

XpertLINC

A Smarter Way to Evaluate Robotic Welding

Most AI enabled robots learn how to weld. XpertLINC already knows how.

The robotic welding market is filled with terms such as AI, autonomous programming, machine vision, adaptive control, digital twins, and no-code automation. These capabilities can all create value, but they do not deliver the same customer experience or solve the same production challenges.

The most important question is not whether a system uses AI. It is whether the system makes robotic welding easier to use, adapts to real production conditions, and supports the weld quality your operation requires.

XpertLINC™ brings those priorities together in one Physical AI-enabled automation platform, starting with Cooper™ cobots. In XpertLINC, Physical AI is the connective tissue between digital intelligence and real-world manufacturing operations, helping robots see, understand, and adapt to what is happening at the arc.

What does it mean?

Physical AI

A system that can interpret real-world information and use it to support physical work.

No-Code Automation

The operator does not need to manually write robot code.

Adaptive Welding

The system can respond to identified differences in the actual part or joint.

Machine Vision

The system can detect or measure the physical part rather than relying only on an ideal model.

Automatic Path Generation

The system helps create robot motion without traditional point-by-point programming.

Welding Intelligence

The automation is informed by welding-process knowledge, not just robot motion.

WPS

Welding Procedure Specification

WELD RIGHT THE FIRST TIME. EVERY TIME.



Human Flexibility. Robot Consistency.

The flexibility to manage variation. The consistency to repeat the result.

The XpertLINC Advantage

Many AI-driven solutions rely primarily on learned behavior. They collect data, train a model and use previous outcomes to determine how the system should respond. When a new part, joint condition or source of variability is introduced, additional iterations may be required before the system reaches a production-ready result.

XpertLINC™ takes a fundamentally different approach. It combines Lincoln Electric welding expertise, factual weld data, physics-based mathematics and engineering principles. The system does not simply recognize what worked before. It applies the welding science behind why a response is appropriate.

That foundation allows XpertLINC to evaluate the joint that is actually presented, develop coordinated robot motion and weld parameters, and execute the weld inside the working ranges established for the customer-authorized WPS.

Most started with the robot. We started with the weld.

XpertLINC brings robot motion and welding-process control together. The system scans the joint, interprets the geometry, builds the weld plan and commands both the robot and the arc. If the scanned condition does not fit an available WPS definition, the system can stop before welding so the fit-up can be corrected or an authorized operator, quality representative or welding engineer can select, add or approve the appropriate weld file.

WPS AWARE

Works inside
defined
application
rules.

