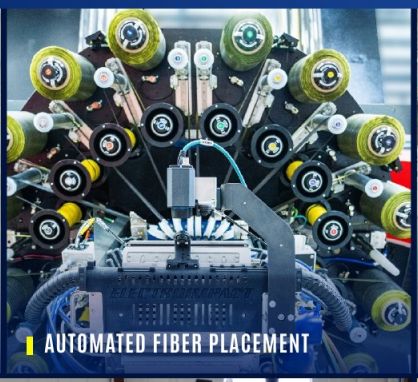
2026

ELECTROIMPACT

PRODUCTS & CAPABILITIES

Aerospace manufacturing solutions, tooling and assembly systems, designed and built in-house. Headquartered in Mukilteo, Washington.


FLEXRIVETER

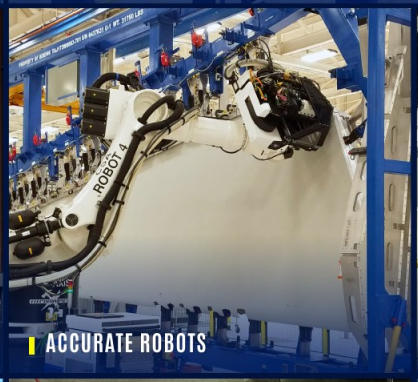

AUTOMATED FIBER PLACEMENT



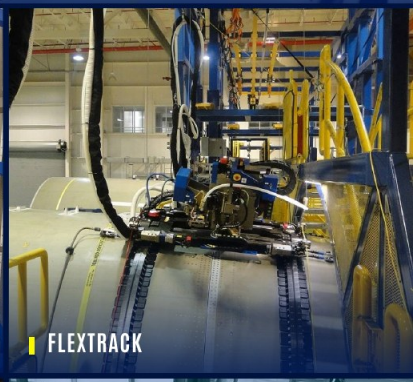
ASSEMBLY LINES



NDI

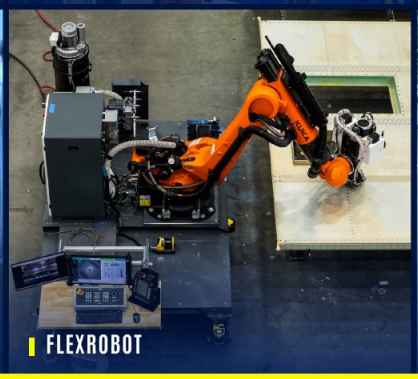


ACCURATE ROBOTS


FLEXTRACK


TOOLING


ADDITIVE (SCRAM)


FLEXROBOT


AGV & MGV

COMPOSITES | ROBOTICS | DRILLING & FASTENING | ASSEMBLY & TOOLING | SURFACE PREP & INSPECTION | FATIGUE LIFE ENHANCEMENT | SERVICES

ELECTROIMPACT AT A GLANCE



ONE TEAM. ONE INTEGRATED SYSTEM. BUILT UNDER ONE ROOF.

Electroimpact designs, builds and integrates advanced automation, tooling and assembly systems for the aerospace industry. From standalone machines to complete factory production lines, we help manufacturers produce aircraft structures with greater precision, efficiency and reliability. **The engineers who design the system stay with the system,** from design and manufacturing through installation and support.

AMERICAN OWNED
Privately held since 1986

MEMBER OF
America Makes

+ ENGINEER OWNERSHIP

The engineer responsible for the design stays involved from concept through manufacturing, installation and customer support.

+ BUILT AND TESTED IN-HOUSE

Our Mukilteo campus has large-scale manufacturing, assembly and buyoff facilities to fully test some of the industry's largest systems before shipment.

+ TURNKEY AUTOMATION

Custom systems engineered for your aircraft, process and rate, from single machines to fully automated production lines.

1986	400k ft²	450	175+	165+	90
Founded	Facility floorspace	Engineers globally	Robotic systems	FlexTracks	AFP machines

CERTIFICATIONS	AS9100 · ISO 9001 · NADCAP · BOEING TOOLING
DEFENSE	DDTC REGISTERED · ITAR COMPLIANT · CMMC LEVEL 2
BUSINESS MIX	80% COMMERCIAL AIRCRAFT · 10% MILITARY · 10% SPACE

ELECTROIMPACT

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ELECTROIMPACT

COMPOSITES

AUTOMATED FIBER PLACEMENT

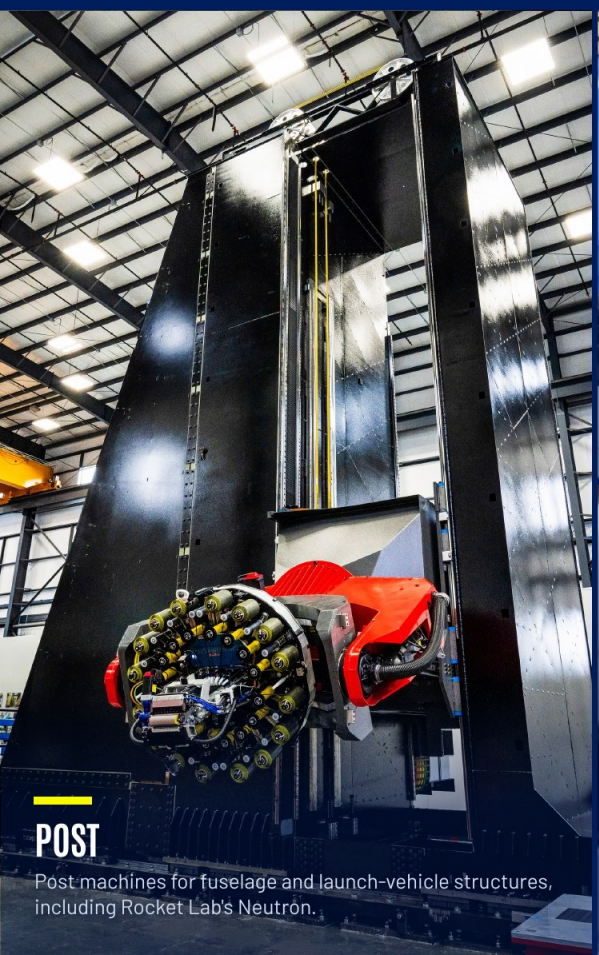
Robot, gantry and post machines with modular heads, laser heating and in-process inspection.

90
AFP machines
Installed worldwide

4-8×
Throughput
Same capital investment

99%+
First-pass quality
No manual intervention

4,000 in/min
Layup/lamination rate
With in-process inspection



POST

Post machines for fuselage and launch-vehicle structures, including Rocket Lab's Neutron.



GANTRY

High-rail gantries for wing spars and wing skins.



