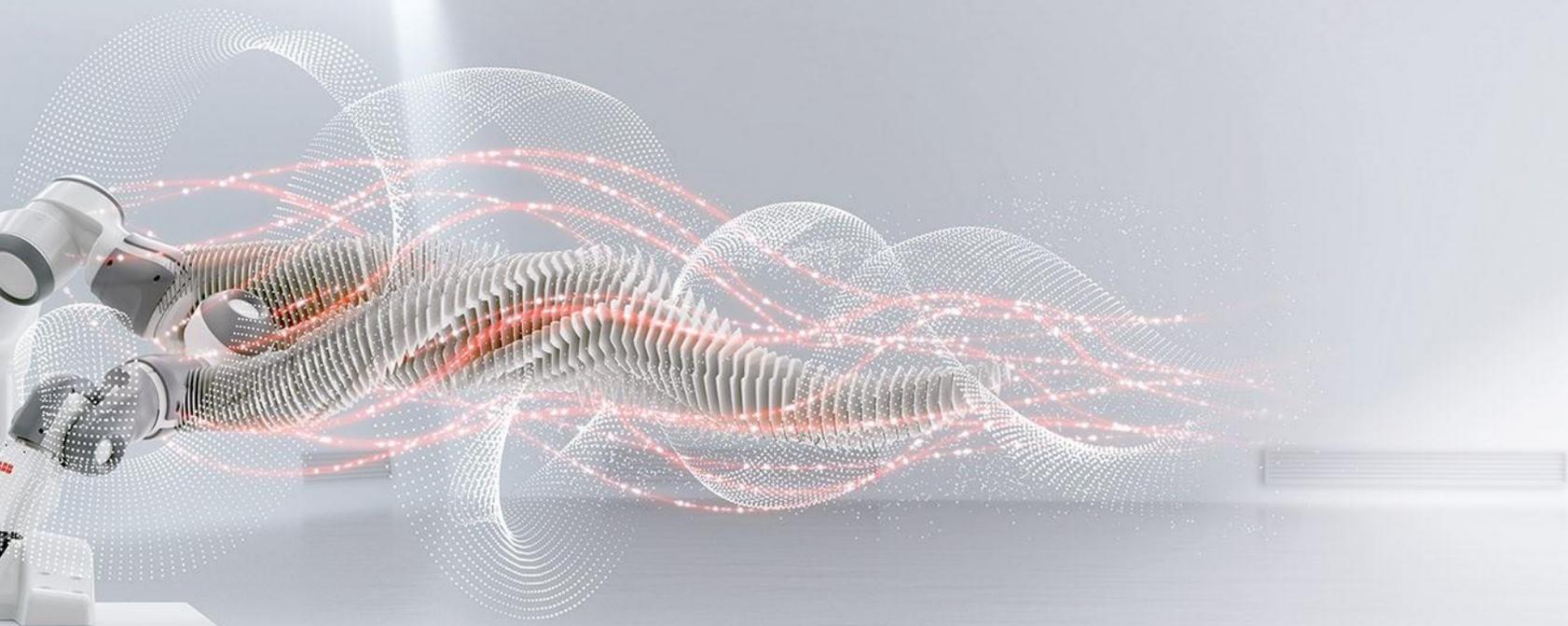


EXTERNAL



EXTERNAL

# IRB 6790

New generation of Foundry Prime



---

# Agenda

Overview

Targeted applications

Features and Key differentiators

Sustainable

Technical data

Summary



# Overview

# Overview

Third generation of Foundry Prime robots

2005

IRB 6600 FP



**FOUNDRY**  
**PRIME**

2009

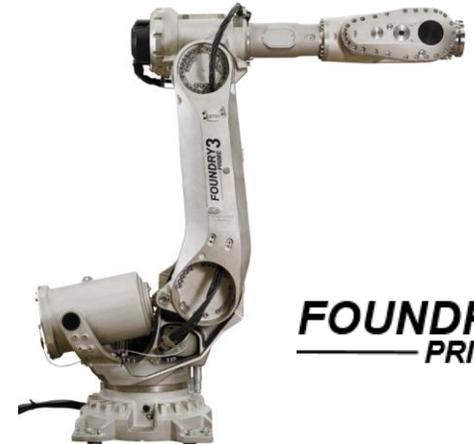
IRB 6640 FP2



**FOUNDRY 2**  
**PRIME**

2021

IRB 6790 FP3



**FOUNDRY 3**  
**PRIME**

15+ years of domain expertise in harsh environments for washing and cleaning

# Overview

## Differentiated Value Proposition

- The IRB 6790 robot targets washing and cleaning applications in harshest industrial environments with 100% humidity.
- Designed for high reliability and uptime, the IRB 6790 minimizes the total cost of ownership and up to, at least, 60% reduces maintenance costs, compared with IRB 6640.
- Improved handling capacity with increased reach and load.
- The IRB 6790's high flexibility allows cleaning of different part geometries in the same cell and provides increased speed on average 5% shorter cycle time while reducing energy consumption by 15%, compared with IRB 6640.

Unrivalled performance in harsh environments

Available in two variants:

- 205 kg, 2.80 m
- 235 kg, 2.65 m



---

# Targeted Applications

---

# Targeted Applications

Material Handling in harsh environments

---

## IRB 6790 – Foundry Prime 3

**Cleaning** **Wet**  
**Deburring**  
**Metal-spits** **Oils**  
**Lubricants**  
**Waterjet** **Humidity** **Washing**  
**100%-** **Chemicals**  
**High-pressure**  
**Detergents**  
**Warm** **Solvent**

---