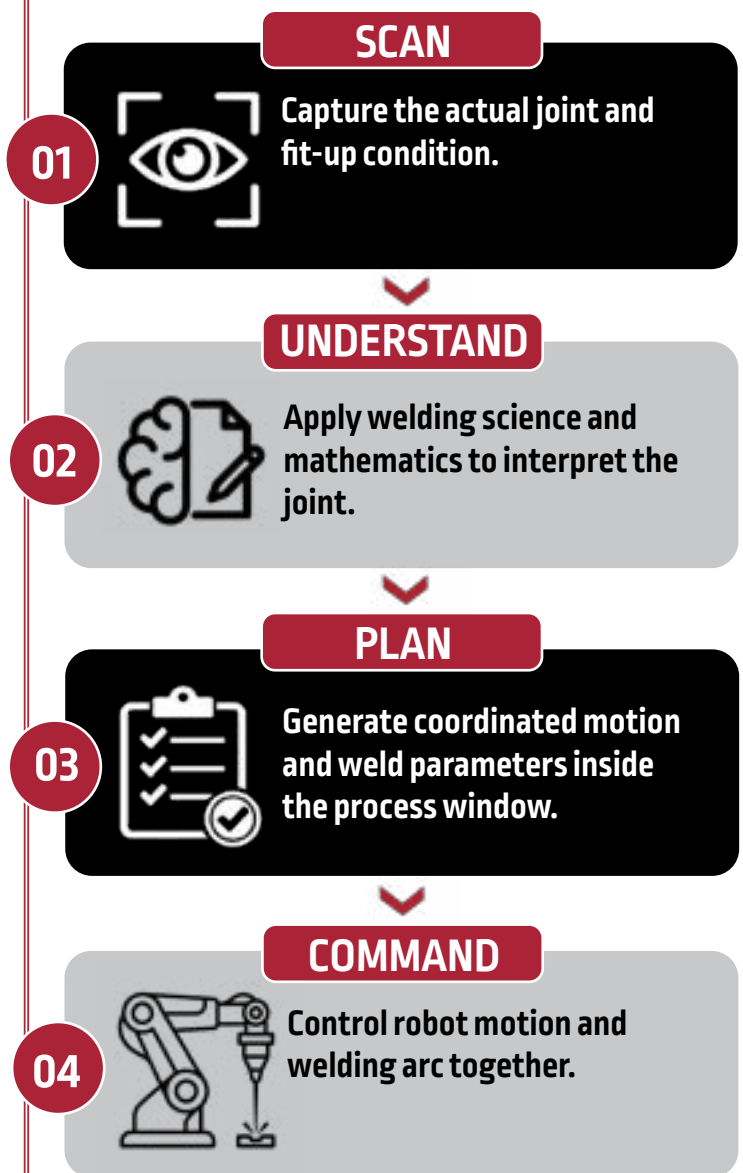
ADAPTIVE

Responds
to real joint
conditions.

CONSISTENT

Repeats the
process as
defined.

How XpertLINC Thinks + Acts



Adapts to real-world conditions without going outside your approved weld procedure.

Performance results are derived from specific test conditions utilizing Lincoln Electric® consumables. Actual customer results may vary and are dependent upon consumable selection, base material, welding procedure, operating environment, and other application-specific factors.

Lincoln Electric® WPS programming is intended for general fabrication applications and may not satisfy all job-specific requirements. Users are responsible for verifying that the selected welding procedure complies with applicable codes, standards, specifications, customer requirements, and regulatory obligations for the user's specific situation or application. Lincoln Electric encourages the use of approved customer-specific WPSs where required. XpertLINC™ does not replace the user's responsibility for evaluating engineering judgment, administrative authority, code compliance, regulatory oversight, product quality or required procedure qualification activities.



CAPABILITY REALITY CHECK

What the public claims actually support

	Auto path planning/ programming	Real-time path adapt	Adaptive weld parameters	Multipass generation/ bead placement	WPS/ process integration	The XpertLINC™ Advantage					Inspection/ traceability of defects	Learned Physical AI
						WPS constraint enforcement	Autonomous WPS validation*	Fusion of Motion & Process	Control of Motion & Process	CAD-FREE		
 XpertLINC™	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
 Cooper™ Cobots			partial	partial	✓					✓		
Competitor 1	✓	✓	✓	✓	✓	partial					partial	✓
Competitor 2	✓	✓	✓	partial	partial	partial				partial	✓	✓
Competitor 3	✓	✓	✓	✓	✓	partial					✓	partial
Competitor 4	✓	✓	✓	✓	partial						✓	partial
Competitor 5	✓	✓	partial	partial	✓	partial					partial	partial
Competitor 6	✓	✓	✓								✓	✓
Competitor 7	partial	partial	partial								partial	partial

Competitive comparisons are based on information believed to be accurate at the time of publication, including publicly available materials, product literature, demonstrations, testing, and other sources. Competitor products, specifications, features, and performance claims may change without notice and may not have been independently verified by Lincoln Electric®. Comparisons are provided for informational purposes only and should not be considered a guarantee of performance. Users should conduct their own evaluation to determine suitability for their specific application.

*Autonomous WPS Validation™ is XpertLINC's ability to automatically evaluate scanned weld-joint conditions against approved Welding Procedure Specifications (WPSs), verify compliance with established procedure requirements, generate welding programs within approved limits, and identify conditions requiring review before welding begins. By embedding Lincoln Electric welding expertise into the workflow, XpertLINC helps manufacturers apply their approved welding procedures, as determined by the manufacturer's qualified personnel and their assessment of applicable code, customer, and regulatory requirements.

Stop Teaching Robots to Weld and Start Welding

Many welding automation platforms can locate a joint, generate a robot path, and compensate for part variation. XpertLINC goes further by combining control of the robot's motion with control of the welding process. XpertLINC commands the motion and the arc as one and checks every joint against your approved procedure before the first spark. Before the arc starts, XpertLINC evaluates the scanned application and detected fit-up conditions against the available WPS definitions. If the application falls outside the defined working range, the system generates an error and prevents the weld from proceeding. The condition can then be resolved by correcting the fit-up or by having an authorized operator, quality representative, or welding engineer select, add, or approve an appropriate WPS. This proactive control helps identify potential problems before metal is deposited, reducing the risk of rejected welds, rework, and lost production time.

