants
- Long dress pack life time
- Supports flexible production – best working range
- Compact
- Easy to simulate
- Based on a standard robot => no new spare parts or service procedures
- Shortest time for changing upper arm dress pack

Key differentiators
Lowest TCO: LeanID, long lifetime dress pack solution



Wrist bracket – possible to divide to easily get connectors through

Axis 4 motion by torsion in center of upper arm

Upper arm dress pack warranty same as robot warranty

Upper arm dress pack can be changed in 6 minutes

Axes 5 and 6 motions by free motion in wrist bracket

Dress pack in fixed position along the upper arm

Connectors between upper and lower arm dress pack

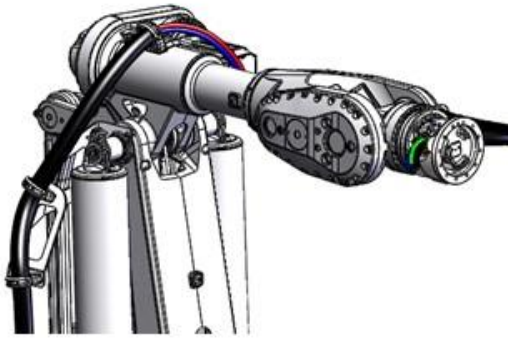
Key differentiators

Lowest TCO: LeanID, future dress pack for complete robot range

IRB 6650S
- 2 variants
- Introduction in 15.2

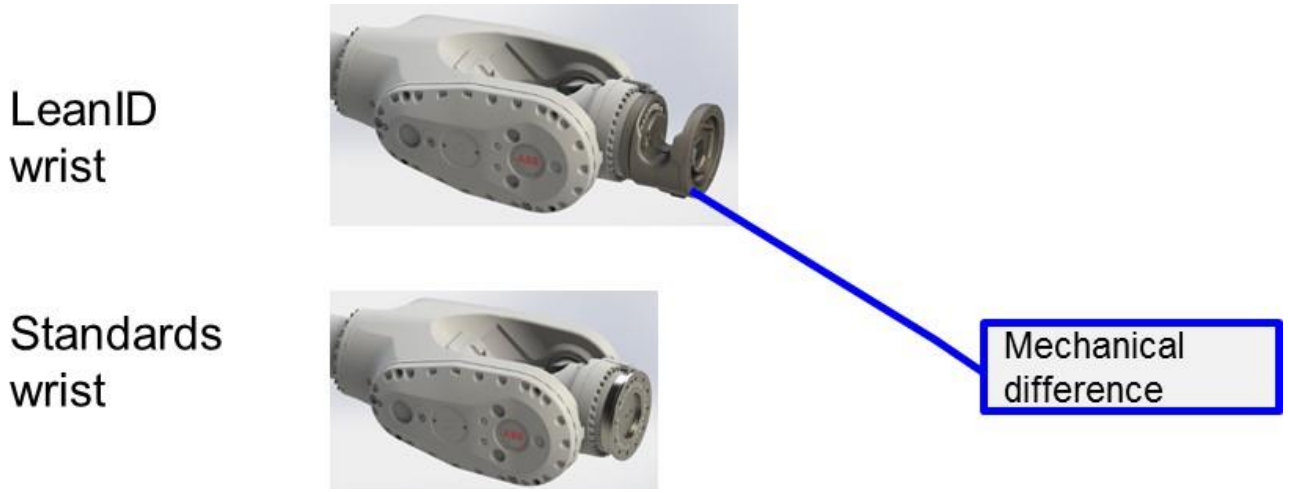
IRB 6700
- 8 variants

IRB 7600
- 3 variants
- Introduction in 16.1



IRB 8700
- 2 variants

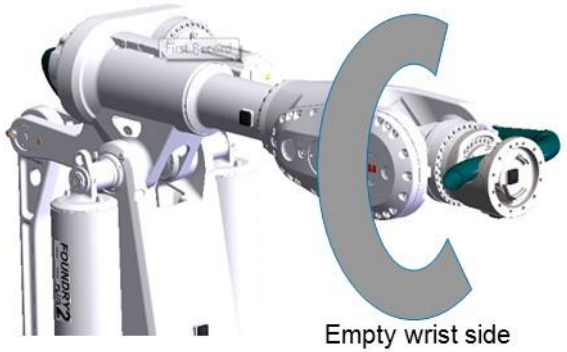
Key differentiators
Lowest TCO: LeanID



Design based on trusted design

- No new spare parts
- No new maintenance procedures
- Easy to re-use the robot in any new application

