CRP-RH14-06-W

WELDING ROBOT

MAIN FEATURES

Arm Form
Vertical multiple joints

Degree of Freedom
6 axis

Maximum Payload
6 kg

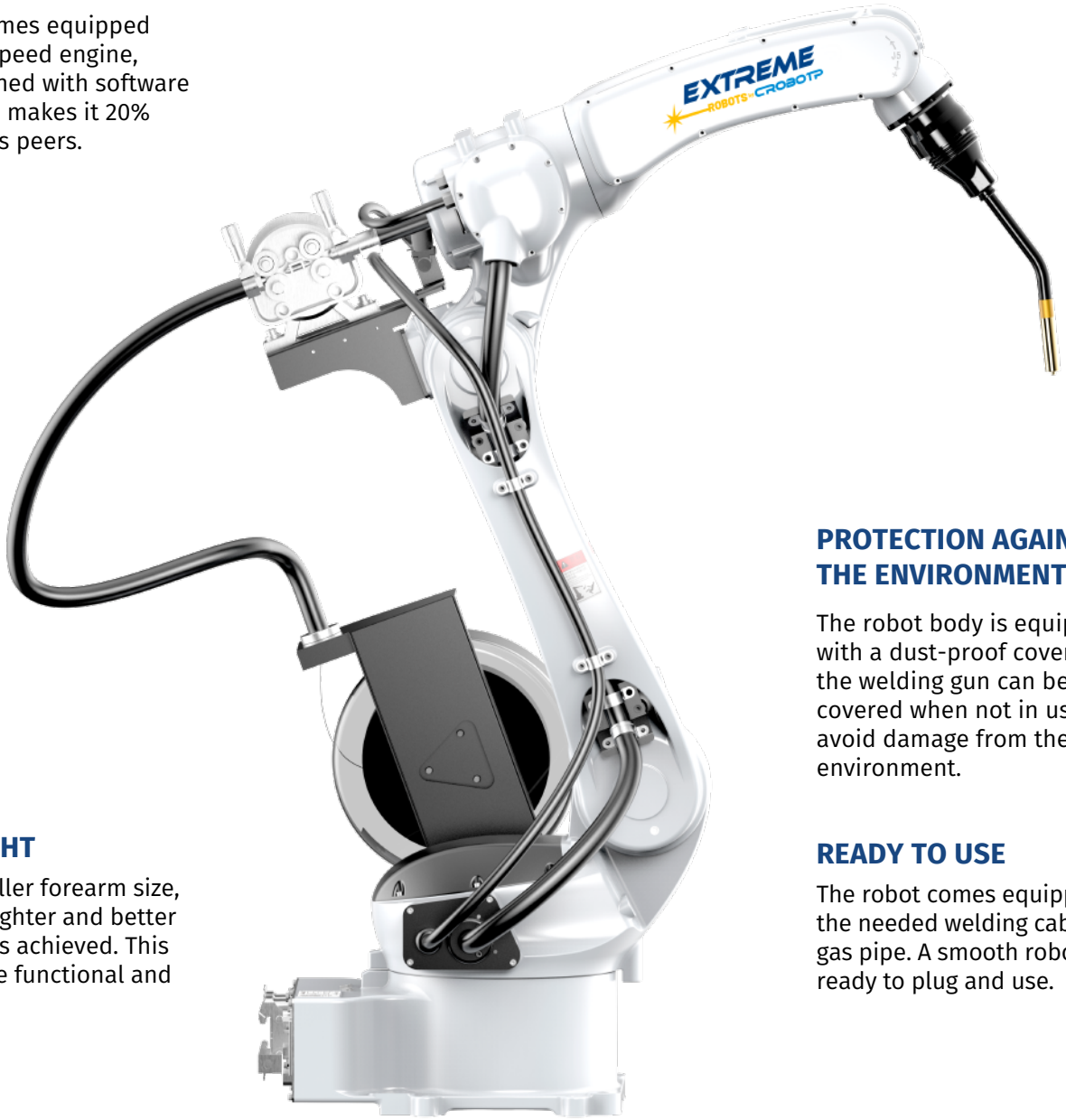
Robot Body Weight
155 kg

Repeated Positioning Accuracy
±0.08 mm

Maximum Reaching Distance
1.468 mm

HIGH SPEED ENGINE

The robot comes equipped with a high-speed engine, which combined with software optimization, makes it 20% faster than its peers.



