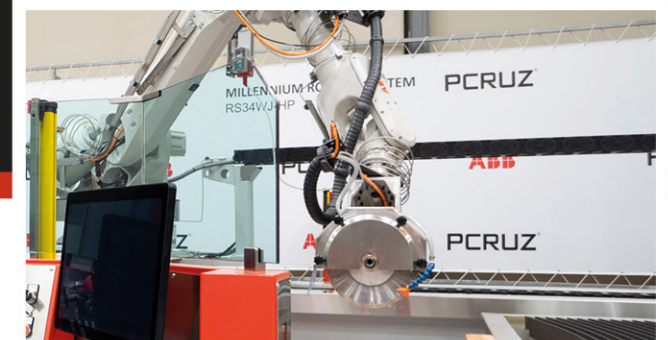
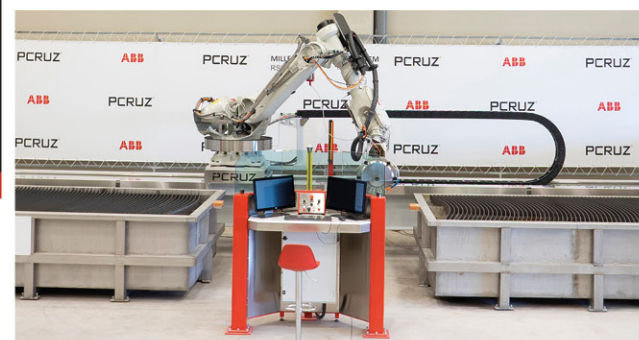
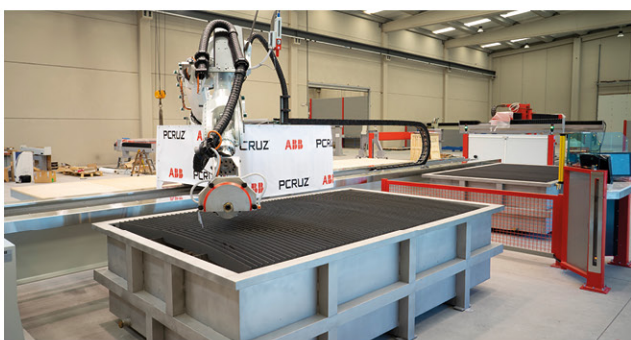


# PCRUZ<sup>®</sup>

USA STONE TECHNOLOGY



## ROBOT MILLENNIUM MASTER 45 SAW JET DOUBLE TABLE

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## Introduction.

### Why have we manufactured our new Robot Cutting and Water Jet Machine?

Almost two decades ago in Madrid, PCRUZ introduced the Millennium CNC 5-axis cutting machine, the first intelligent CNC cutting machine manufactured in Europe, with a different design and patented protections in oil bath, which would be the only one capable of cutting all materials and formats. We are talking about a machine equipped with robustness and durability, and that works safely, quickly and accurately on any type of material of extreme hardness. Therefore, we never had the need to incorporate a combined Water Jet before because it did not add any new features to our machinery, and it also deteriorated the workbench.

However, at this moment we are introducing a robotic cutting machine with saw and water jet, because we feel obligated to do something different again and reactivate again the stone sector. Going one step ahead is an ongoing challenge for those of us who love technology.

We have entered the world of water jets because,

at this point in time I, consider it necessary, not only for a better finish and speed but also for the better use and mobility offered by industrial robotics, a high technology of the present with a great future.

For this project we have chosen ABB as a partner of our range of robotic machinery, a quality and world-renowned company, where we will use the knowledge and work of our 45 years of experience in cutting machinery to the best of our ability.