Key differentiators
Lowest TCO: LeanID, flexible production by large working range

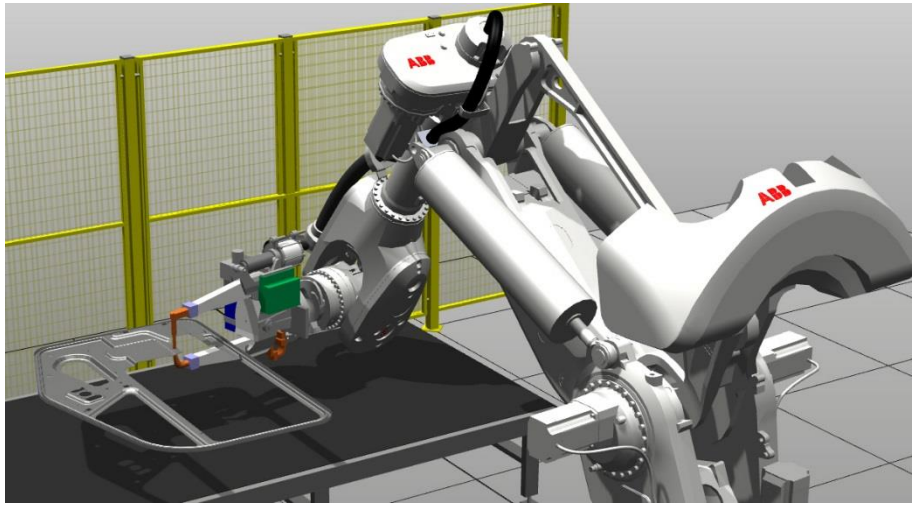


	Dress pack working range
Axes 4&6	±300° ax 4 and ±220° ax 6 independent of each other
Axis 5	±120°

High dress pack uptime in flexible line concepts

- Many different parts can be produced - Large dress pack working range
- Easy to enter narrow spaces - Large dress pack working range enables “empty side” access
- Improved accessibility - More compact than traditional external dress packs
- Robot cycle to be tested off line - Accurate simulations by well-defined cable motions
- Lean ID on both all robot variants - Standard solution for any application in a line

Key differentiators
Lowest TCO: Easy and accurate to simulate off line



- Dynamic 3D models
  - RobotStudio®, Delmia V5 Robotics, Process simulate, RobCAD
- Static 3D models
  - IGES, STEP, Parasolid, ACIS
- Layout models
  - DXF, DWG
- Both arm variants available in 4 versions
  - Std
  - MH3
  - LeanID SW
  - LeanID MH

Key differentiators
Outstanding reliability

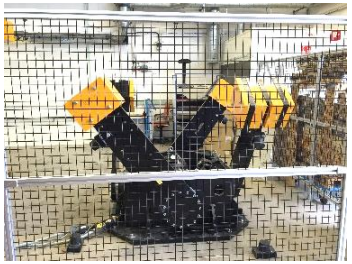
- Straight forward and uncomplicated design using world class components
  - One motor and gear per robot axis
  - Counter balancing only with mechanical springs and counterweight – no gas springs used
- LeanID for best dress pack endurance
- Foundry Plus 2 protection as standard