## Target Industries

- Automotive OEM
- Auto Tier
- Metals
- General Industry

---

## Target Applications

- High pressure cleaning
- High pressure deburring
- Immersion cleaning
- Waterjet cleaning
- Washing

---

# Targeted Applications

The toughest robot applications on the market

## Washing and cleaning of casted and machined parts

### High pressure cleaning/deburring

- Component cleaning with high-pressure waterjet deburring. The goal of the treatment is to remove and flush away stubborn contamination from the part surface (e.g. metal deposits, oils etc.).
- The pressure of the waterjet is highly dependent on the specific type of contamination. High Pressure Water Deburring (HPWD) is an example used to deburr machined metal parts without removing bulk materials.



---

# Targeted Applications

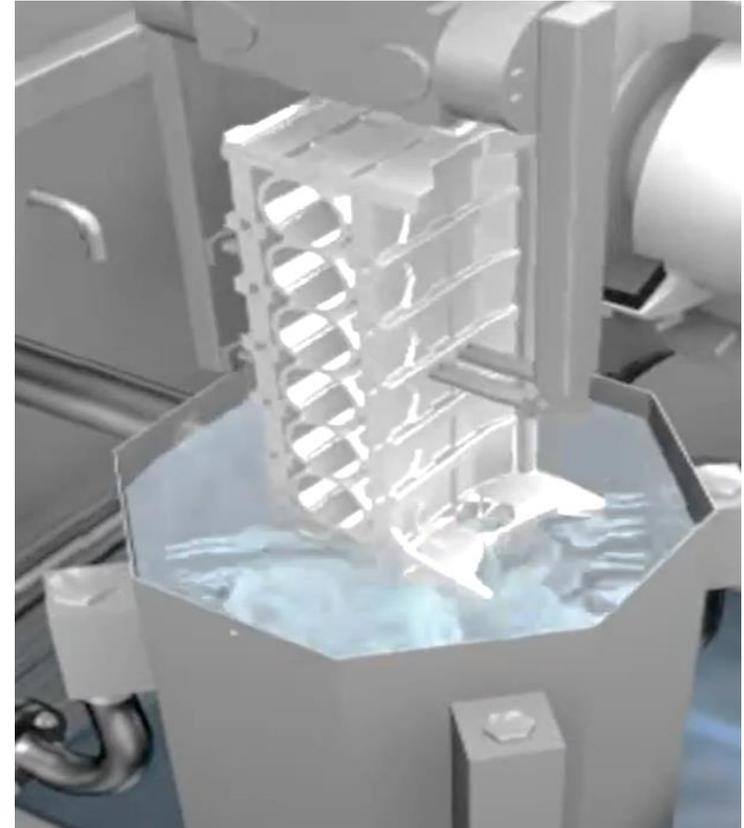
The toughest robot applications on the market

## Washing and cleaning of casted and machined parts

---

### Immersion cleaning

- Goal is to remove and flush away loosely adhering burrs from critical areas. Parts of complex geometry, e.g., blind holes, undercuts, etc., are commonly cleaned by immersion i.e., dipping the object in a substance. Unlike high pressure cleaning which is carried out predominantly with aqueous media, immersion cleaning is also performed using solvents.
- As the part is immersed in the cleaning bath, foreign matter adhering to its surface is removed mainly by the chemical cleaning action of the fluid.