PROTECTION AGAINST THE ENVIRONMENT

The robot body is equipped with a dust-proof cover, and the welding gun can be fully covered when not in use to avoid damage from the environment.

LIGHTWEIGHT

Having a smaller forearm size, the robot is lighter and better accessibility is achieved. This makes it more functional and versatile.

READY TO USE

The robot comes equipped with the needed welding cables and gas pipe. A smooth robot body ready to plug and use.

EXTREME ROBOTS by CROBOTP

ROBOT BODY TECHNICAL PARAMETERS

Arm Form	Vertical Multiple Joints
Degree of Freedom	6 axis
Maximum Payload	6 kg

Maximum Travel

Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6
±168°	-50~+170°	-78~+150°	±190°	-110~+130°	±190°

Maximum Speed

Axis 1	Axis 2	Axis 3	Axis 4	Axis 5	Axis 6
230° /S	230° /S	230° /S	430° /S	430° /S	630° /S

Allowable Torque

Axis 4	Axis 5	Axis 6
10 N x m	10 N x m	3 N x m

Allowable Moment of Inertia

Axis 4	Axis 5	Axis 6
0.25 kg x m²	0.25 kg x m²	0.05 kg x m²

Repeated Positioning Accuracy	±0.08 mm
Maximum Reaching Distance	1468 mm
Electric Cabinet Configuration	G9
IP level	Ip56

INSTALLATION ENVIRONMENT

Application	Robot Body Weight	Installation Mode
Welding	155 kg	Ground or Top Mount
Operative Temperature	**Relative Humidity**	**Vibration**
0~45 °C	20~80 % (No Condensation)	Under 0.5 G

The robot must be installed away from flammable or corrosive liquids or gases, electrical sources of interference.

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INDUSTRIAL ROBOT CONTROL CABINET CRP-G9-CD60-CRX9

- 20% smaller than average robot control cabinets

- UPS integrated as standard to prevent failure from power outage

- System sensors for servo collision avoidance and gravity compensation

- Integrated PLC, power outage regeneration system, encoder interface (supporting sync belt), and visual interface software (optional)

STURDY CONSTRUCTION

- Frontal control bin IP54
- Heat dissipation rear bin IP20
- Front and rear bin isolation

CONTROLLED AXES

- 6+2 axes (standard configuration 6 axes, plus external axes of your choice)
- EtherCAT port extension

MORE FEATURES

- The overall size is smaller, and the internal structure is more compact. The front and rear compartments have independent door panels that can be opened for easy maintenance.

- Includes two compartments: front and rear. The IP54 front compartment is sealed, waterproof and dust-proof to protect the system. The rear compartment is ventilated for heat dissipation.

- The layout is more flexible. The feet of the cabinet are removable, so the electrical cabinet can be stacked on other electrical cabinets or a power supply, and the upper part can also be stacked with expansion cabinets.

- Equipped with three-phase transformer. 380V and 220V are isolated, and the power supply is more stable.

- Built-in three-phase filter to effectively isolate external output and avoid internal interference.

- The safety emergency stop board can be configured independently of the control system. Imported forced disconnect relay can be adopted to provide dual-circuit emergency stops to ensure the reliability of emergency stops.

- It uses a high-performance platform, better processing performance, high-speed and stable motion control, while reserving external module expansion space. The external axis can be configured quickly.

- It works with the new CRX9 platform software, which is more flexible and easier to use.

CABINET TECHNICAL SPECS

Dimension / Weight	Main Power Source	Ground Connection
550 x 725 x 425 mm / 90KG	3 PH Four-Wire AC 380V±10%, 50/60HZ	Must Have Protective Grounding (PE)
Cooling Mode	EMC Test Standard	Communication Protocol
Forced Cooling	IEC 61000-6-2:2016	ModusRTU, ModusTCP

Cables	Power Cable Standard 3 meters, Interconnect Standard 5 meters
Robot Safety	Cabinet Door Emergency Stop, External Emergency Stop, Anti-collision, Servo STO

Operation Mode
Teaching, Reproduction, Remote, Point-to-point, Linear Interpolation, Circular Interpolation, Gate Motion

Instruction System	Movement, Logic, Craft, Arithmetic
Coordinated System	Joint, Cartesian, User, Tool and World Coordinates
Software Package	Welding/Spot Welding/Handling/Palletizing/Etc.