Key differentiator
Lowest TCO: outstanding reliability, focus on validation

Extensive validation





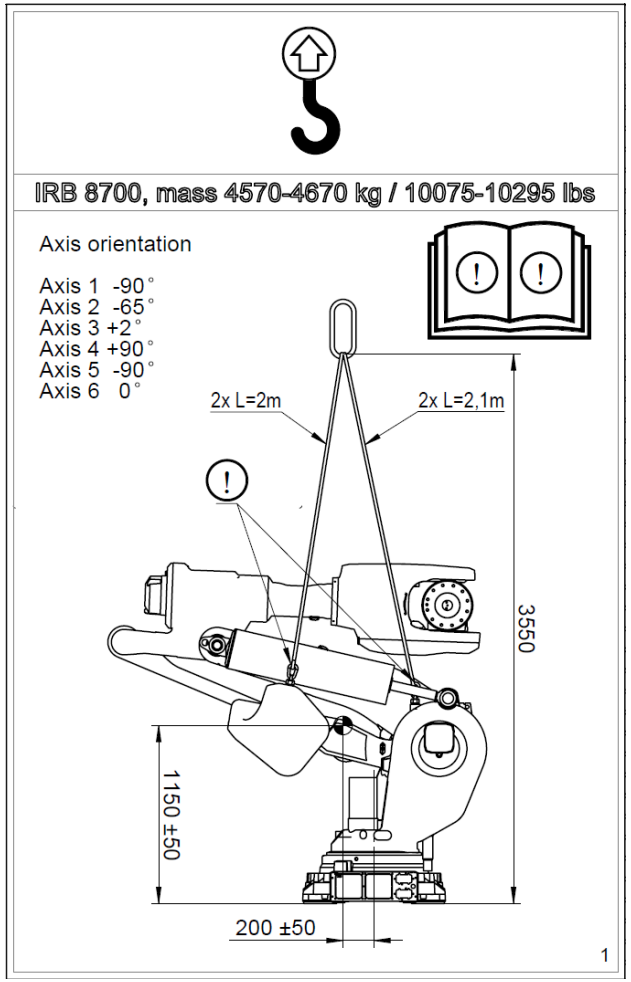




Key differentiators
Lowest TCO: low maintenance

As an average twice as long time between service

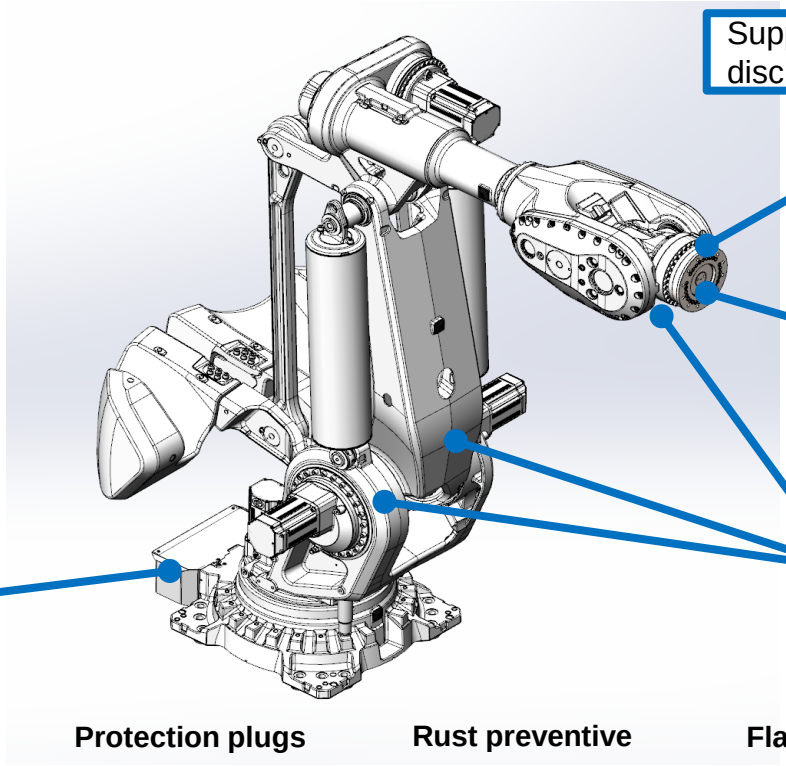
Gear box oil change interval ax 1-3, 6	After 20000 h , quick connections on axes 1-3 to reduce time for draining / filling oil *(ref 6000 h+24000 h)*
Gear box oil change interval ax 4-5	After 20000 h
Battery change	After 4 years , 3 shift *(ref at low alert after 2 years)*
Counter balancing cylinders	Lubrication after 4 years, 3 shift *(ref 2.5 years)*
Gears life time	After 8 years & 3 shift in normal BIW operation an inspection/overhaul is needed
Annual inspection	20 min, Gear box oil levels, harnesses, labels, balancing device, mech. Stops

Key differentiators
Lowest TCO: lowest maintenance and easy change of spare parts