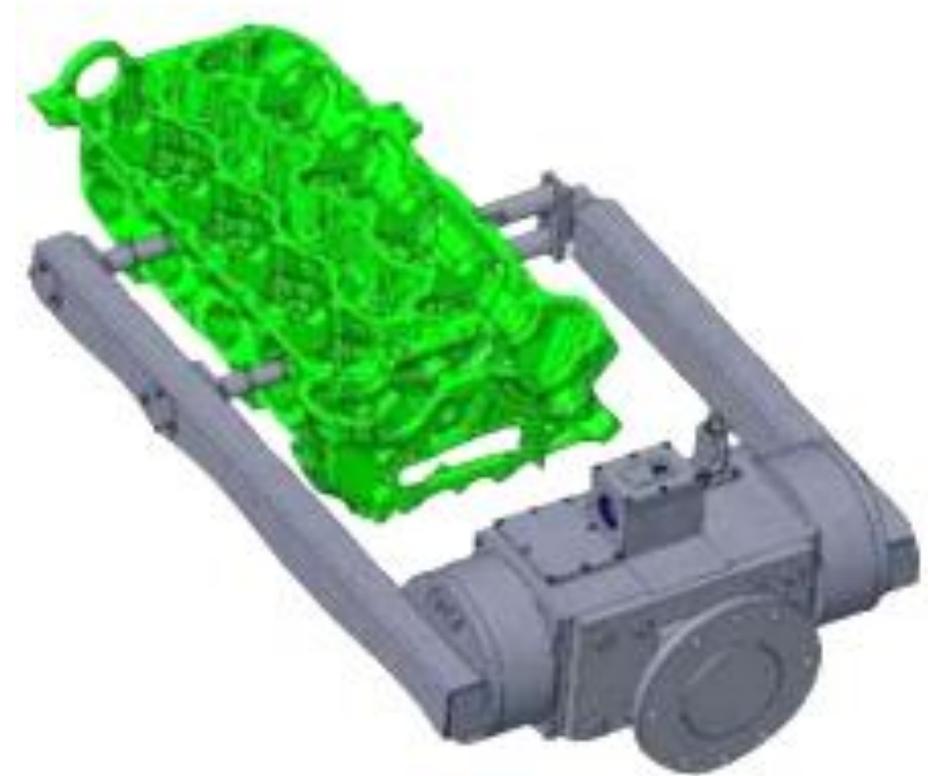


# Targeted Applications

## Application and Environmental needs

### Application characteristics

- Intermediate- and final cleaning of automotive parts (engines, crank shafts, cam shafts, steering parts)
- Surrounding high pressure water 135-700 bar/2,000-10,000 psi (application dependent)
- High humidity & fluids splashing on the robot handling the workpiece
  - Contaminant of oil, solids, metal chips in water and mist surrounding the robot
  - Heated water and cleaning chemicals/detergents
- Designated deburring nozzles are used in both processes high pressure and immersion cleaning
- Blow off knife or complete drying in the same chamber
- High up-time, availability and reliability is required in harsh environments