ENVIRONMENT SPECS

Storage Temperature	Operating Temperature	Relative Humidity
-10-60℃	0-45℃	95% (no condensation)
Altitude	Corrosion	Place of Use
≤2000M	No Corrosive Gas, Liquid	Indoor, Ventilated, Non-Airtight

SYSTEM CONFIGURATION

Main Frequency	Memory	Hard Disk
1.6GHz	DDR4L 1333MHz 2GByte	8G EMMC, UPS: 3S

INTERFACE

Digital I/O interface 24 NPN Input /24 Output, Output Voltage 24V, Output Current 8 Relays 3A, 16 Transistors 500mA	
4 Channels 0-10V Analog output, 12 Bit Accuracy	2 Encoder Signal Interface, 5V Encoder Power Supply
2 Channels of 100 Mbit/s Network (Teaching Device Occupies 1 Channel), 2 Channels of 100 Mbit/s Network	

2 RS485 Channels, 2 CAN2.0 Channels	Cabinet Door Panel 1 USB2.0	3 Station Box Interfaces

TECH PENDANT

TPHT80K--E0

TYPE E VERTICAL DEMONSTRATOR

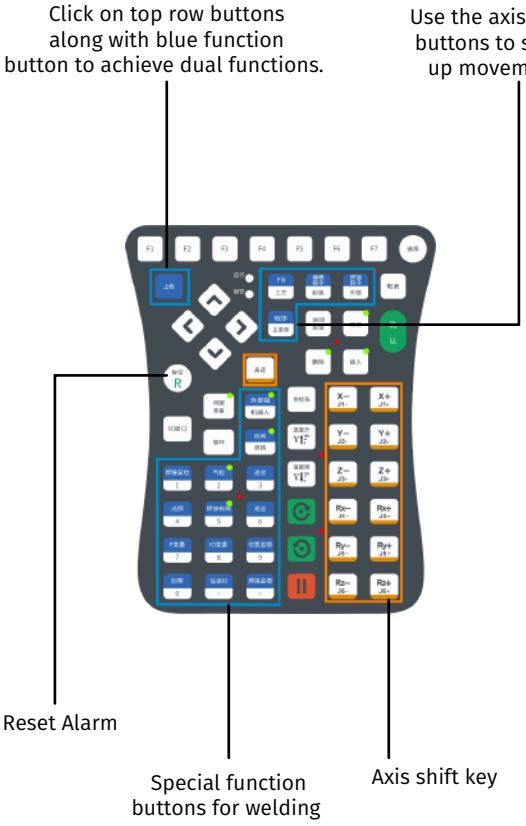
- Programming is easy and 30% faster than others in its class

- 325 gr lighter than most tech pendants, reducing operator fatigue

- Independent system. Up to 25-meter cable

- Includes 8-inch TFT-LCD touch screen, emergency stop button, mode selection switch, safety switch, shortcut keypad.

DEMONSTRATOR LAYOUT & KEY INSTRUCTIONS



Size (Width x Height x Depth)	153 x 310 x 53 mm
Weight	875 g
Screen	Color LCD, 5.6 inch
Resolution Ratio	640 x 480
Touch Screen	Yes
Button Material	Silica Gel Material
USB Interface	1个
Movement Communication Mode	100M Ethernet
Wrist Strap	Leather
Standard Cable Length	6m
Input Protection	IP5X
EFT	± 2kV
ESD	± 8kV

WELDING POWER SOURCE

CRP-DS350-L

MULTIFUNCTIONAL WELDING MACHINE

- Ultra-low spatter. Can weld MAG/CO2 beyond the low spatter range.

- Constant penetration function and more stable arc

- The arc starting success rate is higher with pull-back function.

- Fish scale type welding for welding thinner sheet metal and appearance parts.

- Tech pendant adjusts all parameters conveniently and quickly.