- Optimized service procedures
- Based on many design principles and components from IRB 6700
- Easy to use manuals
  - Few cross references makes it easier to read
  - Many illustrative pictures
  - Summaries added describing tools and parts needed and short routine description

Key differentiators
Lowest TCO: with Foundry Plus 2 prepared for harsh environments



Support shaft with an added sealing disc

IRB 6700 wrist concept regarding foundry protection

Turning disc with Nickel-phosphorus coating

Tailor made sealing to protect output gear shaft

All external plates in stainless steel

Paint
- Foundry paint

Screws
- Motor cover
- Armhouse cover
- Connection boxes
- UL-bracket

Protection plugs
- Threaded holes

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

Flange sealing
- Motors

Sealant (Sikaflex)
- At all minor gaps that will not be protected by paint

Key differentiators
Lowest TCO: easier and less service

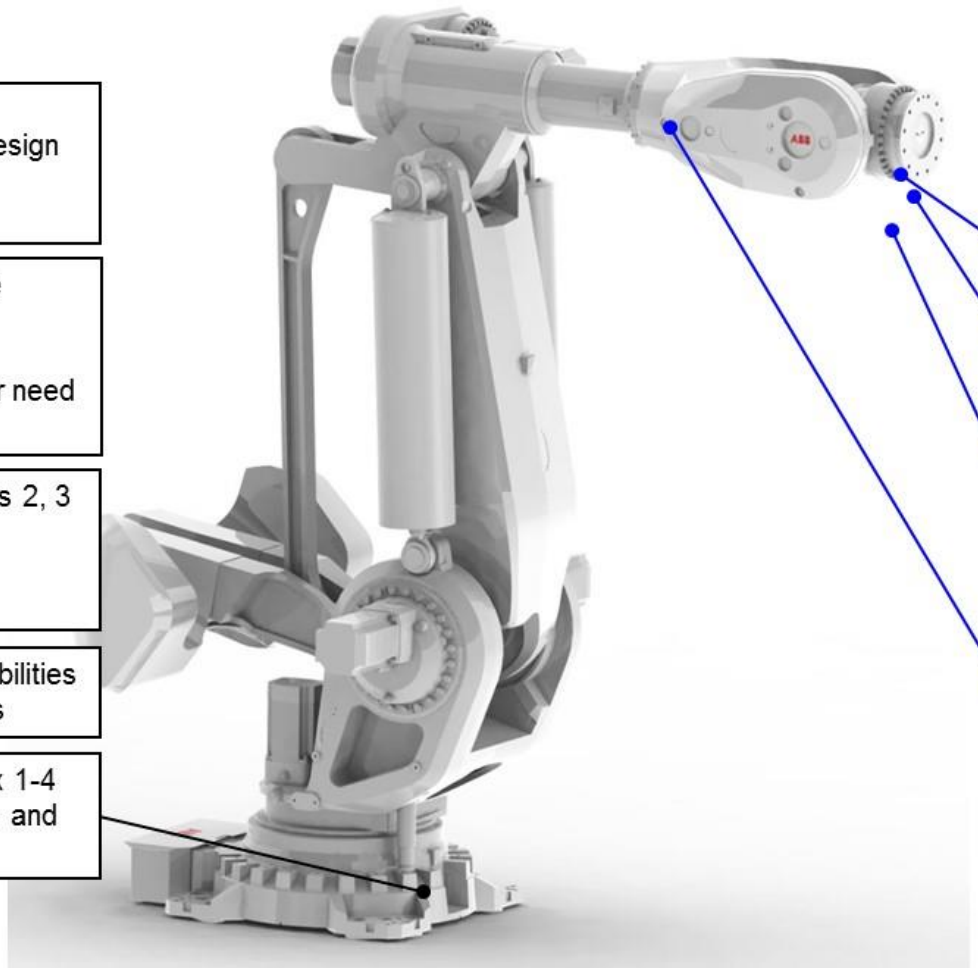
Easy and straightforward design without complex solutions

All motors can be changed without dismounting any structural parts or need for oil drainage