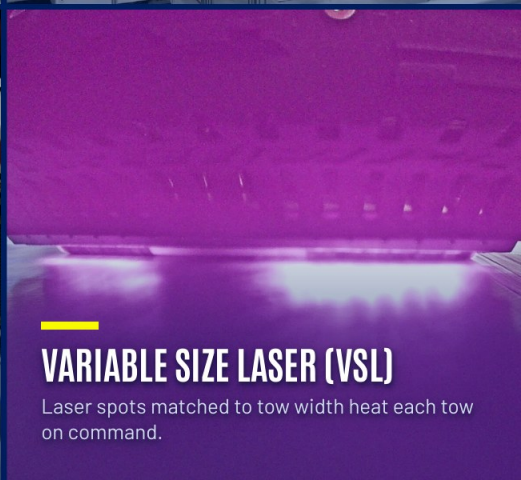
ROBOT

Accurate Robot on a linear axis.



MODULAR HEADS

Quick-change heads from 8-tow AFP to 12" ATL.



VARIABLE SIZE LASER (VSL)

Laser spots matched to tow width heat each tow on command.

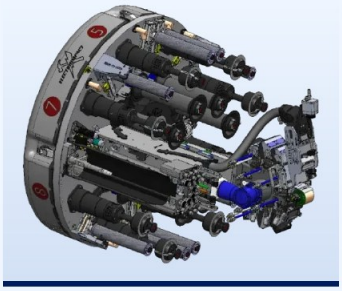
KEY FEATURES

- Robot, gantry and post platforms share the same modular heads
- ServoCreel heads in production on wing spar and skin cells since 2020
- Thermoset, thermoplastic and dry-fiber layup
- Ultrasonic cutting head for clean tow cuts
- Stitching head for dry-fiber preforms
- Less than one process error per maintenance interval



Robotic AFP cell with modular head.

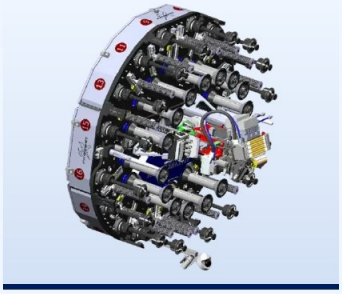
MODULAR HEADS



8-TOW AFP

Ducts, fan cases, fan blades, R&D.

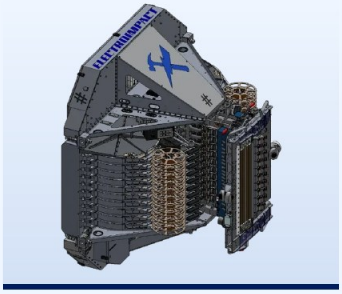
1/8”-1/2” tow · 8 tows



16-TOW AFP

Spars, wing skins, fuselage, rocket structures.

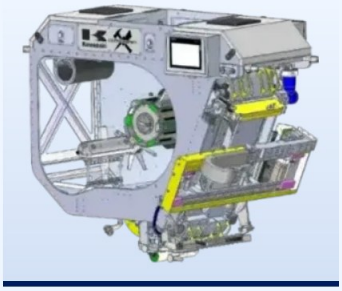
1/8”-1/2” tow · 16 tows



WIDE-FORMAT AFP

Wing skins and large low-contour parts.

1½”-2” tow · 8-20 tows

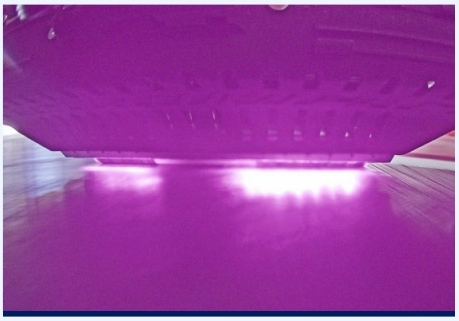


ATL

Low-contour carbon parts, copper foil, fiberglass.

3”-12” tape · 1 tow

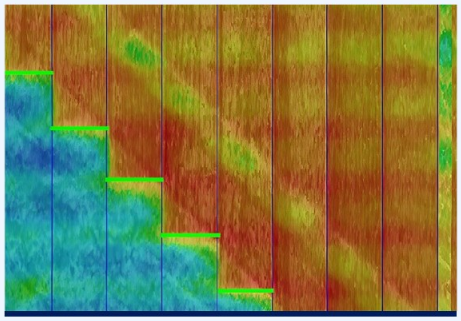
TECHNOLOGIES



VARIABLE SIZE LASER (VSL)

A laser spot matched to tow width heats each tow on command for consistent tack in thermosets and thermoplastics.

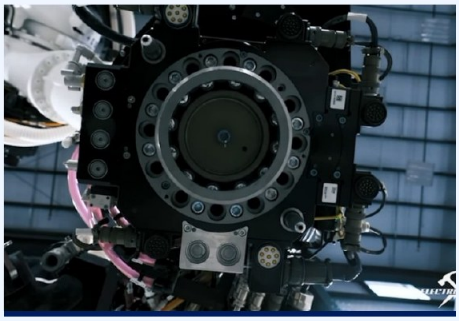
- Per-tow heating, switched on command
- No laser umbilical to the head



AUTOMATED IN-PROCESS INSPECTION (AIS)

Laser-triangulation sensors inspect every course as it is laid, so defects are caught before the next ply goes down.

- 0.003” per pixel resolution
- Detects laps, gaps, FOD and tow ends



QUICK-CHANGE HEAD

Quickly swap AFP heads for different applications and processes, minimize downtime and maximize system utilization.

- Common interface provides fast, repeatable connection
- Designed to work seamlessly with the AFP platform

MATERIALS THERMOSETS · TOWPREG · THERMOPLASTICS · DRY FIBER · CERAMIC MATRIX COMPOSITE

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ELECTROIMPACT

COMPOSITES

ADDITIVE MANUFACTURING

SCRAM: a true 6-axis, continuous fiber-reinforced 3D printer for aerospace-grade composite structures, with fewer steps and no hard tooling.