Type	Full Digital DC IGBT Inverter CO2/MAG/MIG
Model	CRP-DS350-L (Comply with CCC standard standard)
Dimension W × L × H (mm)	426 × 550 × 495 (Excluding Screws and Lifting Rings)
Weight	About 56 kg
Phases & Rated Input Voltage	Three Phase, 380V±10%, 50Hz/60Hz
Reference Input	18 kVA, 15 kW
Rated Output Current	30-350A (Depends on the Diameter of the Welding Wire)
Rated Output Voltage	12-36V (Depends on the Diameter of the Welding Wire)
Rated Load Rate	60% (The Interval is 10 Minutes)
Welding Method	CO_2 Short Circuit Welding, MAG/MIG, Short Circuit Welding
Welded Base Material	Carbon Steel, Stainless Steel
Wire Speed	1.0-18 m/min
Wire Feeder Control Cable	5m (Standard) (Can be extended up to 15m)
Wire Feeder Control Mode	High precision eEncoder Feedback Grid
Early Delivery Time of Shielding Gas	0 10SS (Can be set on the tech pendant)
Shielding Gas Turn-Off Delay Time	0 10SS (Can be set on tech pendant)
Robot Interface	CAN Communication
Power Supply for Gas Regulators	36V/6A（Turn off the welder when not in use）
IP Level	IP21S

WELDING POWER SUPPLY

HIGH SPEED DIGITAL CONTROL SYSTEM

The welding power control system is composed of DSP and FPGA.

DSP ⟷ bus communication ⟷ FPGA

FAILURE PROTECTION

- Comprehensive hardware fault protection function to improve the reliability of the power supply.

- Abnormal detection of power grid: undervoltage and overvoltage protection of power grid.

- IGBT protection: IGBT overcurrent protection. Output protection: output overcurrent, overload, transient overload.

- Overheating protection: IGBT, bridge rectifier, diode overheating protection, fan damage protection.

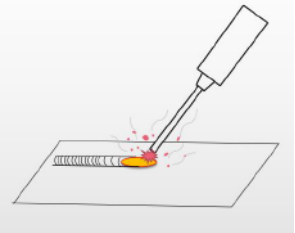
- Welding protection: wire sticking, arc breakage, arc fault, etc.

FEATURES

PRECISION WAVEFORM CONTROL LOW SPATTER FUNCTION

Precision waveform control mode to achieve MAG2 can achieve ultra-low spatter effect, which is even beyond the low spatter range. The splash volume is also lower year after year.

NO PRECISION WAVEFORM CONTROL

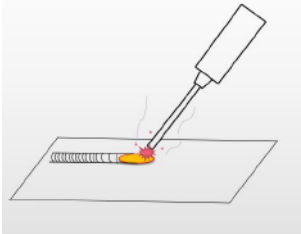


Conventional short-circuit transition

Spatter rate: 14.8% (75A, CO2).

1. High heat input in thin plate welding, cracking of thick plates.
2. High spatter in poorly formed welds, inclusion of spatter on the surface.
3. Inability to control waveform features.

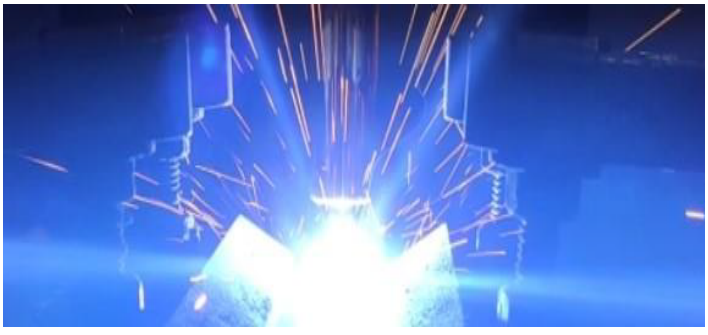
LOW SPATTER FUNCTION WITH PRECISION WAVEFORM CONTROL



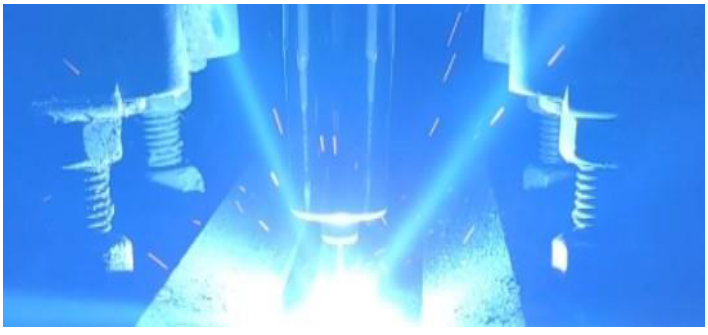
Precision control of waveform transition to short circuit.

Spatter rate: 3.6% (75A, CO2)

1. Low heat input makes it suitable for sheet metal welding, small heat affected zone.
2. Low spatter results in neat shape, no need for subsequent surface grinding.
3. Waveform adjustment makes it suitable for various welding processes according to customer's needs.