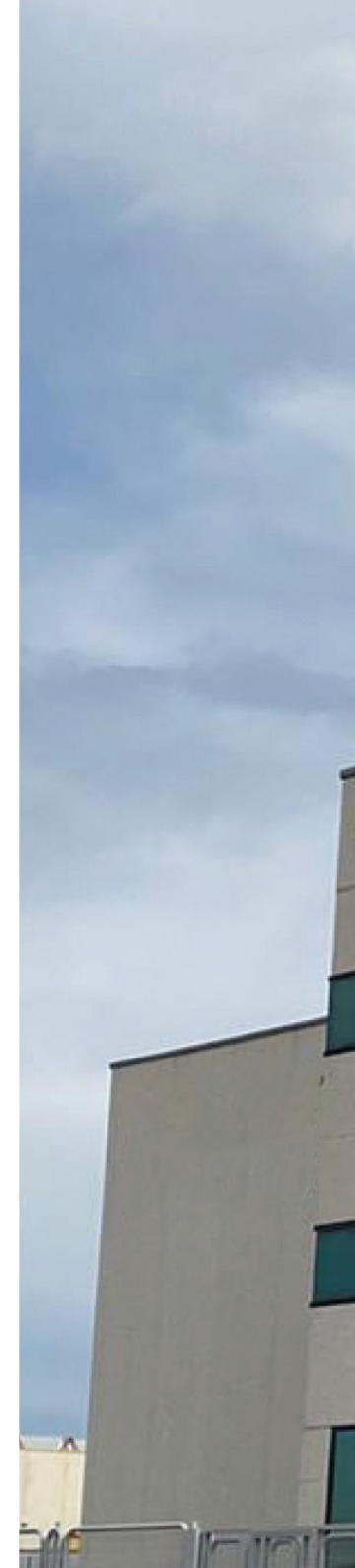
Together, we have been able to create a robotic cutting machine with no limitations in terms of number of strokes, positive and negative miters, cutting and water jet combined, cutting figures, circles, letters, easy front loading and unloading without the inconvenience of having to insert the material from the side.

PCruz has not simply made a combined cutting robot, we have achieved much more than that by

creating a combined machine with disc and high precision water jet, and with the most innovative technology, where the robot represents only one piece within the project.

Following an elaborate phase of study and design of the robot, we have been able to correct its defects and natural shortcomings to get a combined machine of great performance and outstanding results.

By acquiring our robot, your investment is secured for the future, your company will be ahead of the competition in technology, in a new era where profitability depends directly on productivity, the number of employees, safety and certainly the technology you apply. This is a new era.



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**CRUZ**  
CNC TECHNOLOGY

## Overview

ROBOT MILLENNIUM MASTER 45 SAW JET DOUBLE TABLE is the **high-end robot of the Millennium - ABB Series**. Some of its main features include a robust **monoblock structure**, **complete stainless steel protection** and other properties that make this robot a unique machine and a benchmark in the market. In addition, its interface is designed to simplify job preparation tasks as much as possible, saving time and increasing production over any competitor.

Our robot uses less cutting time, giving you the power you need to cut at the highest possible speed. It can also cut

