

Crossfire COBOT Welding System Overview

The Crossfire COBOT Welding System primarily consists of three components: a cobot, a welding machine, and a welding platform. This system is designed to simplify the welding process and can be further enhanced with optional features such as a flexible platform, laser positioning system, and other auxiliary equipment.

Key Features

1. Advanced Arc Welding Software

- The arc welding software is deeply integrated with the robot control system, allowing for seamless switching between welding modes and customizable welding parameters.
- It features a clear structure with guided settings, making parameter adjustments straightforward for users.

2. Integrated Laser Sensing System

- The system includes an integrated laser sensing system, enabling users to check positioning directly from the teaching pendant for precise alignment.

3. User-Friendly End Tool

- The end tool is equipped with integrated buttons, allowing for easy switching between operating modes, point recording, and other essential functions.

4. Accurate Wire Feeding System

- Equipped with a 4WD+Encoder motor and a fully digital motor control system, the COBOT ensures accurate and stable wire feeding.

System Options

1. Laser Sensing System

2. Wire Feeder (Machine Equipped/Manual)

3. Movable Welding Workbench/Magnetic Site

Benefits

1. Optimized Software Integration

- The independently developed arc welding software is closely integrated with the welding machine, enhancing performance and reliability.

2. Enhanced Positioning Capabilities

- When paired with the Crossfire laser sensor and corresponding software, the system can achieve precise positioning and alignment functions.

3. Simplified Operation

WELDING SYSTEM



Crossfire COBOT Specifications

- **Load Capacity:** 10 kg
- **Repeatability:** 0.03 mm
- **Safety Protection:** Integrated
- **Maximum Reach:** 1350 mm
- **Software Integration:** Arc welding package software

Welding Machine Specifications

- **Model:** AMIG350PR
- **Welding Processes:**
 - Pulse
 - Double Pulse
 - Constant Voltage (CV)
- **Compatible Wires:**
 - Steel , Stainless Steel, Aluminum

Mobile Table Top

- **Feature:** Easy to move for flexible positioning and fixturing configurations..



Safety Protection

Capable to detect collision, stop running immediately for unexpected collision, no need for fencing



Drag to teach - Man-machine Collaboration

Manually drag to teach path and points, to set automatic running track for robot

Modularization

Modularization design for easy assembly and maintenance



Easy Operation

Visual graphical customer interface, simple operation, convenient debugging



Light weight

Ratio of payload to weight: 1:4



System Openness

Multiple kinds of interfaces for programming language:
C/C++\Lua\Python
Support ROS - Robot Operation System



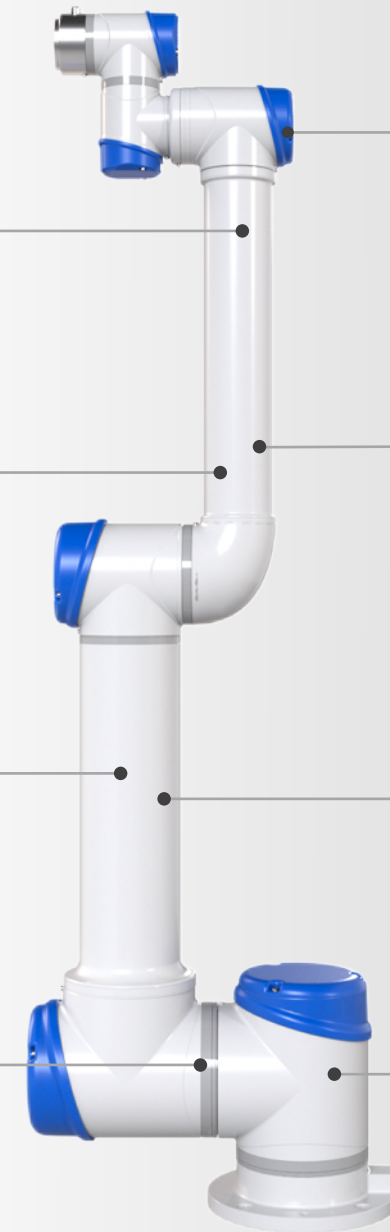
Intelligent

Support mixed programming via script, drag, and teach
Realize clipping and editing the motion track
Support on-line/off-line programming