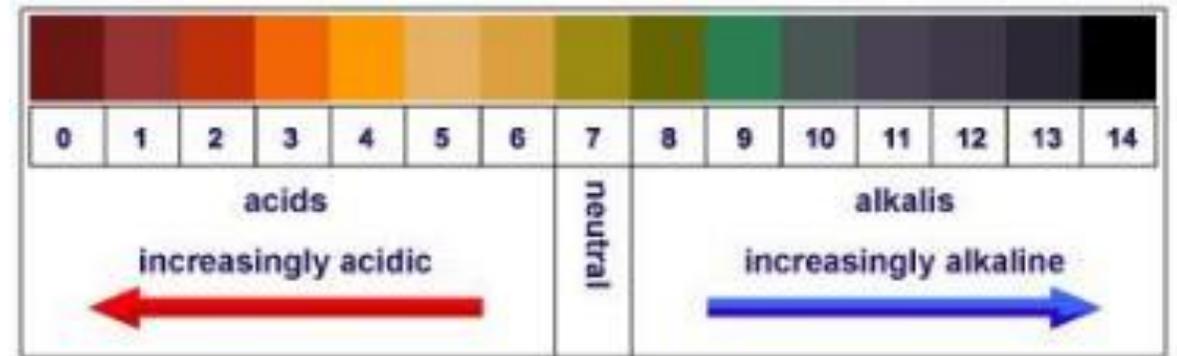


# Targeted Applications

## Application and Environmental conditions

### Environmental conditions

- Humidity: 100%
- Environmental temperature: + 5°C to + 50°C
- Washing detergent bath temperature up to 60°C (140°F)
- Washing detergent
  - Neutral/alkaline cleaners with up to pH 10
  - Commonly used detergents and concentrations
  - No residues during shut down periods
  - Washing and cleaning detergents with corrosion inhibitor is recommended

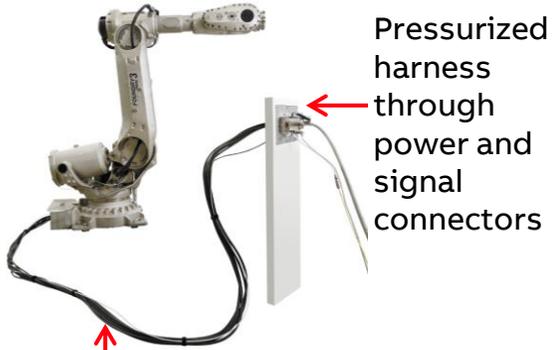


---

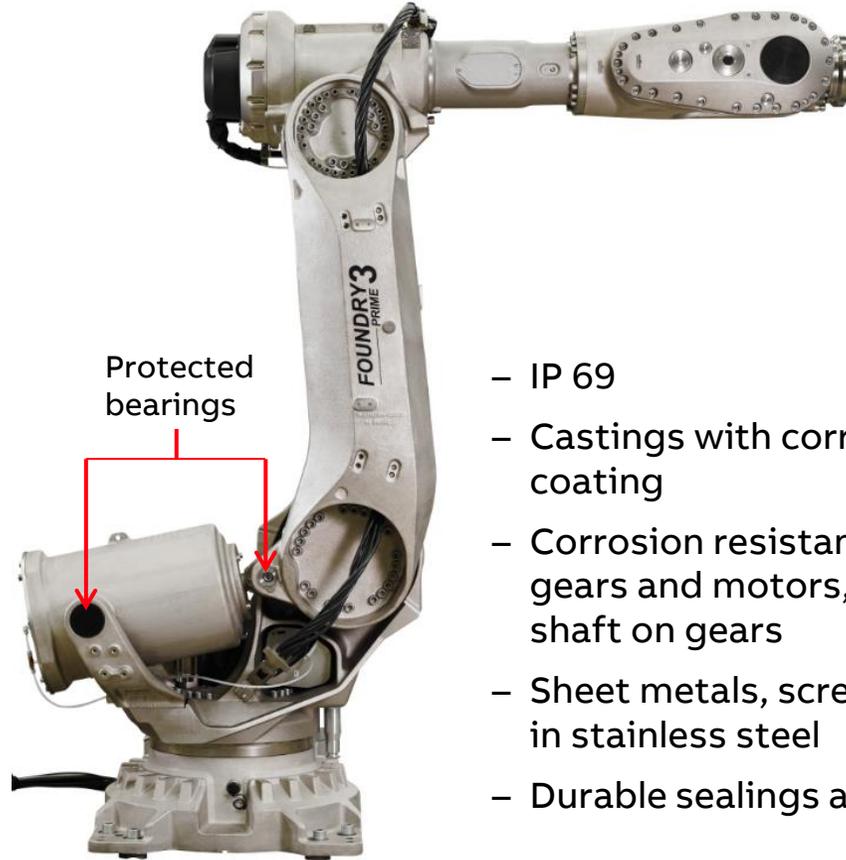
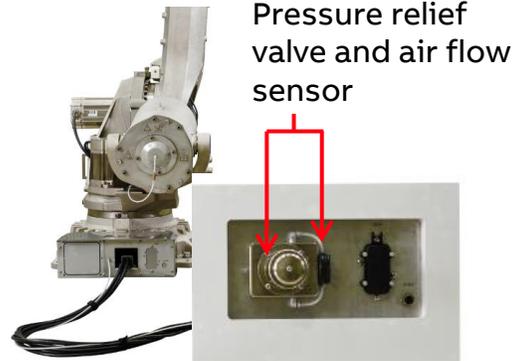
# Features and Key differentiators