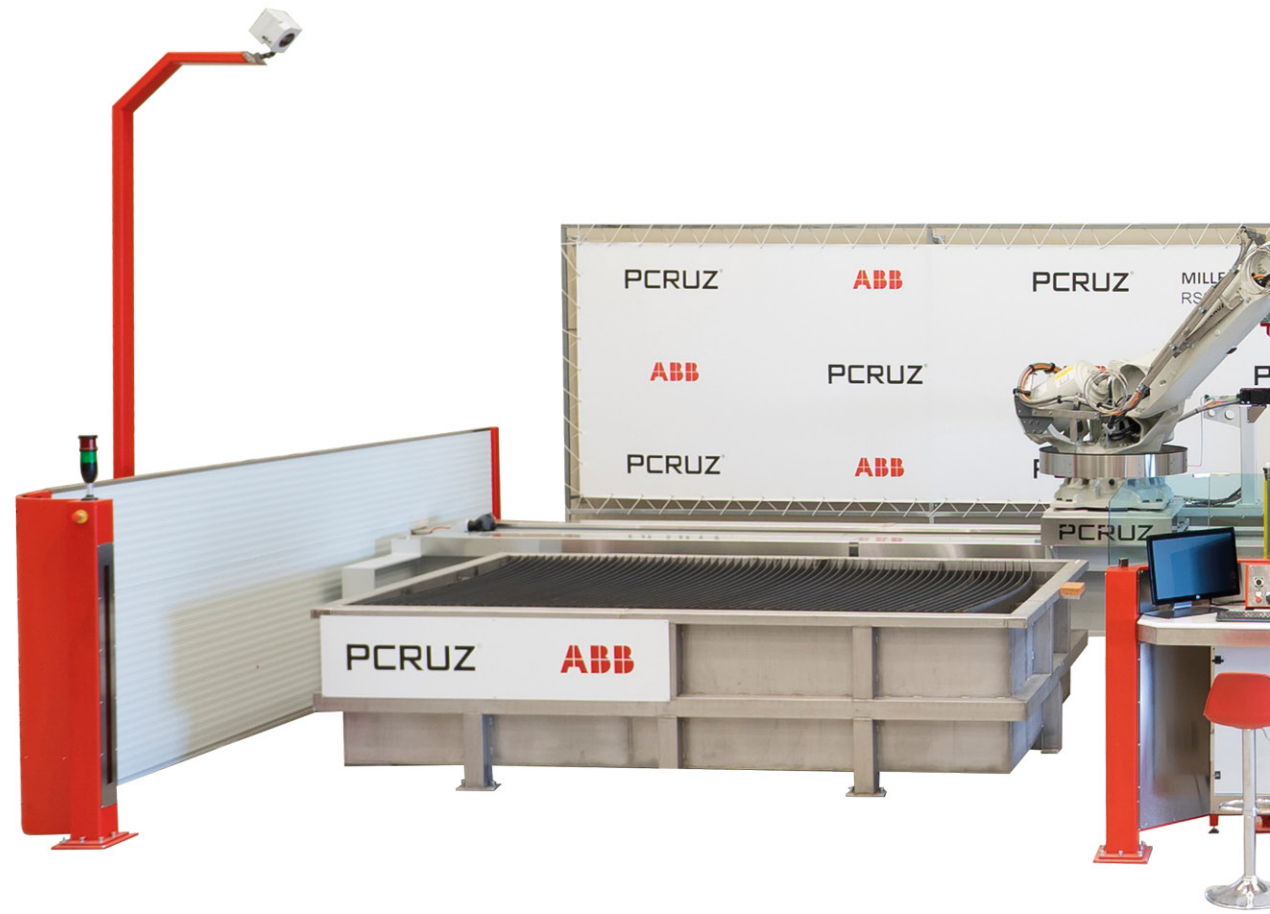
arches, make sink cut outs, faucets and others, reducing the need to move pieces to other stations to complete these cuts.

It has a low-maintenance operation. Lower cost to maintain equipment. This machine is designed for easy maintenance, oil change is done after 20,000 working hours or 5 years.

It provides greater productivity with the double table. This system facilitates production on one table while the other table is unloaded and reloaded, thus doubling its production.

It offers faster speeds, the software is easy to use, runs on Windows

Robot Millennium Master 45 Saw Jet Double Table is manufactured according to the most demanding quality and safety standards on the market. Therefore, the performance of the **Millennium - ABB Series disc cutting, water jet cutting and combined disc and water jet cutting robots** meets the **highest requirements of precision, productivity and efficiency** in the market, and therefore, has **minimum maintenance costs**.



## **Advantages.**

### **Why choose the Millennium Master 45 Saw Jet Robot?**

#### **No cutting limitations**

It can cut material of any dimension and diversity in a single pass, both with the disc and with water jet, and in all its longitudinal and transversal stroke. Our robot has 8 axes, while the others in the market have only 6.