Return on Investment

Recover the investment cost rapidly
30000-hour service life

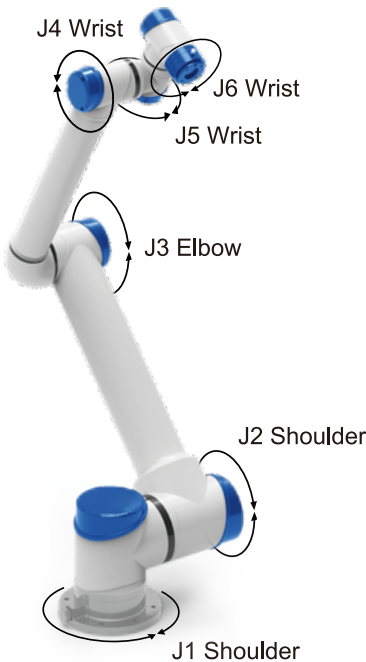




Model

Degrees of Freedom
Reach (mm)
Payload (Kg)
Weight (Kg)
Lifetime (h)
Collaboration
Repeatability (mm)
Linear Velocity (m/s)
Power Consumption (W)
Materials
Ambient Humidity
Ambient Temperature (°C)
IP Classification
Programming
Communication
Motor Type
Installation Orientation

Degrees of Freedom	6 axes
Reach (mm)	1350
Payload (Kg)	10
Weight (Kg)	38.5
Lifetime (h)	30000
Collaboration	Collaborative operation according to ISO 10218-1 :2001
Repeatability (mm)	+/- 0.03
Linear Velocity (m/s)	4.0
Power Consumption (W)	600
Materials	Aluminum, Steel
Ambient Humidity	25%-85%
Ambient Temperature (°C)	0-45
IP Classification	IP54
Programming	Teach pendant with user interface
Communication	CAN bus
Motor Type	DC 48V
Installation Orientation	Any Ceiling, Floor, Wall



AXIS MOVEMENT	WORKING RANGE	MAXIMUM SPEED
J1 axis rotation base	(+/-) 360°	178°/sec
J2 axis rotation shoulder	(+/-) 360°	178°/sec
J3 axis rotation elbow	(+/-) 360°	223°/sec
J4 axis wrist rotation	(+/-) 360°	178°/sec
J5 axis wrist swing	(+/-) 360°	237°/sec
J6 axis wrist rotation	(+/-) 360°	237°/sec

I/O PORT ON WRIST					
Voltage	Current	Digital In	Digital out	Analog In	Analog Out
0/12/24V	0.8A	4	4	2	0

CONTROL BOX



Dimensions (mm)	380*350*240
Weight (Kg /lb)	15 /33.0
Cable length (m)	4
Color	Black
Communication	Ethernet, Modbus-RTU/TCP
Interface	SDK(supports C/C++/Lua/PythonSupports ROS, API
Power supply	110VAC, 60Hz
IP Classification	IP54

TEACH PENDANT



I/O PORTS	General I/O	Safety I/O
DI	16	16
DO	16	16
AI	4	-
AO	4	-
Output voltage (V)	24	
Max.Current (A)	3	