# Features

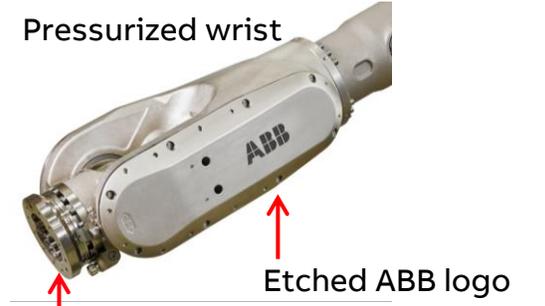
## Overview



Extended robot connectors



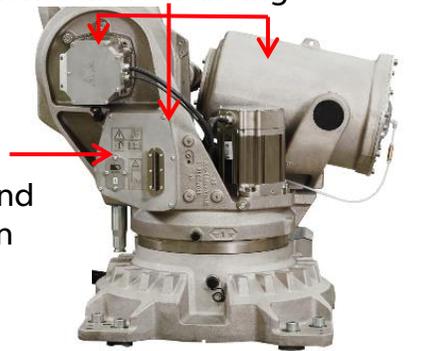
- IP 69
- Castings with corrosion resistant coating
- Corrosion resistant coating on gears and motors, stainless steel shaft on gears
- Sheet metals, screws and washers in stainless steel
- Durable sealings and gaskets