#### **Increased cutting accuracy**

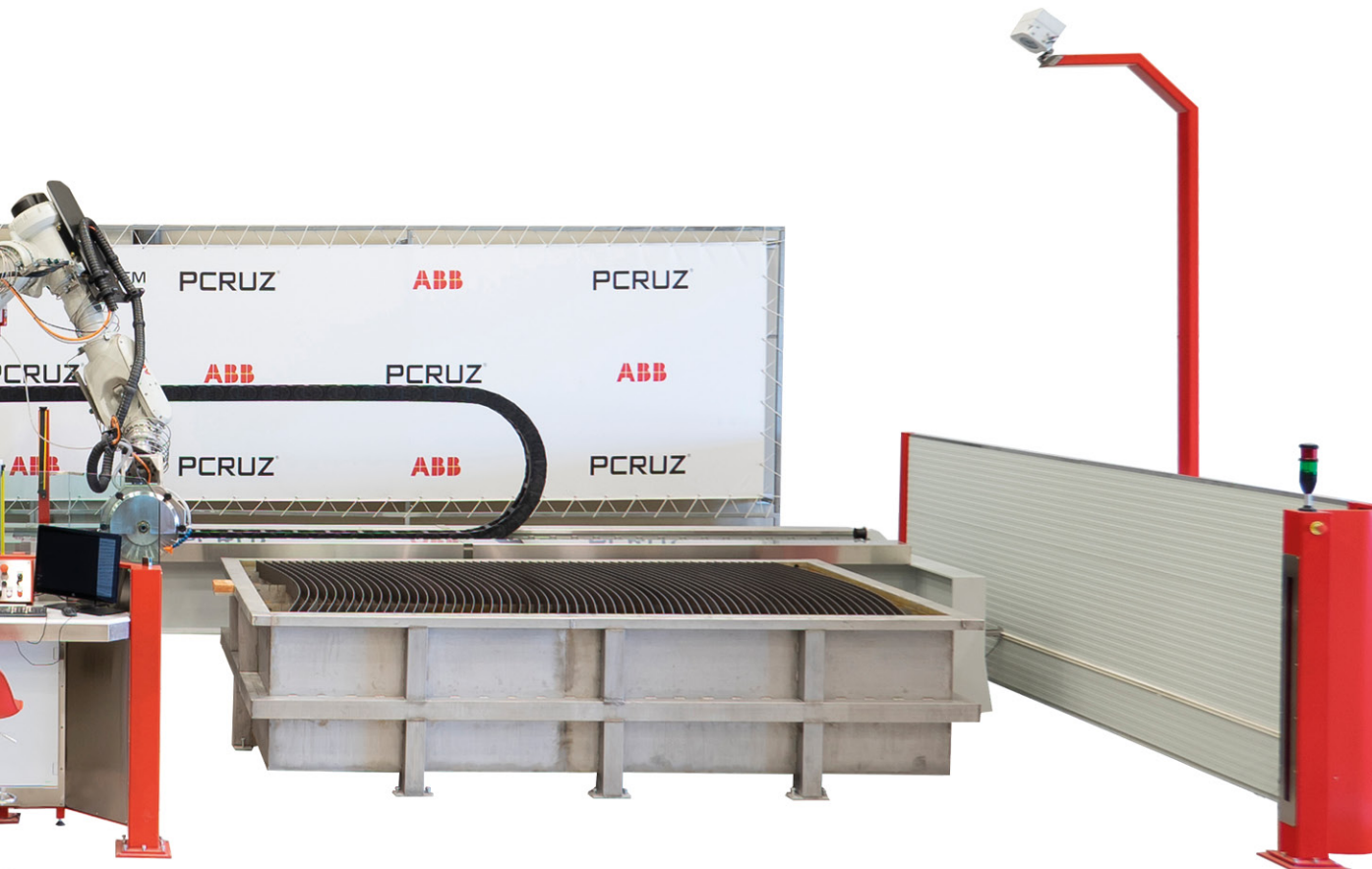
This is due to the displacement of the robot over its entire cutting surface. Other robots lose precision when the arm moves away from its base.

#### **The machine with the largest useful-cut on the market**

o It can cut pieces up to 11 meters/37 feet, the existing robots on the market barely cut 3 meters/11 feet pieces.