Gear change axes 2, 3 and 6 without dismounting any structural parts

Good lifting possibilities on all heavy parts

Quick coupling ax 1-4 for faster draining and filling of oil



New Axis Calibration

=> High accuracy and Easy to Use

Oil change ax 6 w/o need of dismounting the ”frying pan” and dresspack

Exchange of Lean ID upper arm dresspack below 15 minutes

Sync track ax 5 relocated for better visibility when tool is mounted

Exchange of motor ax 5 w/o need of dismounting wrist and draining oil

Key differentiators
Sustainable: non hazardous materials used

- Complies with environmental directives RoHS 2002/95/EC and Reach No1907/2006 directives

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Technical data

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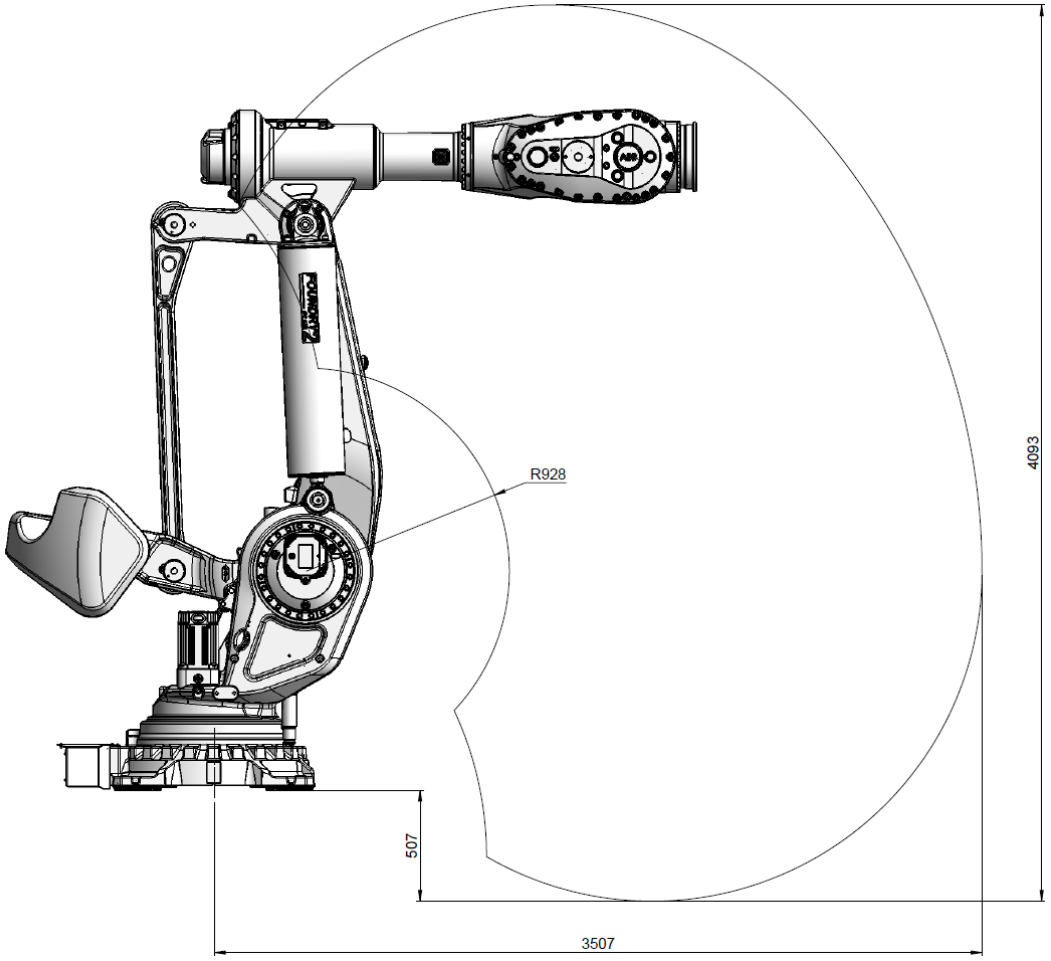
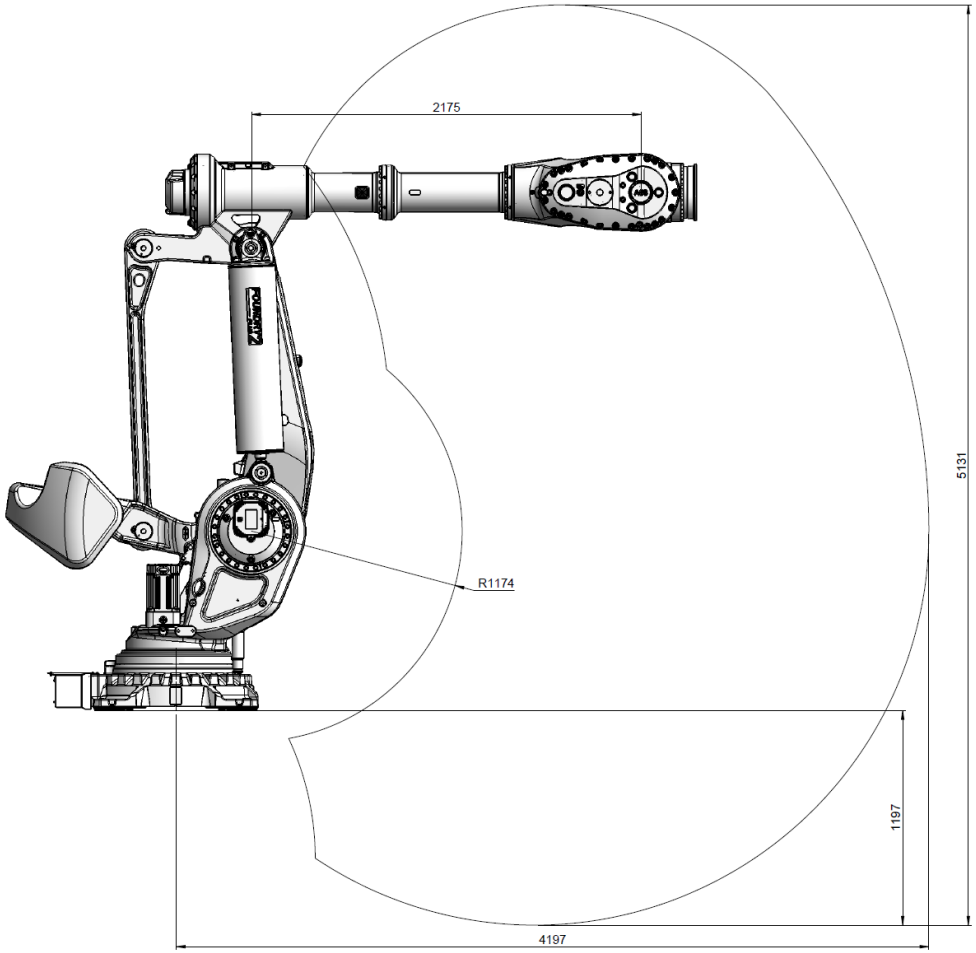
Technical data