Flange in corrosion resistant coating

Pressurized motors, electronic compartments and balancing unit

Etched warning and instruction signs

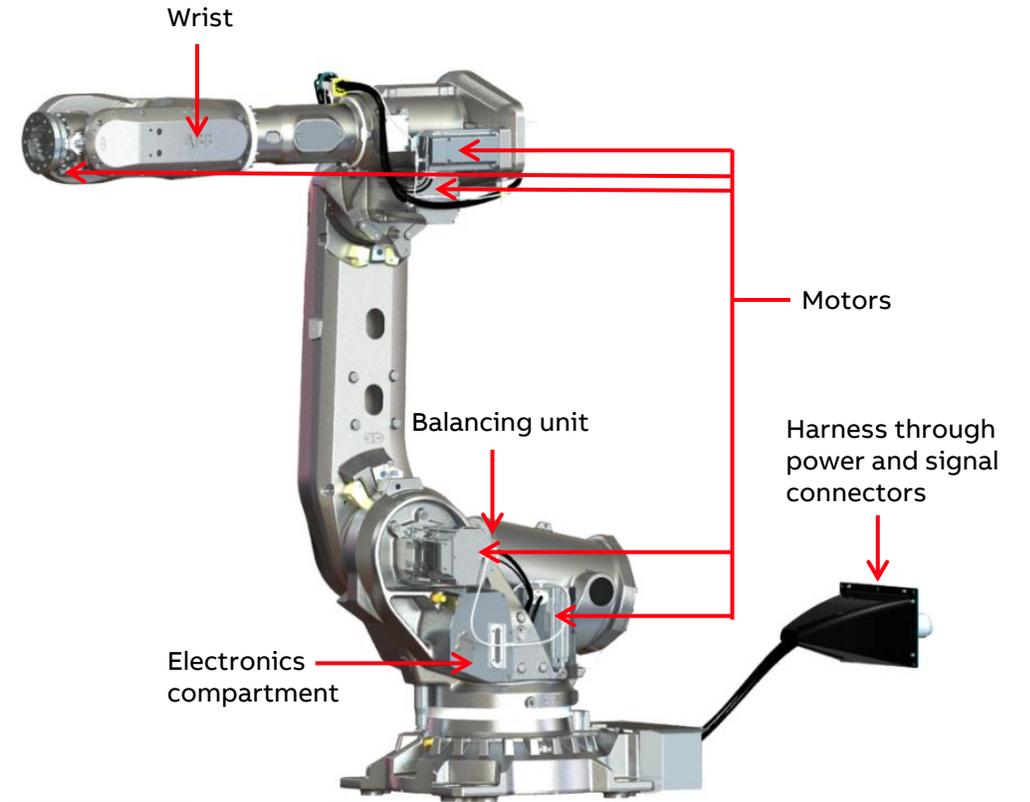


# Features

## Pressurizing System

### Overpressure system

- All electronics, connectors, motors and balancing system are protected with overpressure.
- The system is pressurized through air hoses. The wrist is pressurized with air hoses from motor axis 3 through upper arm.
- The overpressure is supervised regarding leakage

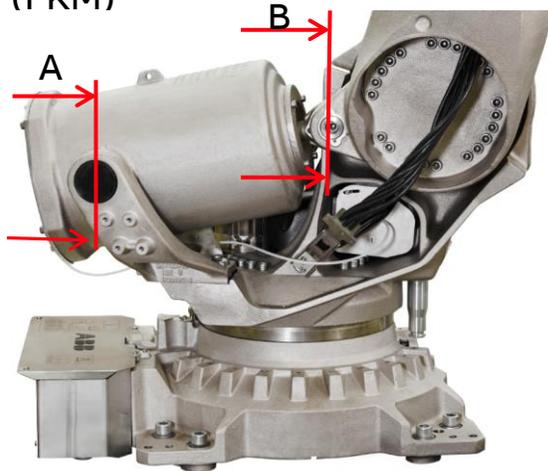


# Features

## Protected bearings on balancing device

### Bearing design comparison

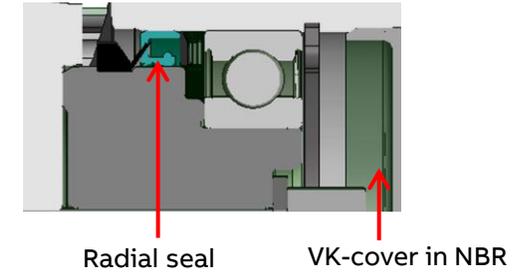
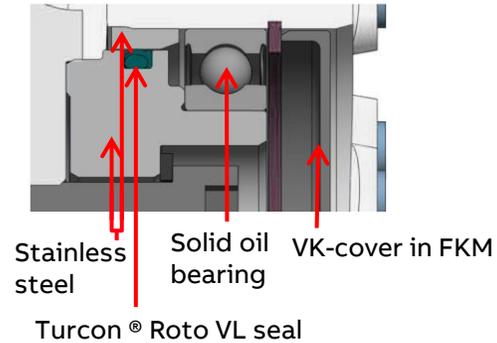
- All bearings are of Solid oil type
- Radial seals are replaced by Turcon® Roto VL Seal® seals in Polyethene
- All sealing joint shafts are in stainless steel.
- O-rings and VK-cover in Fluoro-Elastomer rubber (FKM)



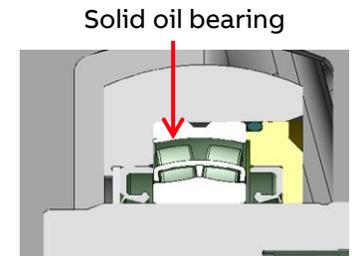
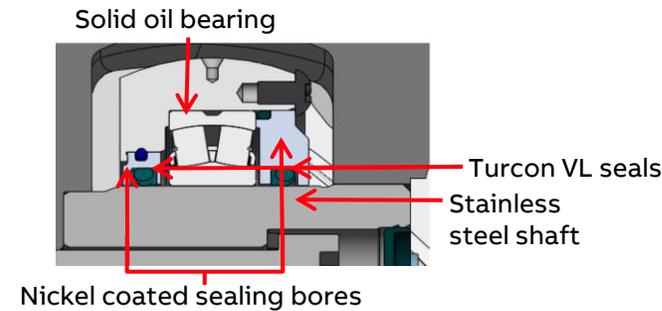
IRB 6790

IRB 6700 STD/F+  
IRB 6640 FP2

A



B



---

# Key Differentiators

## Lowest TCO

- Annual service time significant reduced
- Reduces maintenance costs by at least, 60% .