TEACH PENDANT

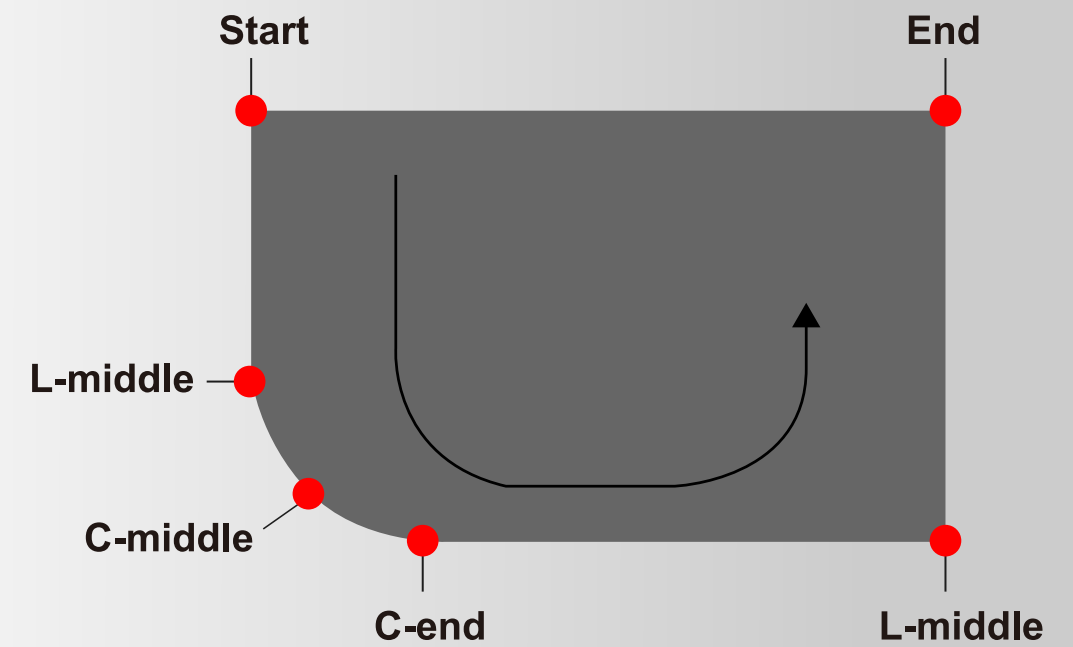
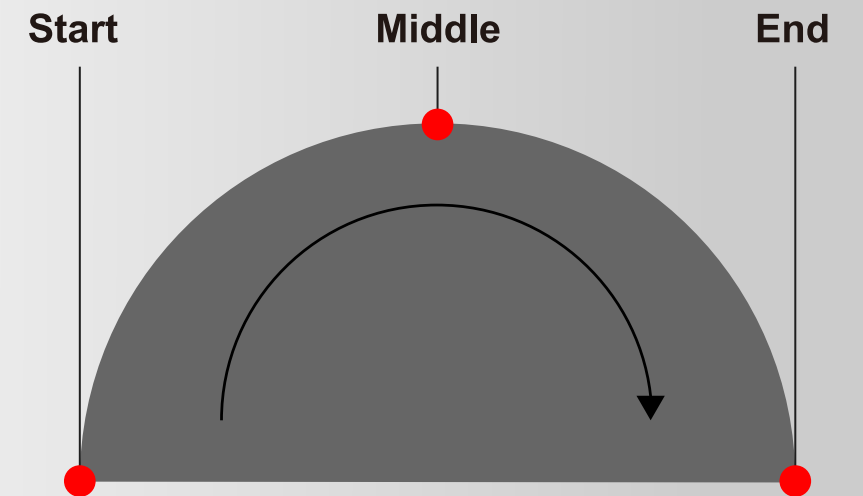
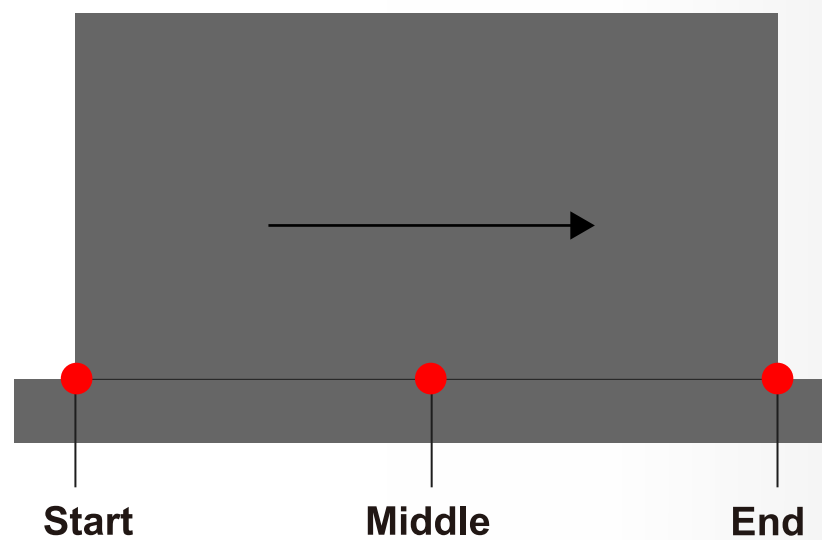
Dimensions (mm)	355*235*54
Weight (Kg /lb)	1.8 /4.0
Display Screen	12” Touch LCD Screen
Cable length (m)	4
IP Classification	IP54
Color	White