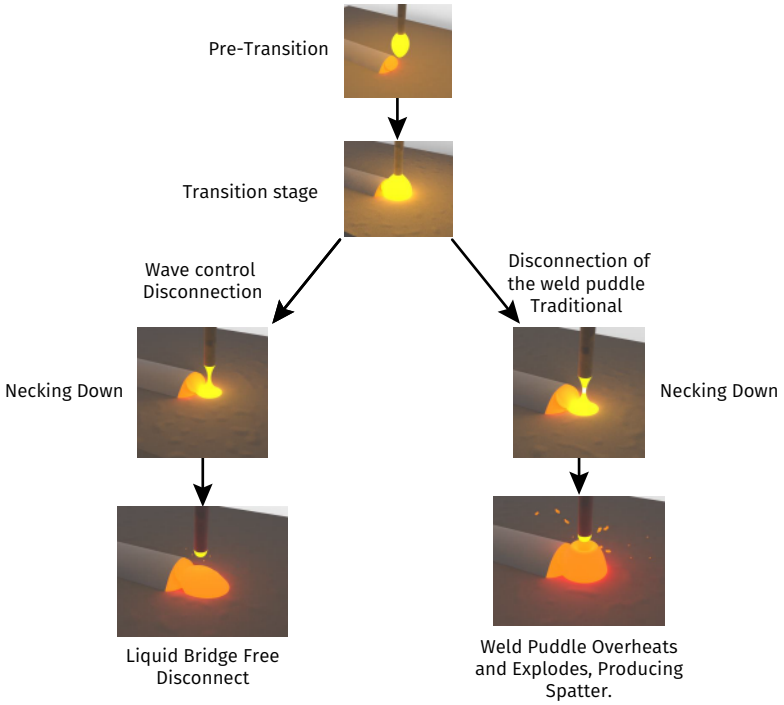
Welding power without low spatter



CRP DS350-L Spatter Image

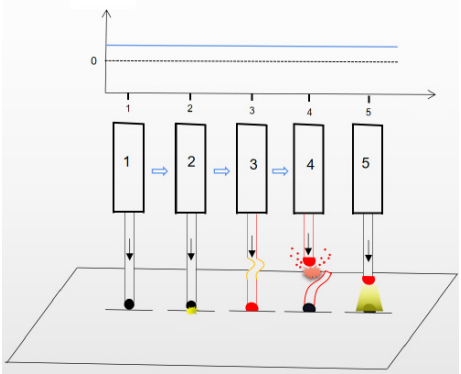
CONTROL PRINCIPLE

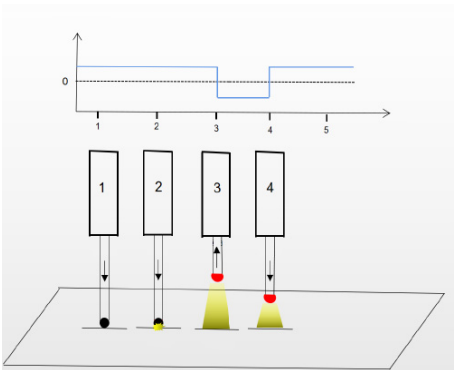
The DSP processes the current and voltage data at high speed and monitors the droplet status in real time. When the droplet is detected to enter the short-circuit process and neck shrinkage process, the current is rapidly reduced to inhibit the instantaneous electromagnetic explosion of short-circuit and electromagnetic explosion of weld puddle overheating, so as to achieve low spatter welding.



PULL BACK ARC :

Easier than the ordinary arc method. When the arc occurs at the contact of the welding wire with the work piece, the welding wire retracts quickly to avoid feeding voltage to the welding wire and give the arc time to melt the welding wire, thus reducing the rate of the defective arc.





TRADITIONAL ARC METHOD

When the welding wire contacts the workpiece to ignite the arc, the cold ball at the unmelted end will continuously short-circuit the welding wire with the workpiece again, resulting in a long process of short-circuiting, and finally the welding wire will overheat and explode, causing arc defects, and even serious arc faults.

BACK ARC MODE

It can effectively avoid the rapid decrease of current density caused by arc and the influence of compressive stress, and can greatly inhibit the occurrence of welding wire explosion.