6
Axes of motion
True 3D printing, not 2.5D slices

450°C
Process temperature
Aerospace-grade thermoplastics

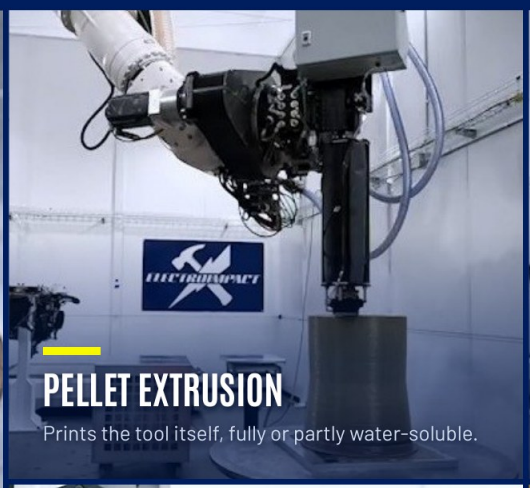
1,000 lb/hr
Max deposition
High-output FGF extruder

60%
Fiber volume
Continuous fiber-reinforced parts



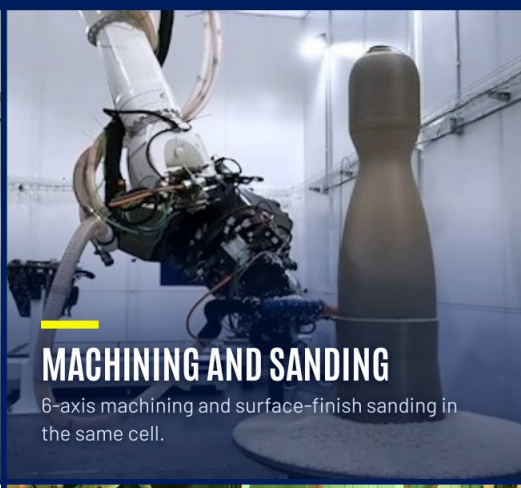
CONTINUOUS FIBER LAYUP

Laser-heated AFP of carbon fiber thermoplastic, consolidated in situ.



PELLET EXTRUSION

Prints the tool itself, fully or partly water-soluble.



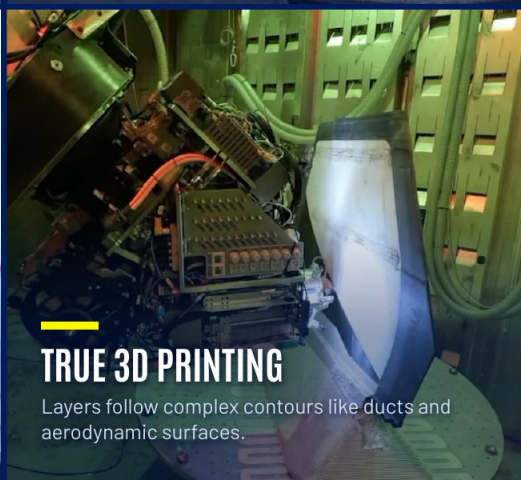
MACHINING AND SANDING

6-axis machining and surface-finish sanding in the same cell.



AUTOMATIC TOOL CHANGER

Included in every configuration.

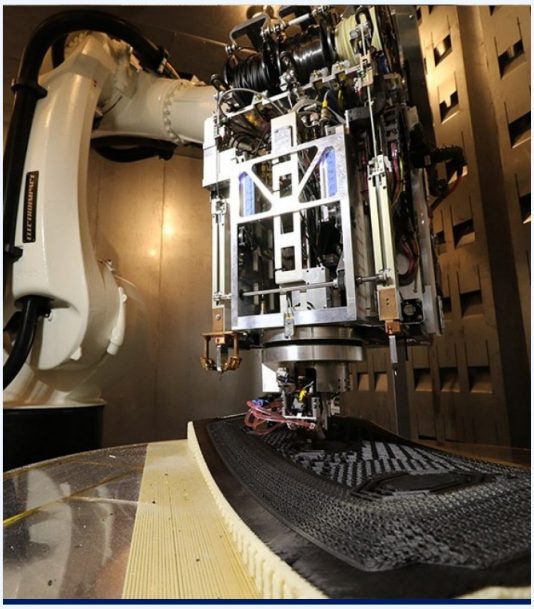


TRUE 3D PRINTING

Layers follow complex contours like ducts and aerodynamic surfaces.

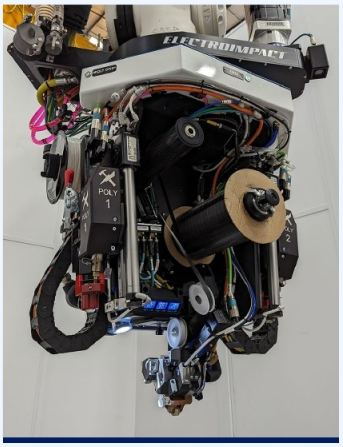
UNIQUE BENEFITS OF SCRAM

- Unified FFF, FGF, AFP and machining platform
- True 6-axis additive manufacturing
- Aerospace-grade thermoplastics and composites
- No post-processing or consolidation required
- Laser heating for AFP
- Modular tooling with scalable build volumes
- Continuous fiber layers follow contours such as aerodynamic surfaces and ducts
- Fiber orientation tailored to load paths in every layer
- Reduces part count with highly integrated structures
- Siemens Sinumerik ONE direct control



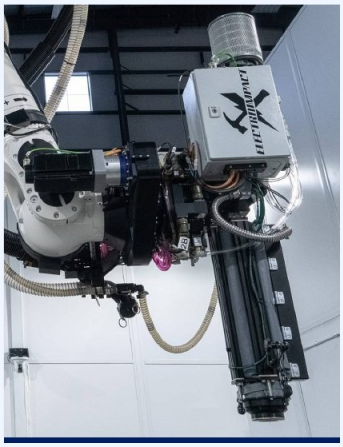
"We move the factory across the part, not the part through the factory."

MODULAR END EFFECTORS



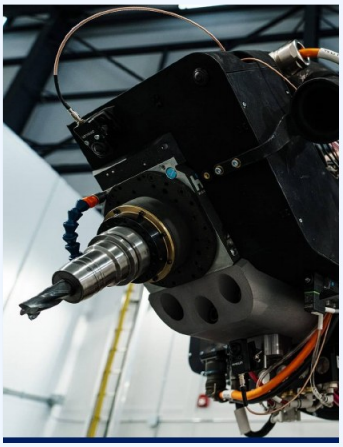
SCRAM HEAD

Multi-material, continuous fiber-reinforced printing and rapid tool fabrication.



PELLET EXTRUDER

FFF or FGF tool printing, fully or partly soluble. Up to 450 °C and 1,000 lb/hr.



MILLING

6-axis machining and surface-finish sanding. Aggregate block for auxiliary equipment.



HIGH-CLEARANCE AFP

Single-lane, laser-heated thermoplastic/thermoset AFP for 0.125"–0.75".

EXAMPLE MANUFACTURING PROCESS

01
PRINT THE TOOL
FFF or FGF, fully or partly soluble.

02
MACHINE
Mill the tool surface to the finish required.

03
DEPOSIT
Continuous or discontinuous reinforced thermoplastic, consolidated in situ.

04
TRIM
Trim the part while it is still on the tool.

05
DISSOLVE
Wash out the soluble support material.

ALSO AVAILABLE ULTRASONIC CUTTER | WIDE-FORMAT ATL HEAD | WATER-SOLUBLE SUPPORTS

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ELECTROIMPACT

ROBOTICS

ACCURATE ROBOTS

Off-the-shelf robot arms made aerospace-accurate by Electroimpact's patented secondary-feedback architecture.