Robot		IRB 8700	
Variant		550/4.2	800/3.9
Payload	kg	550	800
Payload outlay	mm	460	460
LeanID Payload	kg	475	630
LeanID Outlay	mm	460	460
Reach	m	4,2	3,5
Weight	kg	4600	4600
Range ax 1	°	±170°	±170°
Range ax 2	°	+ 90°,- 65°	+ 90°,- 65°
Range ax 3	°	+132°,-30°	+132°,-30°
Range ax 4	°	±300°	±300°
Range ax 5	°	±130°	±130°
Range ax 6	°	±360°	±360°
Range ax 4 LeanID		±300°	±300°
Range ax 5 LeanID		±130°	±130°
Range ax 6 LeanID		±360°	±360°
Vel. ax 1	°/sec	75	75
Vel. ax 2	°/sec	60	60
Vel. ax 3	°/sec	60	60
Vel. ax 4	°/sec	85	85
Vel. ax 5	°/sec	85	85
Vel. ax 6	°/sec	115	115
Standard protection		Foundry Plus2	Foundry Plus2
Foundry Plus 2 (option)		Std	Std
Foundry Prime (option)		No	No
Clean Room (option)		No	No
Dress Pack (option)		SW, MH to ax.6	MH to ax.5
LeanID Dress pack (option)		MH, SW	MH, SW
Moment of inertia ax 6	kgm^2	725	725

Technical data
Working range IRB 8700-800/3.5



Technical data
Working range IRB 8700-550/4.2



Content
Summary

- Overview
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Summary

- Lower Total Cost of Ownership (TCO)
  - Design focused on uptime and reliability
  - Reduced maintenance
- 25 % faster
  - ….than any competitor in its size

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