The process: the ball at the end of the wire contacts the workpiece and the arc is produced, and then the wire is quickly drawn back to avoid the wire feeding tension and the arc is quenched, and the arc is given time to burn the wire and move away.

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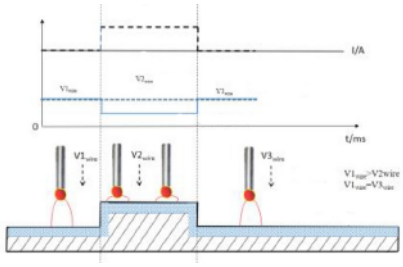
CONSTANT DEPTH FUNCTION



When a current fluctuation is detected, the wire feed speed is automatically compensated so that the current quickly returns to the set current, ensuring that the current is always constant during the welding process. Overcomes current fluctuations caused by workpiece surface fluctuation.

FISH SCALE WELDING

The weld joint size is uniform and clean, and can weld thinner sheets. The robot does not stop, but moves forward at a constant speed, and the welder repeatedly controls the arc welding to achieve the fish scale effect.

ADVANTAGES OF WELDER-CONTROLLED FISH SCALE WELDING

High efficiency:
Robotic fish scale welding improves uniformity. The result is a more uniform joint size.

Low heat input:
Allows thinner sheets to be welded.

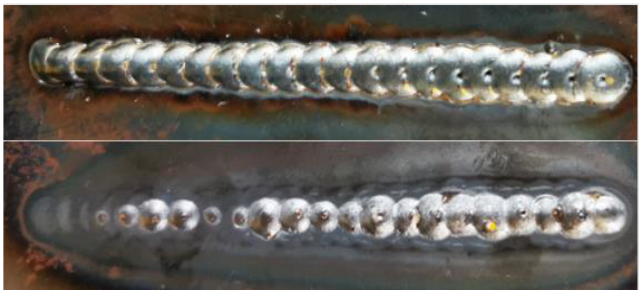
Shallow shrinkage hole:
Clean surface shape, anti-fatigue, controlled by the welding machine.

ARC-CONTROLLED

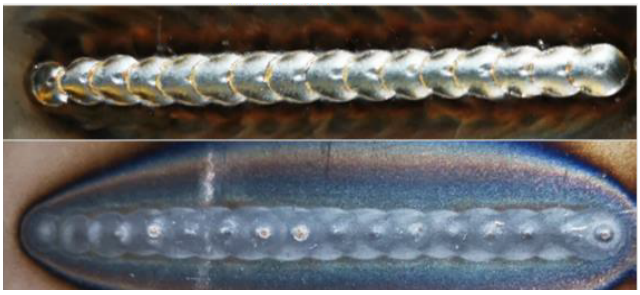
The robot does not stop, but moves forward at a constant speed. The welding machine repeatedly controls the arc welding to achieve the "fish scale" effect.

CONTROLLED BY THE WELDING MACHINE

Robot does not move during welding. The welding machine welds one spot, the robot moves and welds another spot.