130+
Production systems
On five continents

<0.25 mm
On-part accuracy
Global; <0.18 mm small frame

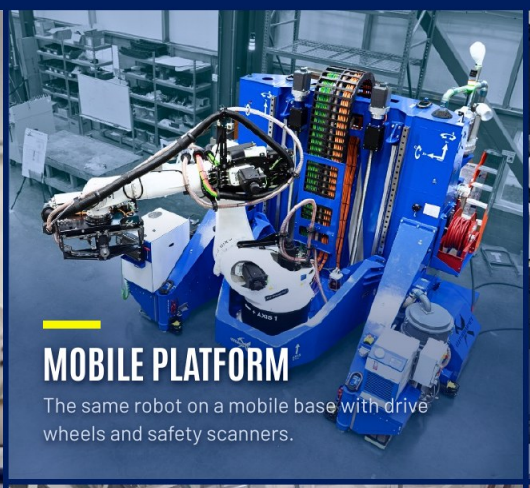
6
Joints with secondary feedback
Patent US 8989898 B2

100%
Project success rate
Commercial and defense



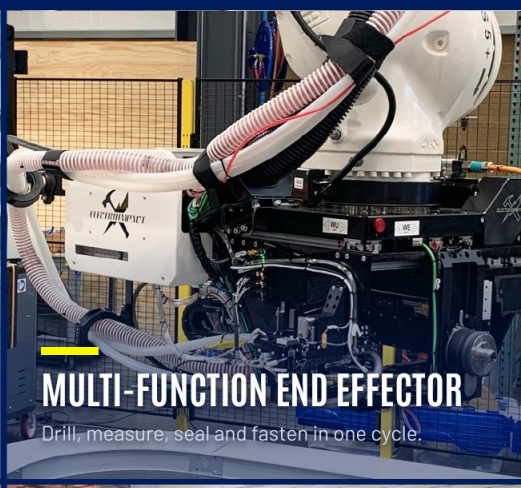
FIXED BED OR 7TH AXIS

Floor-mounted, or on a dual-drive, zero-backlash linear axis.



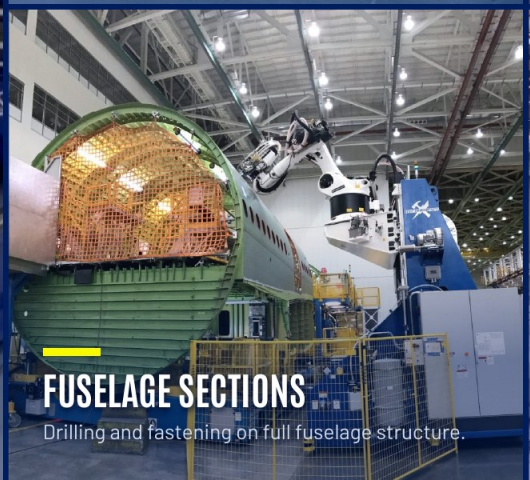
MOBILE PLATFORM

The same robot on a mobile base with drive wheels and safety scanners.



MULTI-FUNCTION END EFFECTOR

Drill, measure, seal and fasten in one cycle.



FUSELAGE SECTIONS

Drilling and fastening on full fuselage structure.



MULTIPLE PROCESSES

The same platform carries drilling, trimming, AFP and additive end effectors.

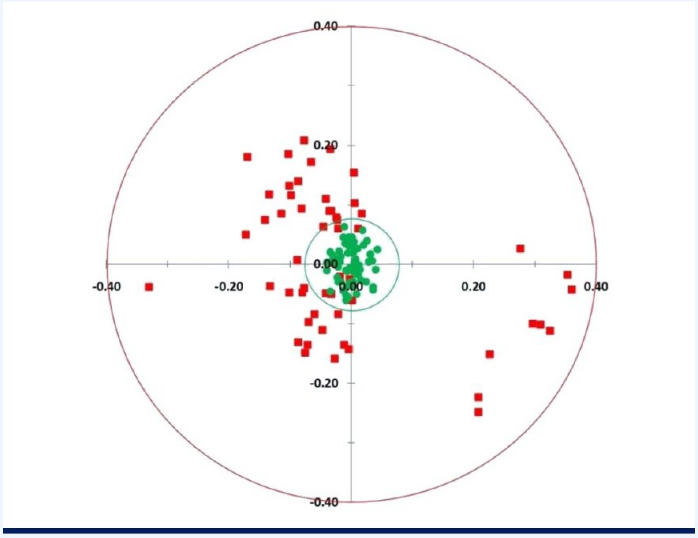
UNRIVALED ACCURACY

- Absolute secondary feedback on all six joints
- Kinematic calibration to an "as-built" model
- Compensates link, payload and bearing deflection
- Anti-skid compensation for clamp force while drilling
- Dual encoders cross-check for automatic health checks
- Wear in the transmission can be ignored
- Return to any position from any direction, no re-sync
- One Siemens CNC runs robot, end effector, axes, safety and HMI
- Automated laser-tracker calibration with Spatial Analyzer



Accurate Robots drilling and fastening a fuselage section.

STANDARD ROBOT VS ACCURATE ROBOT



EI Accurate Robot Standard robot

	CALIBRATED STANDARD	EI ACCURATE
WORKING VOLUME	0.7 m^2	1.2 m^2
REACH	2.8 m	3.3 m
HOLES DRILLED	56	64
ACCURACY (3 SIGMA)	±0.45 mm	±0.08 mm

Small-volume drilling test: drilled and countersunk patterns on representative workpieces, radial deviation measured for every hole.

DRILL-AND-FILL CAPABILITY

HOLE TOLERANCE	Single drill 0.05 mm; drill and ream 0.025 mm
IN-PROCESS PROBE	Diameter ±0.006 mm; countersink depth ±0.04 mm; stack ±0.25 mm
NORMALITY	±4° spherical nosepiece; hole normality within ±0.5°
FASTENERS	OSI, Composi-Lok, Maxibolt, Centrix, Hi-Lok, sleeved bolts, blinds, temporaries

PROCESSES: DRILL AND FASTEN | TRIM AND MILL | AFP | ADDITIVE | LASER ABLATION | NDI | MOLD PREP | MATERIAL HANDLING

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ELECTROIMPACT

ROBOTICS



FLEXROBOT

Precision automation without the premium: robotic drilling and countersinking at a lower price point.

±0.004”
Vision registration
Holes, fasteners, targets, edges

≤0.15°
Auto-normalization
Integral surface sensors

400 lbf
One-sided clamp
25 to 400 lbf range

10 /min
Hole production
Holes and countersinks



SERVO-FED SPINDLE

Baseline Hiteco 8 kW fan-cooled spindle on a ball-screw quill. No chiller required.



