

ARC-X Specification Sheet

ARC-X · Large-Structure Robotic System


20+

Coordinated system axes

360°

Positioning capability

2+

W7 robots

21

Example configuration

ARCHITECTURE

System motion	20+ coordinated system axes with 360° positioning capability
Robots	Multiple W7 robots on gantry, crossbeam, vertical and carriage axes, plus positioners
Longitudinal gantry motion	Supported
Cross-structure travel	Configuration dependent
Robot carriage positioning	Supported
Workpiece positioners	Optional
Installation	Engineered large-structure system

EXAMPLE CONFIGURATION

W7 A	7
W7 B	7
Linear A	1
Linear B	1
Vertical A	1
Vertical B	1
Two-axis workpiece positioning	2
Gantry	1
Total	21 axes

SENSING

Seam and part sensing	Distributed seam sensing and 3D vision
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WORK

Applications	Ship hull structures, hull panels, frames, stiffeners, longitudinal assemblies, bulkheads, foundations, ship modules, heavy structural components, large steel weldments, industrial modules
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SOFTWARE

Modules	Studio, Control X, Weld, Mission Control, Fleet, Twin, Proof
CAD-based programming	Supported
Offline simulation	Supported
Collision validation	Supported
WPS integration	Supported
Production scheduling	Supported
Manufacturing traceability	Supported
Twin hierarchy	Vessel -> block -> assembly -> panel -> part -> joint -> weld

INTEGRATION

Plant protocols	OPC UA, PROFINET, EtherNet/IP, MQTT
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SAFETY

Safety architecture	Installation-specific industrial safety architecture
Safety elements	Emergency-stop circuits, safety-rated interlocks, safety PLC, perimeter guarding, access gates, area scanners, light curtains, machine-state monitoring, controlled zones, status towers, safe-stop functions
Real-time loop	Cloud is never in the real-time loop

FUNCTIONS**Gantry Coordination**

Gantry, crossbeam, vertical and carriage axes carry multiple W7 robots over the structure.

Block-Scale Planning

Weld paths are planned across complete hull blocks and large stiffened panels.

Multi-Robot Scheduling

Mission Control assigns joints to each robot and rebalances when one stops.

Production Twin

Twin tracks progress from vessel to block, assembly, panel, part, joint and weld.

Distributed Sensing

Seam sensors and 3D vision on each robot measure the as-built structure.

360° Positioning

Positioners and system axes present the work to the robots from every side.

Structure-Level Record

Proof assembles every weld record into one history for the block or module.