BUTTON BOX

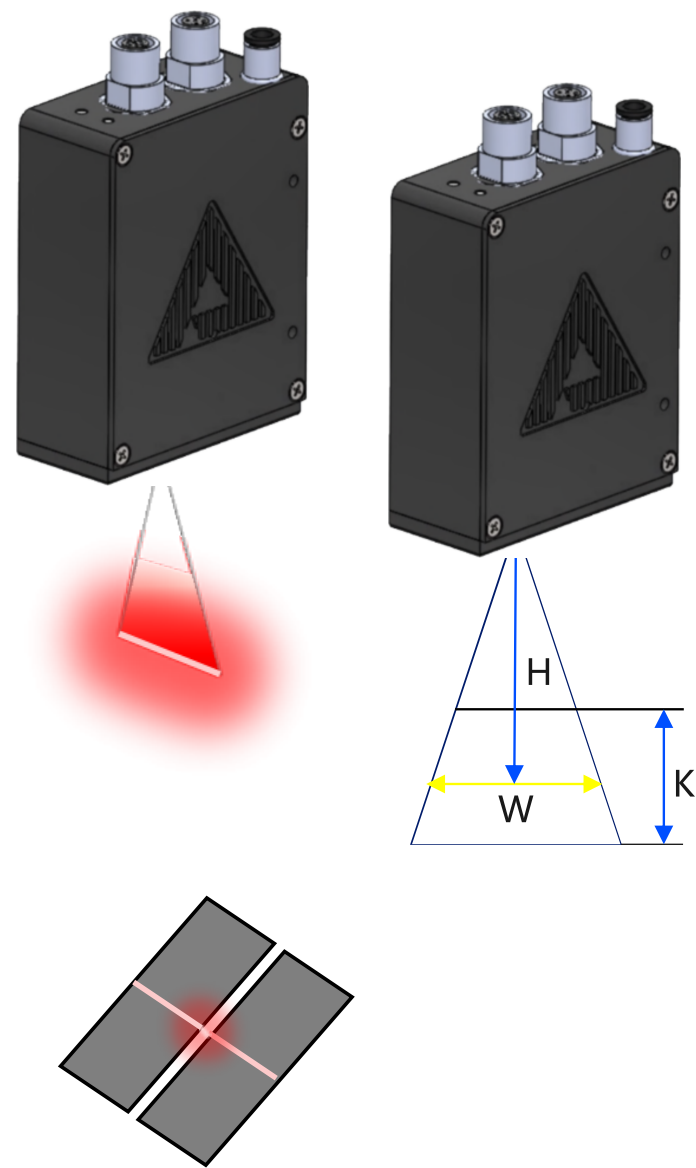


Features:

- Quick switching between linear, circular, composite, and rectangular welding seams.
- Fast programming for all seam types.
- Easy selection of laser tracking options.
- Instant access to the welds solution interface.



LASER SENSOR



Features

- Robust Design:** Engineered with superior EMC shielding, making it suitable for adverse environments like dual-wire gas shielded welding. Integrated air-cooling ensures optimal performance in high-temperature scenarios.
- Precision-Driven Performance:** Equipped with state-of-the-art hand-eye calibration algorithms, guaranteeing high fidelity positioning and exceptional interference resilience under high arc luminosity conditions.