#### **Reduced wear and increased mechanical durability**

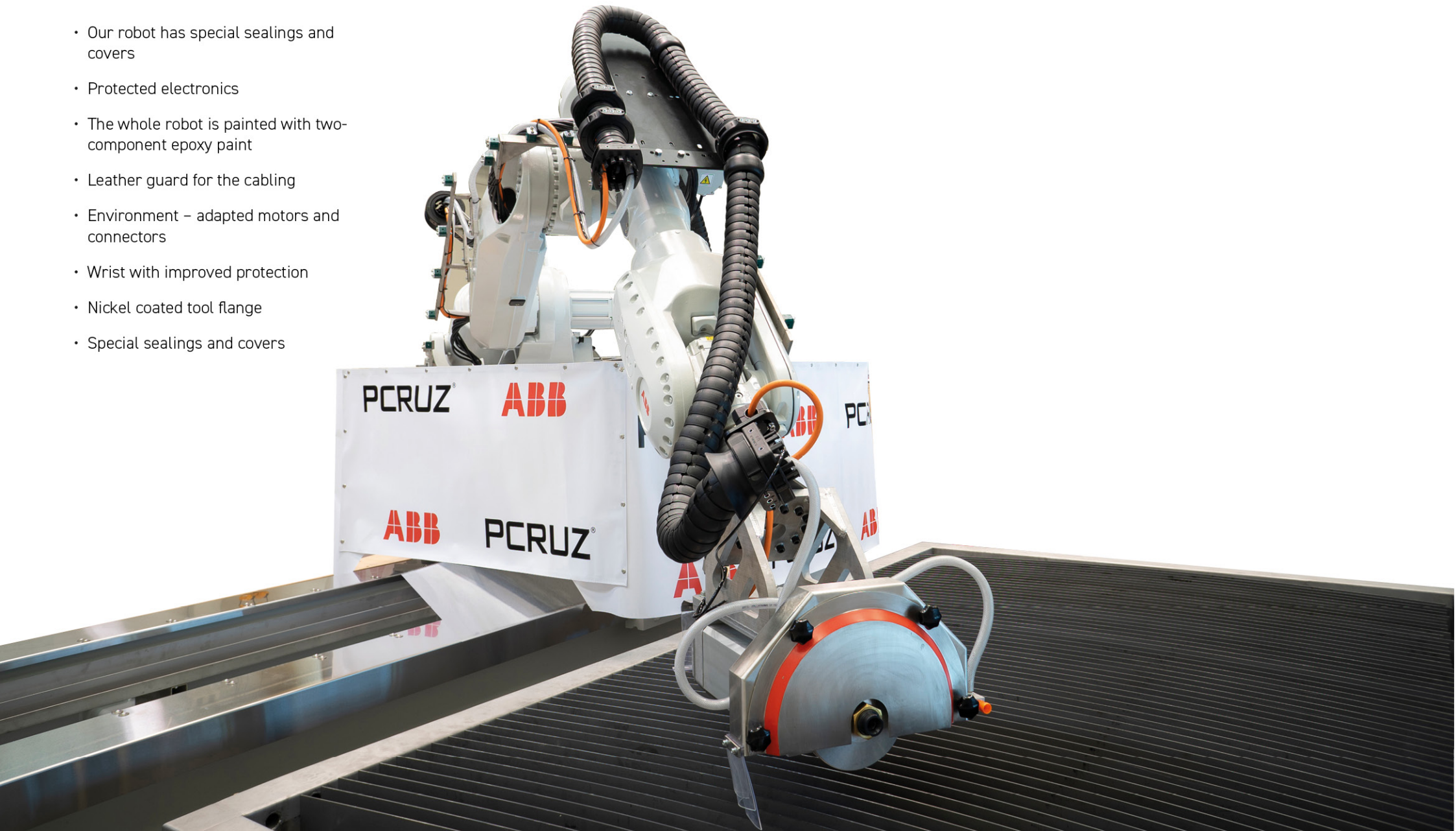
Due to the displacement of the robot it is possible to cut from a shorter distance guaranteeing a higher precision and a higher mechanical durability because it is not necessary to move the arm in all its length during the cutting operations, and there is no mechanical wear because the robot is previously positioned.



# ABB ROBOT

## Technical Description

- Our robot has special sealings and covers
- Protected electronics
- The whole robot is painted with two-component epoxy paint
- Leather guard for the cabling
- Environment – adapted motors and connectors
- Wrist with improved protection
- Nickel coated tool flange
- Special sealings and covers



Foundry environments are extremely tough on equipment, not least industrial robots. Coolants, lubricants, and metal spits wear the robots far beyond normal. This increases the risk of downtime, repairs, and reduced service life ± unless you take action against it.

