AROW





Autonomous Robot for Orbital Welding

Presenting Welding 5.0:

Fusing Metal with Ingenuity

Industry First AI Powered Orbital Welding Technology



An innovative autonomous pipe welding robot equipped with AI-driven and laser sensing technology to revolutionize precision, efficiency, and quality in industrial welding.

AROWHighlights

Redefining Industrial Welding with AI and automation into the era of Welding 5.0

AI-DRIVEN PRECISION & EFFICIENCY



Real-Time Laser Tracking

±0.2 mm accuracy with 40 mm range for flawless welds.



AI-Powered Adaptive Welding

Adjusts welding parameters and welding TIP position.

Operational in both uphill/downhill welding.



Multi-Groove Mastery

Flawless J & V groove tracking at ±0.2mm accuracy.



3-Axis Servo Control

Torch elevation Z axis (64 mm), Y axis motion (64 mm), and programmable oscillation (0-4 Hz, 0-18 mm amplitude).

UNMATCHED PRODUCTIVITY



Dual-Robot Synchronization

Two AROW units can work simultaneously on the same pipe, doubling productivity.



High-Speed Welding

2–20 mm/sec speed (configurable) with GMAW (MIG) technology.



Toothed Band Mobility

Ensures stable movement on pipes of any diameter (12" and up).

BUILT FOR REAL-WORLD REQUIREMENTS



Engineered for tough Outdoor environment

Operates in -20°C to 55°C environments with minimal maintenance.



Plug-and-Play Setup

Easy installation, advanced UX, user-friendly HMI for quick deployment.



Integrated Human-Machine Collaboration

Reduced labor dependency.

Maintaining top-tier weld quality with less skilled welders.



Bridging the Labor Gap

Deals with the global welder shortage by augmenting existing teams. AROW enables precision execution while welders focus on planning and supervision.

COMPLETE SYSTEM INTEGRATION

- Includes control cabinet, gas mixer (optional),
 and customizable work cabinets for indoor/outdoor use.
- Can work with any GMAW power supply.

WELDING EQUIPMENT AGNOSTIC

AROW integrates seamlessly with most popular welding equipment, regardless of vendors, protecting your past investments.

TECHNICAL SPECIFICATIONS

Thickness welded pipe 5 - 32 mm (other optional) Pipe material Carbon Steel (other optional) Welding Technology GMAW (MIG) Ambient temperature -20-55°C Welding speed 2-20 mm/sec (other optional) Travel speed 2-20 mm/sec (other optional) Weight 22 kg Dimensions H-35 cm / W-47 cm / L-45 cm TRACKING SYSTEM Laser line tracker 40 mm Positioning accuracy +/- 0.2 mm Grove profile J & V groves WELDING TORCH Etevation (Z axis) 64 mm Motion perpendicular to seam (Y axis) 64 mm Welding oscillation 0-4 Hz (parameter setting) Amplitude - welding oscillation 0-18 mm (parameter setting) SYSTEM INCLUDES AROW system Including Coperator HMI screen Including Control cabinet Including Toothed band Including GMAW PS Optional GMAW PS Optional Working cabinet Optional Working cabinet Optional (indoor or outdoor) WELDING WIRE Welding wire type Solid / FluxCored Welding wire size 1-1.2 mm POWER CONSUMPTION Operation Voltage 100-240 VAC / 50/60 Hz	ROBOT	Pipe Diameter	300 mm (12") and up
Welding Technology Ambient temperature -20-55°C Welding speed 2-20 mm/sec (other optional) Travel speed 2-100 mm/sec (other optional) Weight 22 kg Dimensions H-35 cm / W-47 cm / L-45 cm TRACKING SYSTEM Laser line tracker 40 mm Positioning accuracy 4/- 0.2 mm Grove profile J & V groves WELDING TORCH Elevation (Z axis) 64 mm Motion perpendicular to seam (Y axis) 64 mm Welding oscillation 0-4 Hz (parameter setting) Amplitude – welding oscillation 0-18 mm (parameter setting) SYSTEM INCLUDES AROW system In protective box Welder Teach pendant Operator HMI screen Including Toothed band GMAW PS Optional GMAW PS Optional Werking cabinet Working cabinet Working cabinet Optional (incloor or outdoor) WELDING WIRE Welding wire type Welding wire size Welding wire size		Thickness welded pipe	5 — 32 mm (other optional)
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Grove profile Elevation (Z axis) Motion perpendicular to seam (Y axis) Amplitude – welding oscillation AROW system Welder Teach pendant Operator HMI screen Control cabinet Toothed band GMAW PS Gas Mixer Working cabinet Welding wire type Welding wire size 1-1.2 mm	TRACKING SYSTEM	Laser line tracker	40 mm
WELDING TORCH Elevation (Z axis) Motion perpendicular to seam (Y axis) Welding oscillation Amplitude – welding oscillation O-4 Hz (parameter setting) Amplitude – welding oscillation In protective box Welder Teach pendant Operator HMI screen Control cabinet Toothed band GMAW PS Optional Gas Mixer Working cabinet Wire feeder speed Welding wire type Welding wire size 1-12 mm		Positioning accuracy	+/- 0.2 mm
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GMAW PS Optional Gas Mixer Optional Working cabinet Optional (indoor or outdoor) WELDING WIRE Wire feeder speed 1-18 m/min Welding wire type Solid / FluxCored Welding wire size 1-1.2 mm		Control cabinet	Including
Gas Mixer Working cabinet Welding wire type Welding wire size Optional Optional (indoor or outdoor) 1-18 m/min Solid / FluxCored 1-1.2 mm		Toothed band	Including (According to pipe dia.)
Working cabinet WELDING WIRE Wire feeder speed Welding wire type Welding wire size Optional (indoor or outdoor) 1-18 m/min Solid / FluxCored 1-1.2 mm		GMAW PS	Optional
WELDING WIRE Wire feeder speed Welding wire type Welding wire size 1-18 m/min Solid / FluxCored 1-1.2 mm		Gas Mixer	Optional
Welding wire type Solid / FluxCored Welding wire size 1-1.2 mm		Working cabinet	Optional (indoor or outdoor)
Welding wire size 1–1.2 mm	WELDING WIRE	Wire feeder speed	1-18 m/min
		Welding wire type	Solid / FluxCored
POWER CONSUMPTION Operation Voltage 100-240 VAC / 50/60 Hz		Welding wire size	1–1.2 mm
	POWER CONSUMPTION	Operation Voltage	100-240 VAC / 50/60 Hz
Max Power consumption (2 robot system) 750 AV		Max Power consumption (2 robot system)	750 AV

The Future of Welding is Here

Redefining Industrial Welding with AI and automation into the era of Welding 5.0 - AROW sets a new benchmark for precision, efficiency, and safety in industrial pipe welding.

GLOBAL PARTNERSHIP NETWORK

Experience Welding 5.0 with AROW technology. Contact our regional partners for tailored solutions and support.

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AROW Product Page