RAPID DEPLOYMENT

Three-point base moves by forklift, motorized pallet jack, or AGV.



OPTIONAL 7TH AXIS

Add a linear axis for extended reach and flexibility.

PROCESSES SUPPORTED

- 3D resync on a fixture with integral camera
- Vision-based six degrees of freedom part transformations
- Surface normalization using integral sensors
- Single-sided surface clamp-up up to 400 lbf
- Automated drilling and countersinking of hole patterns
- Resync on and drill out fasteners
- Resync on a hole and add a countersink
- Vision-based accuracy without high-cost fixturing
- Reduced system complexity lowers automation cost
- Modular, expandable platform with automatic tool change

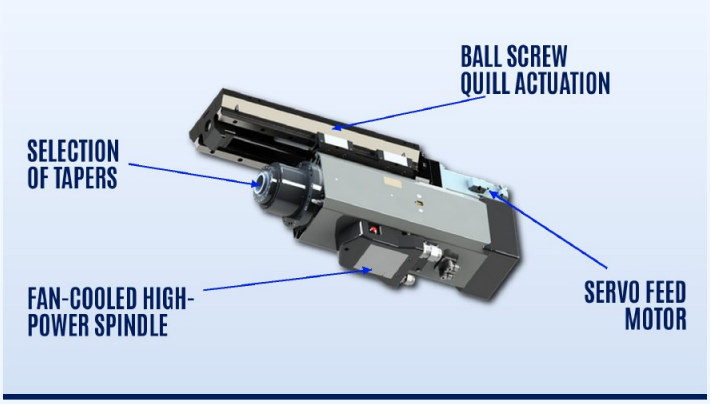


Joint development of DEVSON Engineering and Electroimpact.

PERFORMANCE SPECIFICATIONS

REGISTRATION	Vision-based hole, fastener, target and edge registration ±0.004"
MEASUREMENT	Countersink measurement ±0.004"
CLAMP FORCE	One-sided, 25 to 400 lbf
NORMALIZATION	Auto-normalization ≤0.15°
THROUGHPUT	10 holes per minute, hole and countersink
FORCE CONTROL	Real-time off-axis force compensation (anti-skid)
LUBRICATION AND CHIPS	Boelube mist lubrication; vacuum extraction

CONFIGURATION





SPINDLE

Hiteco 8 kW baseline; other spindles and tapers available.

BASE AND MOUNTING

Three-point support base for rapid deployment. Fixed, rail-mounted or mobile.

MATERIALS CFRP | TITANIUM | ALUMINUM | STAINLESS STEEL

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ELECTROIMPACT

ROBOTICS

AGV & MGV

Guided and manual ground vehicles that carry robots, fixtures and parts around the factory, packaged from proven industrial drives.

4
Drive-steer partners
Schabmüller, Tekno, Kelvin, Borghi

30t
Max wheel load
Borghi drive-steers

4 + 2
Casters + drive wheels
Standard platform package

1
Handheld pendant
Siemens mobile HMI



DRIVE-STEER RETROFIT

Drive-steer units fit under existing carts and fixtures.



DRIVE-WHEEL UNITS

Drive and steering motors in each wheel unit.



AIR-SPRUNG CASTERS

Four industrial casters on air springs per platform.



10-TON TILT FIXTURE

Drive-steers under a satellite positioner.

WHAT'S IN THE PACKAGE

- Four industrial caster assemblies with air springs
- Two drive-wheel units with drive and steering motors
- Control PLC with navigation software
- Optional application-specific path guidance
- LiDAR and reflector navigation
- Jog, single-axis and drive-like-a-car manual modes
- Safety scanners; separation distances per ISO 13855
- Spherically compliant feet and drag brakes
- Enabling trigger for out-of-process maintenance moves
- MasterMover tug points for long moves (optional)



Siemens mobile pendant: touch screen, E-stop, enabling trigger and feed-rate override.

EXAMPLES



COMPOSITE TRIM CELL

AGVs carry vacuum trim fixtures from infeed to dual-robot trim, wash, 3D inspection and outfeed.



SEGMENT CART RETROFIT

Drive-steers added to an existing segment cart.



10-TON SATELLITE TILT FIXTURE

Tekno 1 t drives under a 10-ton positioner.

EXAMPLE: MOBILE ROBOT PLATFORM

ENVELOPE	About 16 ft × 11 ft × 10 ft platform with operator station
VERTICAL AXIS	Siemens 27 N·m motors, Heidenhain absolute linear scales, size 65 rails
MOBILITY	Schabmüller drive-steers; four Blickle casters on Firestone air springs
LONG MOVES	Two MasterMover electric tugs on opposite sides (optional)

DRIVE-STEER PARTNERS: SCHABMÜLLER · TEKNO · KELVIN · BORGHI · MASTERMOVER TUGS

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ELECTROIMPACT

DRILLING & FASTENING

CNC AUTO-RIVETER

High-rate, fully automatic drilling and riveting for wing panels, spars, center wing boxes and fuselage.

80+
Full-auto machines
In service since 1995

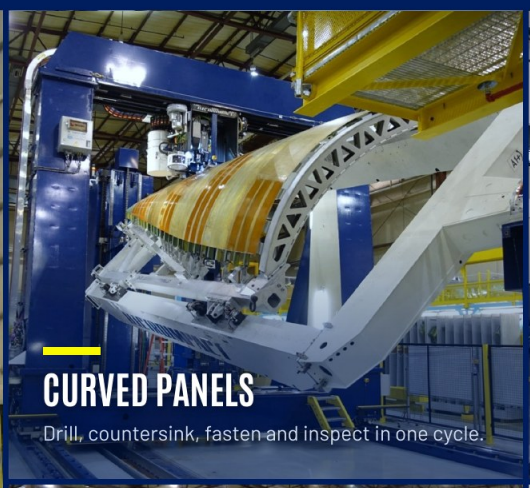
44 kip
Rivet forming load
195 kN, CNC-controlled squeeze

20 /min
Fastening cycles
Rivets or bolts per minute



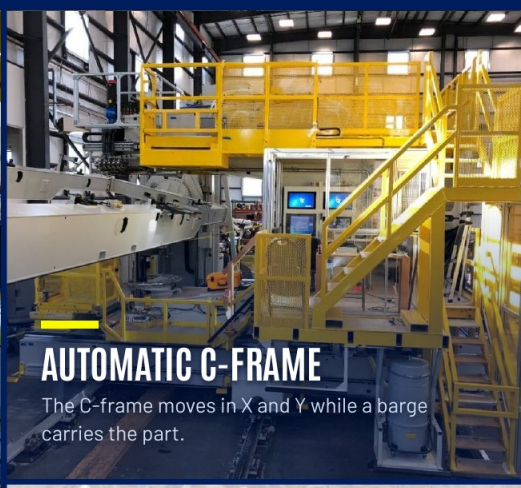
PRODUCTION LINE INTEGRATION

Machines and panel fixtures built into the customer's wing production line.