Sealed from damp and particles

Foundry Plus 2 is an optional protection system that makes PCRUZ Robots better sealed from damp and

particles than standard robots. For example, it features improved sealings to prevent penetration into electrical compartments, mechanical details designed to the same standard, a corrosion-resistant coating under a layer of two-component epoxy paint, well-proven connectors, application of rust preventives, and additional protection of cabling and electronics. Leather guard for cables is available as an option for environments with aluminum and other aggressive spits.

The entire robot is IP67 compliant. Our ABB IRB 7600 Foundry Plus 2 makes your entire Robot IP67 compliant, from base to wrist, meaning that the electrical compartments are sealed against liquid and solid contaminants. But it takes more than IP67 to ensure long-term trouble-free operation and long service life. ABB IRB 7600 Foundry Plus 2 Robots are unique due to their improved resistance to corrosion and capability to withstand high-pressure steam washing. No other foundry robots are up to this task today.

### Technical Information

General

Number of Axes: 6 + 1 positioning

Protection: Std: IP67

Mounting: Floor mounted

Technical Details

Energy consumption: 3.4 Kw

Dimensions robot base: 1206.5 x 791 mm

Weight (without Dresspack) 2425 Kg

Weight Robot Millennium Master 45 Saw Jet: 11,000 Kg / 24250 lb.

### Saw Motor:

20 HP

Standard 16'' saw blade.

Focused, tamperproof nozzles provide 12 GPM of water-focused on blade segments for better cooling.

VFD standard, allowing RP to be set based on material requirements.

### ABB IRS 7600 Foundry Plus 2 Includes:

2 Cannon Cameras ceiling mounted (applies on the standard version).

Includes 2 double table water jet system Useful axes (3,300 x 2,000 mm) (129.9 in x 78.7 in)

Includes a security locking system with fences.

Installation and training, one week each, at the customer's premises.

Robot cut software included.

Abrasive feed system with a 600 lb bulk hopper and mini hopper.

We have several options available for purchase including alternate layouts, photo stations, laser 3D,

and others. Details and pricing for these or more options can be provided upon request.

**KMT**

**WATER  
JET PUMP**





**H2O Jet 50 PUMP** – The Pump uses superior intensifier technology for proven performance to provide users with a durable, reliable water jet pump.

Our Pump also features the all-new, low-profile cabinetry design for easy access to pump controls and components along **with 60,000 psi** operating pressure to cut steel, aluminum, Stone, and much more.

**H2O JET 50 Features:**

- PLC Based controls
- Basics control for Pump On/Off, E-Stop
- Hydraulic Shift
- Manual Cooling Water Valve (Oil Water Heat Exchanger)
- Remote Start/ Stop, E-Stop, Hi/Low Panel
- Booster Pump
- W/10 Micron Filter and Pressure Gauge
- Return Line Oil Filter with Service Indicator
- Dual Pressure Compensator Included
- Low Inlet Water Pressure Safety Switch (30psi)
- 60,000 psi Design Pressure
- Variable Displacement Axial Piston Pump
- Continuous Recirculation Pump for Cooling System
- Manual Pressure Control
- High Temperature /Low-Level Oil,
- Oil Safety Switch
- Oil/Water Heat Exchanger
- Auto Bleed Down Valve
- Rugged Powder- Coated Finish
- Vibration Isolations Pads on Motor
- Oil Temperature/ Level Sight Gauge
- Electrical Junction Box
- 3 Phase Moto

**Utility requirements:**

**Water**

- 1 Source Clean, 40 psi, 4 gpm (Cutting water)
- 1 Source Gray 35 psi, 5 gpm (Saw Water)
- 1 Source 3-5 gpm, less than 65° F (Pump Cooling)

**Air**

- 1 Source 85 100 psi 1 cfm (Main System)
- 1 Source 60 100 psi 3 cfm (Garnet System)
- Weight (without Dresspack) 5347 Lb

**Power**

- 1 Circuit 480 vac, 3 ph, 80 amp ± Robot
- 1 Circuit 480 vac, 3 ph, 125 amp ± Pump



## MACHINE MEASUREMENTS

### Useful cutting

"X" Axis	36.1 ft - 11,000 mm
"Y" Axis	7.12 ft - 2,170 mm
"Z" Axis	2.46 ft - 750 mm

### Technical Description

Main motor power	With Water 50 hp
Water consumption	13.2 gallon/min - 50 L/min
Voltage/Frequency	400 V/50-60 Hz

### Dimensions of the machine

Length	50.85 ft - 15,500 mm.
Width	19.68 ft - 6,000 mm.
Height	13.12 ft - 4,000 mm.
Weight	25,353 lb. - 11,500 Kg.