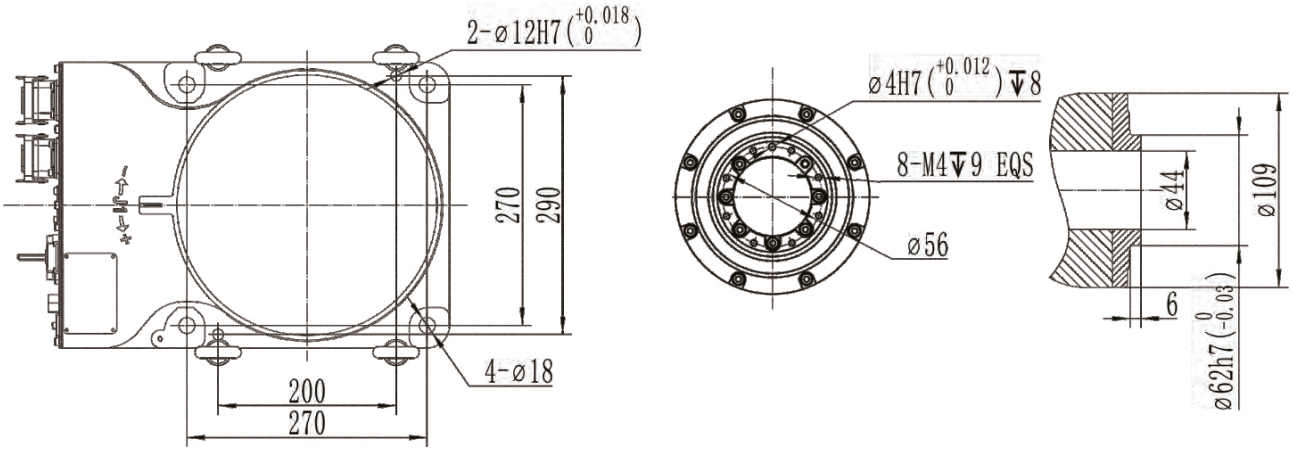


FRONT

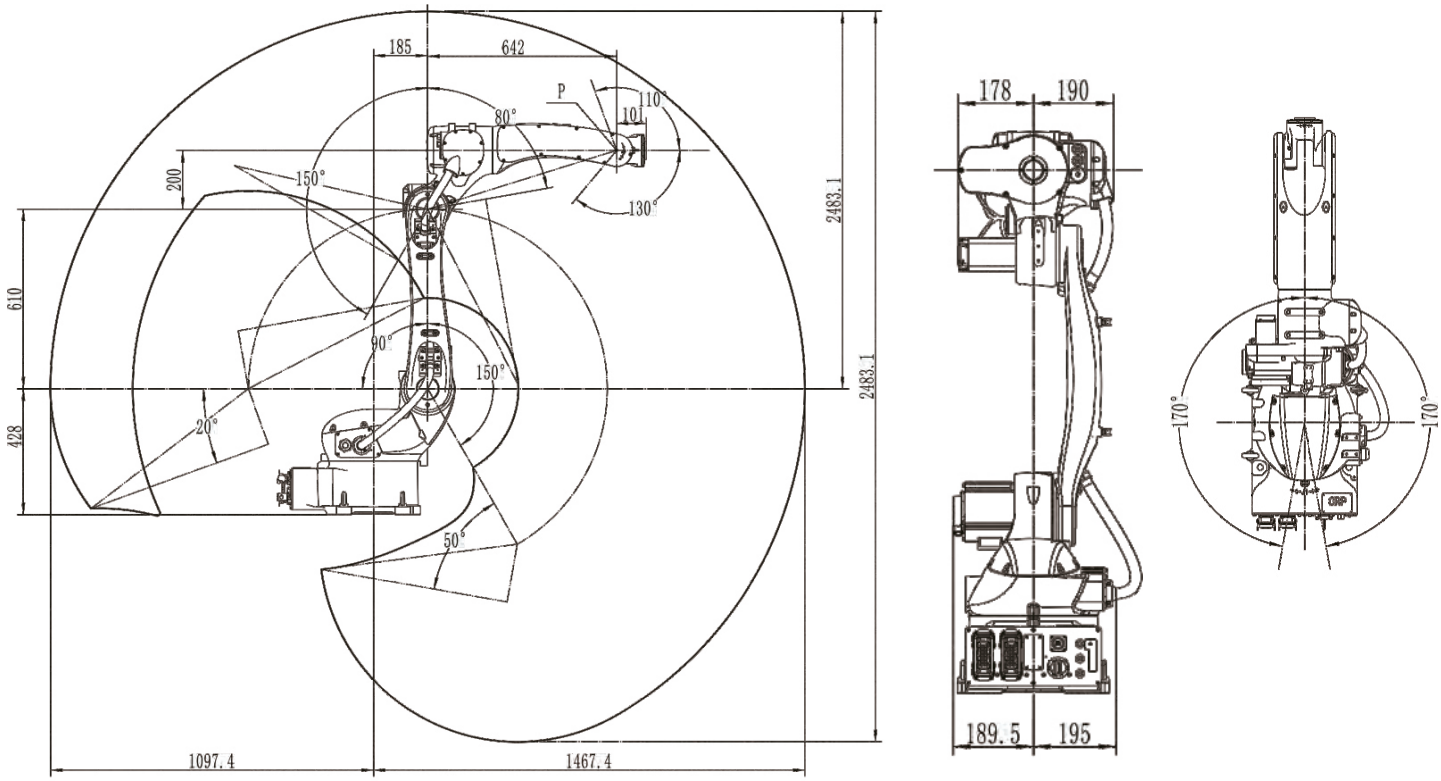


REAR

INSTALLATION INTERFACE DIAGRAM



WORKING RANGE DIAGRAM



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