CURVED PANELS

Drill, countersink, fasten and inspect in one cycle.



AUTOMATIC C-FRAME

The C-frame moves in X and Y while a barge carries the part.



AUTOMATIC D-FRAME

Drills, fastens and inspects large fuselage panels.



GANTRY RIVETER

Wing-to-stringer joints, butt straps and reinforcing plates.

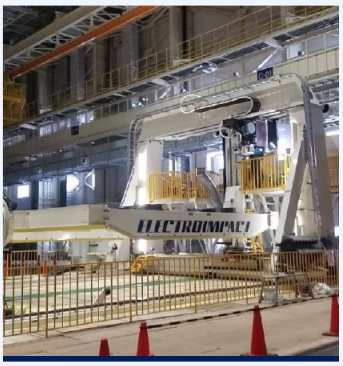
STANDARD FEATURES

- Servo or pneumatic clamp axis with load-cell feedback
- CNC-controlled electric rivet squeezing
- Up to 44 kip (195 kN) rivet forming loads
- Up to 20 rivet or bolt cycles per minute
- Automatic stack thickness measurement
- Automatic fastener selection and feed
- Auto-resync using the vision system
- Auto-normality with laser sensors
- High-speed tool shuttle axis
- High-rpm cartridge spindle
- Vacuum swarf extraction
- Siemens 840D or Fanuc controls



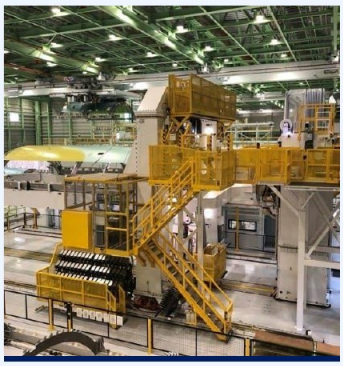
E7000-series fuselage panel riveter. Every machine is customizable to the part and the program.

APPLICATIONS



CENTER WINGBOX MACHINE

Center wingbox covers up to 6 × 6 m. Five-axis positioning, rivets and bolts.



SUPER PANEL SPLICER

Fuselage super panels for the largest commercial aircraft, with automatic drill and anvil changers.



WING SPAR RIVETERS

ASAT series for the 737, C-17, 777 and 767; ISAL for the 737 MAX.



FULL-BARREL FUSELAGE

Custom PR machines for the 787 full-barrel fuselage.

PROGRAMS

MACHINE FAMILY	PROGRAMS
WING PANELS · LVER E4000 SERIES	Airbus A319, A320, A330, A340, A380
WING PANELS · E6000	XAC ARJ-21, Boeing 737 MAX (VPAL), Embraer KC-390
FUSELAGE · E7000/E8000	A320 and A400M (TAI), ARJ-21 (XAC), C-130 (Lockheed Martin), 767 (KHI), 777X (KHI)
DOORS AND PANELS · E7000/E8000	737 cargo door (EGAP), 777X cargo doors (KRL), 777X CWB panels (FHI)
CUSTOM CONCEPTS	AWFIS machines for 737 wings; KHI PR machines for the 787 full barrel

FASTENERS SLUG RIVETS · INDEX HEAD · BRILES · NAS1097 · UNIVERSAL HEAD · HUCK BOLTS · HI-LOK · HI-LITE · NUTS AND COLLARS

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ELECTROIMPACT

DRILLING & FASTENING

FLEXRIVETER

A semi-automatic, all-electric riveter that brings production-grade riveting to a wide range of assembly applications.

100%
Electric
All-electric operation

G100
Style tooling
Industry-standard tooling

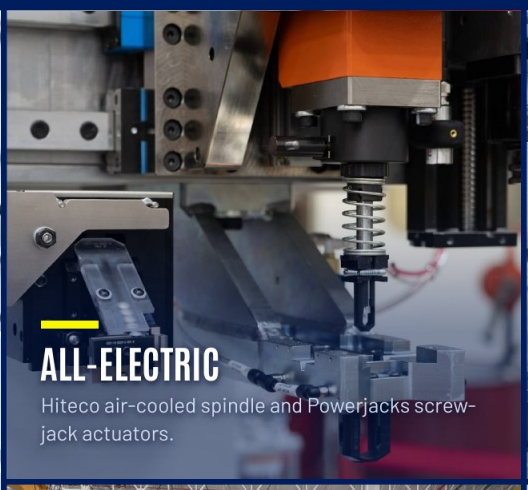
36”
Baseline throat
Custom C-frames to 120”

6
Fastener hoppers
Up to six on the wide head



OPERATOR-CONTROLLED

Part positioning and rivet actuation on a foot pedal.



ALL-ELECTRIC

Hiteco air-cooled spindle and Powerjacks screw-jack actuators.



FLEXIBLE FASTENER FEED

Mini-hopper standard, up to six on the wide head, or a triple injector.



CONFIGURABLE C-FRAME

36” throat standard; custom C-frames up to 120”.



SIEMENS CONTROLS

S7-1500 PLC, S210 drives and an easy-to-use HMI.

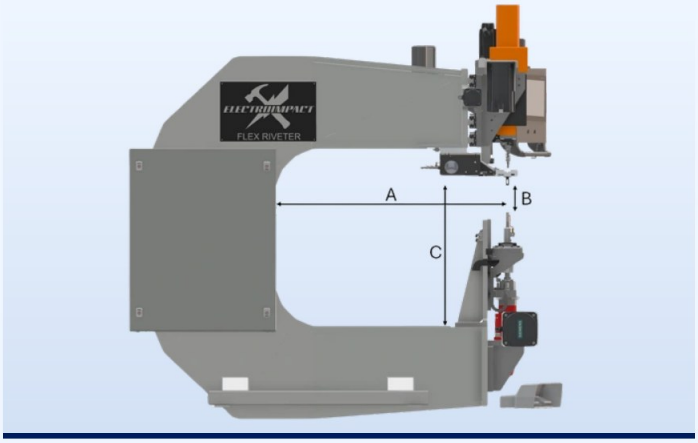
KEY FEATURES

- All-electric operation: low-cost Hiteco air-cooled electric spindle
- Dual 30-kip Powerjacks screw-jack actuators
- Top and bottom actuators allow bolt installation
- Configurable C-frame geometry
- Industry-standard G100-style tooling
- Siemens controls: S7-1500 PLC, S210 motor drives
- Easy-to-use HMI interface
- Part positioning and rivet actuation via foot pedal
- Mini-hopper fastener feed on the base model
- Up to six mini-hoppers on the wide head
- Triple injector for pneumatic feed
- Production-grade riveting at a cost-effective price point



Wide-table configuration.