## MECHANICAL FEATURES AND DESCRIPTION

### Structure and Mechanical System

Robust self-supporting MONOBLOCK structure made of stabilized steel.

Great combination of servomotors and gear motor that achieves precise movements to perform every operation.

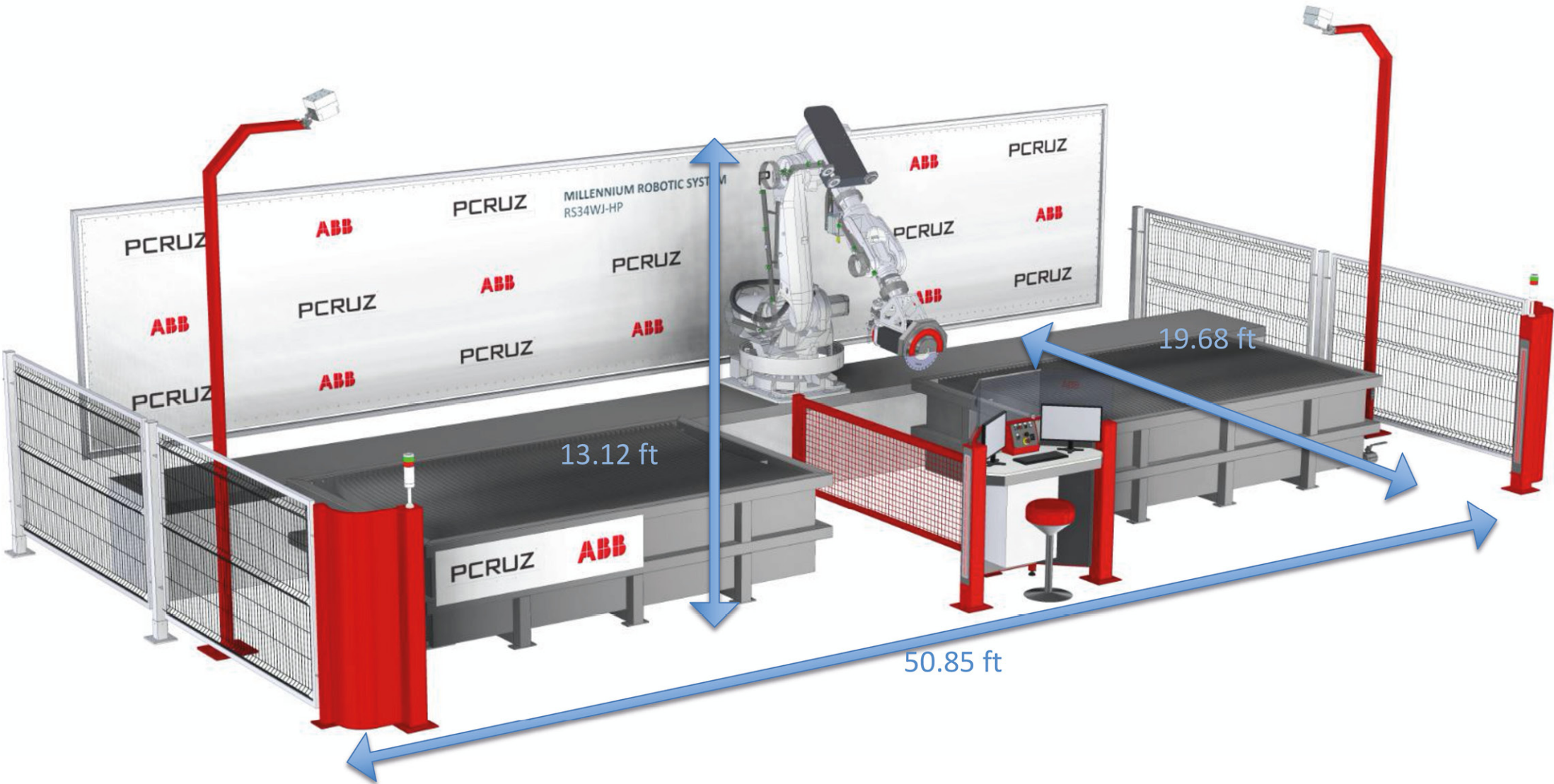
Independent electrical panel with monoblock support and IP67 protection.