Technical Specification

	aTrac150
Mounting Height (H)	150 mm
Depth of Field (K)	170 mm (100-270mm)
Central Field of View (W)	65 mm
Minimum Gap Detectable	0.5 mm
Minimum Offset Detectable	0.8 mm
Inbreaking Protection	IP65
Operating Temperature	0-50 °C
Humidity Adaptability	10%-95%
Protocol	TCP/IP, Modbus-TCP
Weight	455 g
Arc Welding Type	GMAW
Workflow	Seam Location

Versatile Application:

Ideal for mounting fixtures and performing welding operations on a wide variety of workpieces, accommodating different shapes, sizes, and materials.



Technical Specification

Fixture Table	
Dimension (mm)	800*600*24
Telescoping clamp Dimension (mm)	300*200
Base height (mm)	120
Hole diameter (mm)	28



AMIG350PR

AMIG350PR:

The AMIG350PR is an advanced MIG welding system designed for high efficiency and exceptional quality. It leverages high-speed DSP (Digital Signal Processing) for precise control of metal transfer, enabling spatter-free welding, reducing manual cleaning costs, and increasing deposition rates. This makes it the ideal choice for industries working with carbon steel and stainless steel.

Key Features:

- Full Digital Control System (MCU + DSP):**
Provides precise control over the welding process, ensuring low-spatter welding for cleaner results and minimal post-weld cleanup.
- Multi-Process Capability:**
Supports PULSE, DOUBLE PULSE, and CV MIG processes, offering flexibility to handle a wide range of welding tasks.
- Double Pulse Welding:**
Enhances the quality of the welding seam, delivering the best fish-scale appearance, ideal for applications where aesthetics are important.
- Versatile Welding Applications:**
The low-spatter pulse welding broadens the machine's application, making it suitable for medium to thick plate welding with no limitations.
- Memory and Recall Functionality:**
Stores up to 100 welding process sets, allowing one-key switching between processes for quick and efficient operation.
- Precision Wire Feeding:**
The 4-roll drive system, combined with a fully digital twin closed-loop grating feedback wire feeding system, ensures precise and stable wire feeding.
- Fault Self-Diagnosis:**
Built-in self-diagnosis functions provide safe protection for both the welding machine and connected robots, minimizing downtime.
- Robust Integration:**
A wide array of robot peripheral configuration options ensures seamless and worry-free integration with robotic systems.

Technical Specification

AMIG350PR	
Rated input voltage /frequency (V/Hz)	3 phase, AC460V±10%, 50 /60Hz
Rated input capacity (KVA)	15.5
Rated input current(A)	19.8
Range of welding current(A)	60~350
Range of welding voltage(V)	17~31.5
OCV(V)	84
Duty cycle (%)	60
Wire diameter (mm)	Φ0.9,Φ1.2,Φ1.6
Gas flow (L/min)	15~20
Dimension (mm)	660*320*560
Weight (kg /lb)	55 /110.2
Insulation class	H
Protection class	IP23



WIRE FEEDER



Features and Benefits

- **4WD + Encoder Wire Feeding Motor:**
 - Ensures precise and stable wire feeding speed, enhancing welding accuracy and consistency.
- **Digital Motor Control:**
 - Provides superior control over the wire feeding process, resulting in smoother and more reliable welds.
- **Lightweight Wire Feeding Mechanism:**
 - Designed for ease of connection and installation with robotic systems, simplifying setup and integration.

Technical Specification

Model	WF-R
Motor	Magnet motor (with encoder)
Motor Voltage (V)	DC24
Ratedcurrent (A)	3
Wire feeding speed (m/min)	2.5-22
Rated welding current (A)	350
Duty cycle (%)	60
Wire diameter (mm)	Φ0.9, Φ1.2, Φ1.6
Gas flow (L/min)	15~20
Dimension (mm)	686*284*406
Weight (Kg /lb)	10 /22.0