C-FRAME OPTIONS



DIMENSION	BASELINE "MINI"	CUSTOM C-FRAME
A · THROAT DEPTH	36″	Up to 120″
B	8″	Up to 10″
C	30″	Increased as required

A custom C-frame expands the throat depth up to 120″ for larger parts.

STANDARD CONFIGURATION



ELECTRIC SPINDLE
Low-cost Hiteco air-cooled spindle.



DUAL ACTUATORS
30-kip Powerjacks screw jacks, top and bottom.



G100 TOOLING
Industry-standard G100-style tooling.



SIEMENS CONTROLS
S7-1500 PLC, S210 drives, HMI.



FASTENER FEED
Mini-hopper standard; up to six, or triple injector.



FOOT PEDAL
Part positioning and rivet actuation.

ENHANCEMENTS

SEALANT INSERTER | BOELUBE SPRAY | CHIP VACUUM | CAMERA MONITORING | LASER SPOT ALIGNMENT | FUTEK LOAD CELL, LOWER RAM

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ELECTROIMPACT

DRILLING & FASTENING

FLEXTRACK

Portable, Fanuc CNC-controlled drilling and fastening for large aerospace structures. Automation that moves to the work.

165+
Units deployed
Commercial programs worldwide

7+
Aircraft programs
777, 787, 767, A350, E2, G650, C919

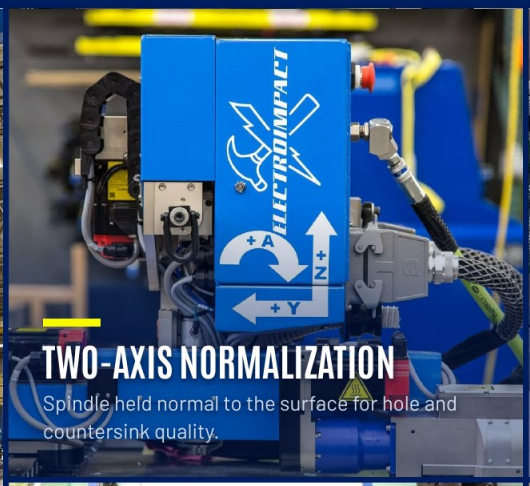
3/16–1/2”
Hole diameters
Aluminum, titanium, carbon

2005
Longest-running install
Vertical tail fin, Salt Lake City



VERTICAL TAIL FINS

Drilling tail fin structure in Salt Lake City, carbon and titanium.



TWO-AXIS NORMALIZATION

Spindle held normal to the surface for hole and countersink quality.



C-AXIS MOTION

Dual X-axis drives steer around contours and splices.



MOVES TO THE WORK

Tracks mount to the part, so the aircraft stays put.

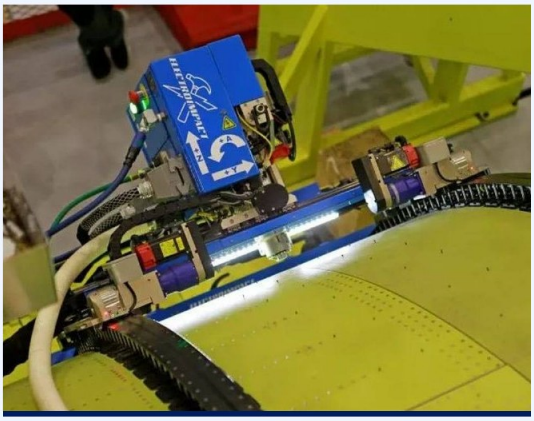


FUSELAGE JOINS

Longitudinal joins on E2 fuselage production.

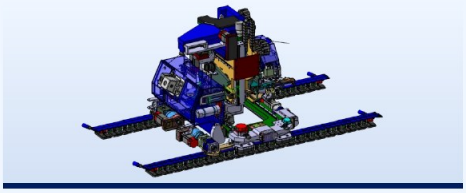
KEY FEATURES

- Fanuc CNC control
- Flexible vacuum-mounted tracks attach directly to the aircraft structure
- HSK32 or HSK40 power-drawbar spindles
- Two-axis normalization
- Dual X-drives with C-axis correction
- RFID tool identification and tool-life tracking
- Load-cell thrust monitoring
- Thru-bit lubrication with vacuum chip extraction
- Flood coolant with coolant recovery
- Servo-driven workpiece clamping
- Vision-based resynchronization to the part
- Remote operator tablet interface
- Offline programming from CATIA models with Electroimpact software
- Modular track lengths and custom track sections for complex contours



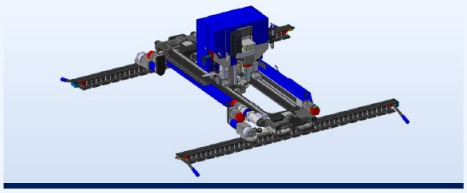
Vacuum-mounted tracks follow the panel contour.

THREE VARIANTS



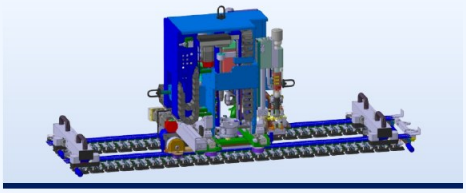
NARROW CARRIAGE

Up to 16″ drilling envelope.



WIDE CARRIAGE

Up to 44″ drilling envelope.



OFFSET

Drills inside and outside the tracks.

Each variant is available in drill-only or multifunction. Multifunction machines include process tools such as hole probe and temporary or final fastener insertion with sealant.