## Outstanding reliability

- Design focused om uptime and fault free operation
- High protection against liquids and solids with IP 69
- Corrosion resistant surfaces
- Higher thermal and chemical resistance

## Sustainable

- 15 percent less power consumption

**FOUNDRY3**  
**PRIME**

# Key Differentiators

Compared with IRB 6700 Foundry Plus and IRB 6640 Foundry Prime 2

## IRB 6790 Foundry Prime 3



Washing cell - 100% humidity

## IRB 6700 Foundry Plus



Rough environment,  
temporary high humidity

## IRB 6640 Foundry Prime 2



Washing cell - 100% humidity

### Intended use

| Intended use                                       | IRB 6790 Foundry Prime 3                                     | IRB 6700 Foundry Plus                                 | IRB 6640 Foundry Prime 2                              |
|--|--|---|---|
| Protection class                                   | IP69   | IP67  | IP69  |
| Surface treatment on castings                      | Nickel plated  | Painted   | Durable paint   |
| Covers in sheet material                           | Stainless steel  | Some Zink-plated and some stainless steel and painted | Some Zink-plated and some stainless steel and painted |
| Rubber material in gaskets and O-rings             | FKM <sup>1</sup> and NBR <sup>2</sup> for harsh environments | Different qualities                                   | Different qualities                                   |
| Connectors between manipulator and controller      | Installed in robot cell wall                                 | On manipulator base                                   | On manipulator base                                   |
| Air pressurized motors and electronics compartment | Yes, and supervised  | No  | Yes   |
| Warning signs                                      | Etched   | Labels  | Labels  |

---

# Sustainable

# Sustainable

15 percent reduced energy consumption



## IRB 6640

A front runner in low energy consumption



## IRB 6790

15 percent less energy consumption compared with IRB 6640

---

## Sustainable

Built from non-hazardous materials



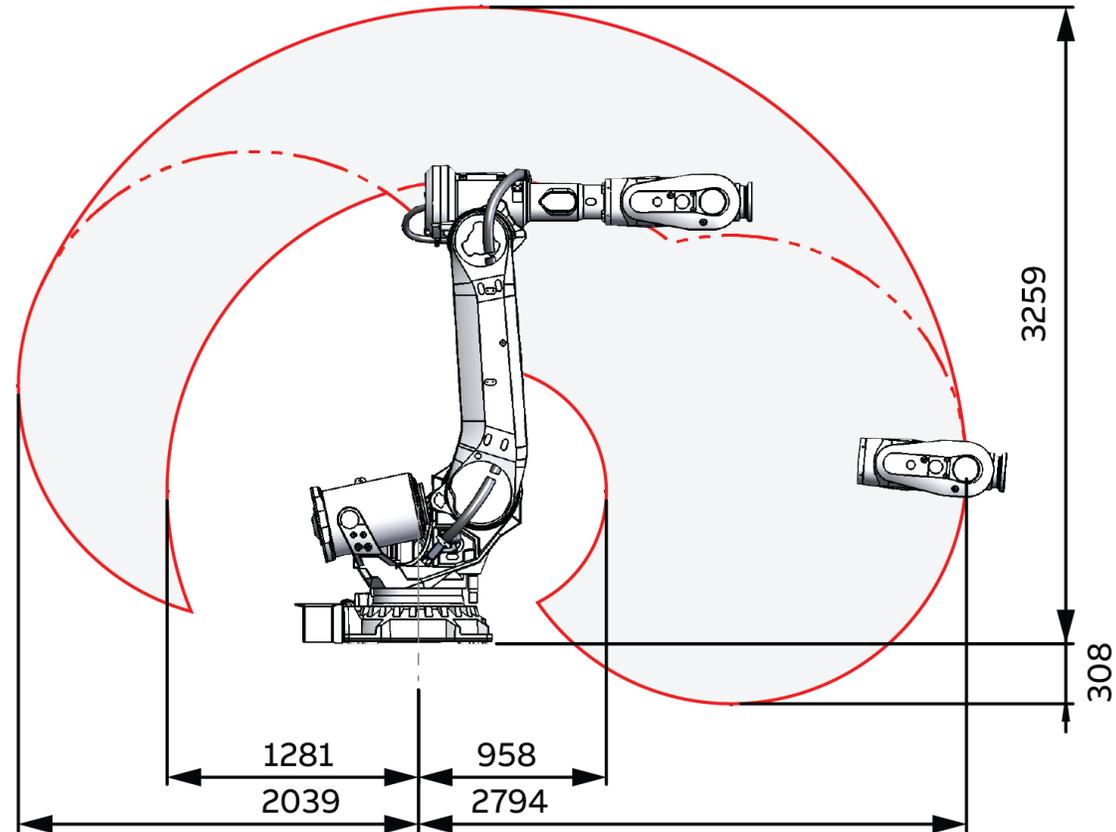
Fully complies with environmental directives RoHS 2002/95/EC and Reach No1907/2006 directives