### Workbench Description

Two work tables made up of a stainless steel tank with galvanized steel support grids with high mechanical and anticorrosion performance for the clamping of the material to be cut.

Stainless steel and armored glass tank for the storage of table water

Useful working area: 10.8 ft x 6.6 ft - 3,300 mm x 2,000 mm





FOUNDRY 2

PCR



# AUTOMATION

- The machine is equipped with a **20" Industrial color touch screen PC**.
- The CNC Control automatically adjusts the parameters for the most effective performance of the work.
- **Import of DXF files** or design of pieces on the machine itself, without having to obtain imported files from Auto CAD.
- Positioning of the machine on any axis: **CNC using precision system via servo motors (fully state-of-the-art CNC)**.
- Work scheduling for the optimization of cutting times.
- **Network connection to a central computer for the organization of the work to be done.**
- The work can be modified on the machine itself for maximum material utilization.
- Automatic calculation of the working time and the cutting and rotation speed of the tool according to the type of material to be processed.
- **Display the location of the cutter disc in all on-screen maneuvers.**
- Sequence of automatic cuts connected on all axes. The work will be loaded into the machine (**cross-sections, horizontal, diagonal, miter and holes**) and the machine will perform the complete sequence of cutting at once without **interference or partial stops to increase or modify data**. Capacity to memorize and control the information of the works carried out by the machine in the machine's own PC.
- **USB port integrated** into the machine.
- **Flow Switch: detection of water flow.**
- Detailed system of alarms and maintenance for easy control of the machine.
- **Specific management software for the stone sector developed entirely by Cruz CNC.** Software with a large number of possibilities and easy to use for non-specialized personnel, with continuous development to adapt to the changes and needs of the market. Considered the most complete and easy to use for cutting and quartering of the material.
- **Special adaptation software for working materials**

**such as granite, marble, synthetic, pressed and porcelain materials, etc.**

- From the PC, and using its Touch Screen, the operator can enter the information of the material to be used, for example: type (granite, marble, synthetic, etc.), size, thickness. Then, the CNC Control will automatically adjust all the parameters of the machine to execute the work in the most efficient way possible. In addition, the software will automatically calculate the time of completion of the work, the cutting speed and rotation of the tool.

- **The machine generates a file where processing times, routes and number of cuts are recorded, so that it can be used when assessing a job.**

- **Multifunction program** that allows the preparation of new work to be performed by the machine, during the cutting phase.

- **Function phase for flooring**, specifically for the quick configuration and positioning of tiles or stairs.

- **Drawing function**: Through predefined figures (circle, rectangle, polygon, etc.) specific pieces are created very easily without having to use external programs.

- **Manual work function**: Allows you to use the cutter as

a conventional cutting machine.

- **Measurement consulting function**: Allows the user to consult the lengths of the pieces.

- **Function for machine monitoring**: Through an alarm system and detailed maintenance.

- **Specific function** for the marking of **holes or breakages** of the material: this way the machine will prevent the placement of pieces in those holes.

- All these functions are integrated in the program itself, making them very easy to use during the working and programming phase.



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Minimal Maintenance  
High Productivity  
Higher Speed  
Time Reduction  
Higher Performance  
Easy Handling  
Maximum Business Profit

## ROBOT MILLENNIUM MASTER 45 SAW JET DOUBLE TABLE

**PCRUZ**<sup>®</sup>  
USA STONE TECHNOLOGY

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