XpertLINC includes basic WPS criteria for general fabrication applications while allowing customers to incorporate and maintain their own approved WPS definitions. This enables manufacturers to extend the reach of their welding engineering and quality expertise across automated production while retaining authority over the procedures used in their facilities. Customer-specific WPS information remains limited to the customer's organization, is not shared with other users or used to train XpertLINC, and remains the customer's intellectual property.

The advantage is strengthened by our complete-system approach. Intended weld quality, consistency, and performance depend on genuine Lincoln Electric® consumables specified for the application, along with suitable materials, equipment, wire-delivery components, torch condition, fume extraction, and surrounding welding conditions. By bringing together WPS-guided execution, Lincoln Electric consumables, adaptive robot control, and more than a century of welding expertise, XpertLINC addresses the critical challenge that motion-focused automation alone cannot solve. XpertLINC commands both the motion and the arc, applying welding intelligence within the boundaries established by the customer's engineering and quality organization.

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COMPETITIVE SNAPSHOT

Company	Core claim	Actual center of gravity	WPS reality	Setup	Run	Attention hook
 XpertLINC™	Physical AI platform/ Welding Intelligence	Real-time path/weld parameter adaptation founded in mathematics adhering to WPS	Auto WPS validation	Entry-level	Entry-level	Weld right the first time. Every time.
 Cooper™ Cobots	Easiest to use cobot welding solution	Auto-air motion capture/weld by numbers/easy UI	General weld parameters sets provided	Shop-floor/ Seasoned welder	Entry-level	Click, click, weld
COMPETITOR 1	Physical AI / World Model	Closed-loop sensing, weld decisions, adaptive multipass	Follows customer WPS; no auto qualification	Shop-floor	Entry-level	Rove / Weld Anywhere
COMPETITOR 2	Cognition / Welding Intelligence	Vision + real-time path/parameter adaptation + weld-data layer	No public auto-WPS qualification	Seasoned welder	Entry-level	Physical-AI endpoints
COMPETITOR 3	True automatic welding intelligence	Pipe-spool program generation + adaptive root/fill/cap + QC	Program builder + WPS/PQR helpers; qualification remains human	Shop-floor	Entry-level	"Buy experience"
COMPETITOR 4	Intelligent vision / adaptive control	Auto-teach + tracking + parameter control + inspection	User/integrator supplies process; no WPS engine disclosed	Robot programmer	Shop-floor	"Give vision"
COMPETITOR 5	Just click and weld	CAD path generation + vision compensation	User adapts WPS and sets parameters	Seasoned welder	Entry-level	No programming
COMPETITOR 6	Factory Super Intelligence	Adaptive surface-process automation + RaaS	N/A	Shop-floor	Entry-level	No CapEx / superhuman
COMPETITOR 7	Physical AI platform	Software-defined robot abstraction + digital twins	N/A	Robot programmer	Shop-floor	Factories that Think

WPS INTEGRATION: THE LINE MARKETING OFTEN BLURS

The key distinction is between generating a welding program, including weld parameters that are guided by an established WPS, and independently developing and adhering the WPS itself. Modern systems can generate paths, adapt bead placement, and adjust process variables, however these capabilities do not mean the system can validate the changes made adhere to WPS.

Company	WPS / procedure input	Process adapt	Program/procedure generation	WPS Constraint Enforcement	Autonomous WPS Validation
 XpertLINC™	Acceptable working ranges developed as weld file for explicit customer WPS	Strong	Automatic generation of program and weld parameters with adherence to WPS	Yes	Yes
 Cooper™ Cobots	Manually input	Manual	Manually taught/defined	No	No
COMPETITOR 1	Explicitly follows customer WPS; ingestion/enforcement details not public	Strong	AI-generated weld parameters / planning	Partial	No public evidence
COMPETITOR 2	Parameters/data captured; no explicit WPS import found	Strong	CAD programming + adaptive control	Partial	No public evidence
COMPETITOR 3	Program builder + WPS/PQR helper tools + manual procedure replication	Strong	Strong — autonomous executable welding procedure	Partial	No; human qualification remains
COMPETITOR 4	Integrator/user defines welding process; inspection tolerances entered manually	Strong	Auto-teach/path generation; not a WPS engine	No	No
COMPETITOR 5	User adapts manual WPS for robotic welding and sets parameters/order	Limited / user-set	Automatic robot trajectory	Partial	No
COMPETITOR 6	N/A	N/A	N/A	N/A	N/A
COMPETITOR 7	N/A	N/A	N/A	N/A	N/A