---

# Technical data

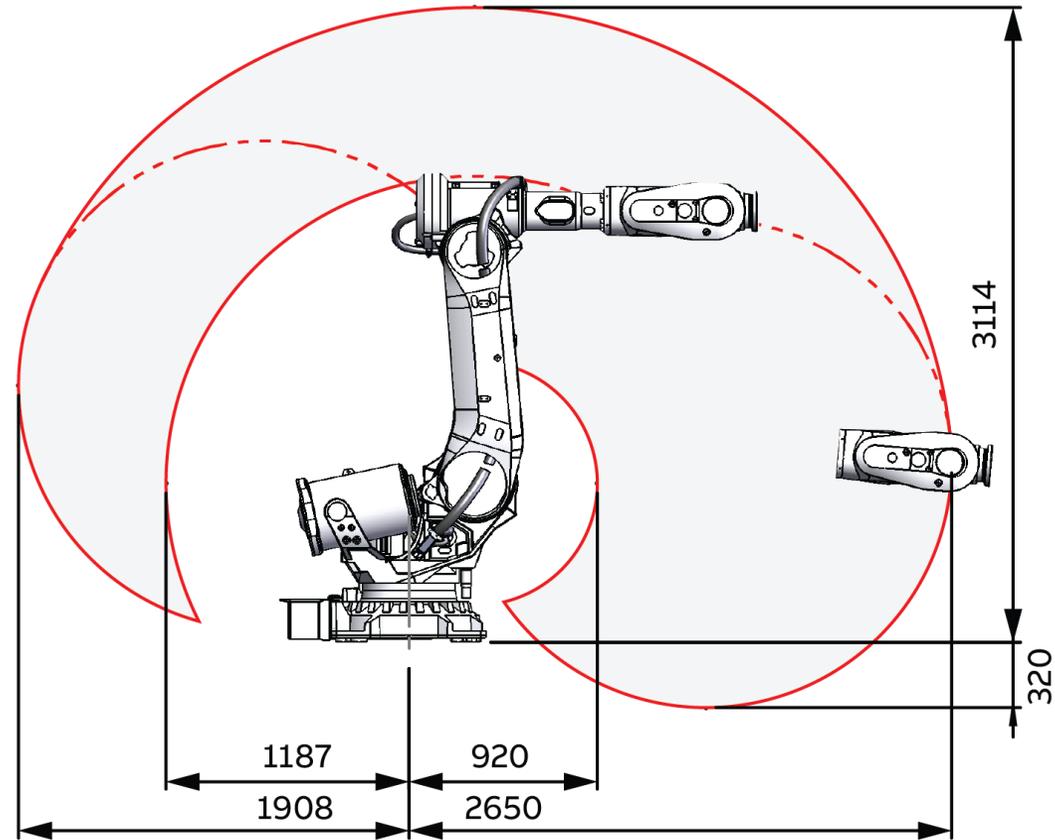
# Technical Data

Working Range IRB 6790-205/2.80



# Technical Data

Working Range IRB 6790-235/2.65





# Summary

# Summary

## IRB 6790 Foundry Prime 3

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.
- All external surfaces with increased corrosion protection
- Higher thermal and chemical resistance
- Reduced risk of washing detergent penetration by extending robot connectors outside washing cell
- Increased tolerance in harsh environments, compatible with pH levels up to 10.
- Annual service time significant reduced, maintenance costs reduced by at least, 60%, compared with IRB 6640.
- 15 % less power consumption, compared with IRB 6640.
- 4-5 % shorter cycle time, compared with IRB 6640.



Shortens cycle times



Reduces energy consumption



Reduces cost of maintenance



Increases uptime

**AABB**