PROVEN IN PRODUCTION

PROGRAM	APPLICATION	MACHINE TYPE	UNITS	SINCE	HOLES / MATERIAL
BOEING 787	Vertical tail fin, Salt Lake City, Frederickson, UAE	4-axis drill-only offset	14	2005	¼–⅜″ · carbon, titanium
BOEING 777	Fuselage circumferential joins, Everett	4-axis drill-only wide carriage	12	2008	3⁄16–⅜″ · aluminum
GULFSTREAM G650	Center wing box splice, Savannah	4-axis drill-only narrow carriage	4	2008	¼–⅜″ · aluminum
BOEING 787	Mid-body circumferential joins, Charleston	3-axis multifunction	17	2012	¼–½″ · carbon, titanium
BOEING 777	Wing panel build, Everett	4-axis drill-only offset	14	2012	¼–7⁄16″ · aluminum
BOEING 787	Sections 47/48 aft fuselage, Charleston	5-axis final fastening	9	2015	¼–5⁄16″ · carbon, titanium
AIRBUS A350	Cargo doors, South Korea	4- and 5-axis drill-only wide carriage	2	2015	¼–⅜″ · carbon, titanium
EMBRAER E2	Circumferential and longitudinal fuselage joins, Brazil	4- and 5-axis drill-only wide carriage	5	2016	3⁄16–¼″ · aluminum
BOEING 777	Final body join, Everett	5-axis final fastening	6	2016	¼–7⁄16″ · aluminum
BOEING 777	Fuselage circumferential joins, Everett	5-axis drill-only wide carriage	6	2023	3⁄16–⅜″ · aluminum

APPLICATIONS FUSELAGE JOINS · WING PANELS · WING SPLICES · CARGO DOORS · VERTICAL STABILIZERS · PRESSURE BULKHEADS · FINAL ASSEMBLY

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ORBITAL DRILLING



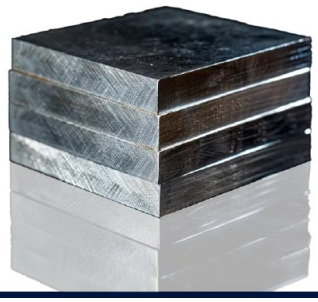
Portable orbital drilling units for titanium, stainless steel and mixed stacks. Now produced and supported by Electroimpact.

6
PM-series models
PM40 to PM120

108mm
Max stack thickness
PM120

32mm
Max hole diameter
PM120, pre-drilled

0-9mm
Orbital offset
Manually adjustable, diametric



DESIGNED FOR HARD AND COMPLEX MATERIALS

Portable orbital drilling units for cylindrical and countersunk holes in hard materials such as titanium and stainless steel, and in any stack-up that includes them.



ONE TOOL, MANY SIZES

Change the cutter offset and the same tool makes a different hole size.



DRY DRILLING

Intermittent cutter contact and air cooling allow dry or quasi-dry drilling with MQL.

HOW IT WORKS

- Cutter rotates and orbits at the same time
- Cylindrical and countersunk holes in Ti, stainless and mixed stacks
- Low thrust reduces part deflection when drilling stacks
- Small chips removed by an advanced airflow system
- Efficient chip extraction allows drilling in closed sections
- Lower heat reduces risk of matrix melting in composites
- Variable manual offset adjustment
- Programmable feed rate and orbital speed
- Automatic hole identification
- MQL or pressurized air through the spindle



Control box: 100–240 VAC, 6–7 bar air supply. 551 × 360 × 701 mm (H × W × D).

ORBITAL LINEUP



PM40
32 mm stack



PM50
42 mm stack



PM60
52 mm stack



PMA70
60 mm stack



PM80
75 mm stack



PM120
108 mm stack

PM-SERIES SPECIFICATIONS

MODEL	STROKE	MAX STACK	MAX HOLE*	SPINDLE SPEED	OFFSET	WEIGHT	TOOL HOLDER
PM40	40 mm	32 mm	25 mm	1700 / 2500 / 5000 rpm	0–6 mm	10 kg	HSK 25
PM50	50 mm	42 mm	28.5 mm	1700 rpm	0–8 mm	10 kg	EH20
PM60	60 mm	52 mm	25 mm	1600 / 2300 / 5000 rpm	0–6 mm	12.7 kg	HSK 25
PMA70	70 mm	60 mm	27 mm	1500 / 2300 rpm	0–8 mm	16.1 kg	HSK 25
PM80	80 mm	75 mm	25 mm	1500 rpm	0–9 mm	17.3 kg	HSK 32
PM120	120 mm	108 mm	25 / 32 mm	850 rpm	0–9 mm	20 kg	HSK 32 / EH25

* Pre-drilled holes. Weights exclude nose piece. All models: 150 W orbital spindle, electrical axial feed control. Control box 100–240 VAC; air 6–7 bar, 1,000 l/min consumption, 2,000 l/min minimum supply.

MATERIALS TITANIUM · STAINLESS STEEL · COMPOSITES · MIXED STACK-UPS

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ELECTROIMPACT

ASSEMBLY & TOOLING

ASSEMBLY LINES

Turnkey lines that combine tooling, automation, material handling, controls and metrology. One engineering team, one integrated system.

63
Servo positioner axes
Global 7000/8000 FAL

3
Join work centers
Wing, wing-to-body, fuselage

50+
Units per month
A320neo IFS line

33m
Wing length
A350 wings built horizontally



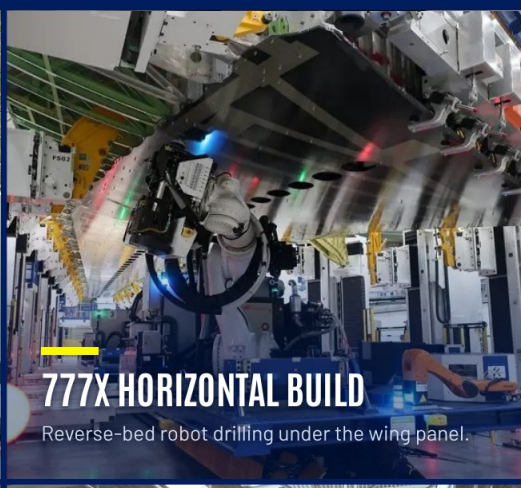
737 SPAR ASSEMBLY LINE

Four cells with CNC-controlled clamp and clear fixtures.



ROBOTS ON THE LINE

Mobile Accurate Robots automate joins along the Global 7000 FAL.



777X HORIZONTAL BUILD

Reverse-bed robot drilling under the wing panel.



767 FINAL BODY JOIN

Automated laser part alignment and integrated access.



A320NEO NACELLE LINE

Pulsed fixtures and a robotic drilling cell.

GLOBAL 7000/8000 FINAL ASSEMBLY

- Three work centers: wing-to-wing, wing-to-fuselage, fuselage joins
- Coordinated multi-axis manipulators in every work center
- Laser-tracker feedback; Spatial Analyzer automates transforms
- Measured moves fed straight to the positioning PLC
- All moves automated, hold-to-run
- Position and load monitored on every driven axis
- ATLAS in-floor conveyance under flush flip floors
- Safety interlocks between ATLAS and the positioners
- Siemens wireless SIMATIC Mobile Panels
- Designed for non-specialist operators



ATLAS lifts the aircraft by its wings and carries it between work centers.

ASSEMBLY LINES DELIVERED

PROGRAM	SCOPE	HIGHLIGHTS
BOEING 777X	Horizontal wing build line	Floor-level access, top-side drilling, reverse-bed robot
AIRBUS A350	Turnkey wing factory, Broughton UK	33 m wings built horizontally on a pulsed line
AIRBUS A380	Outer wingbox assembly line	Four vertical jigs, five scaffold levels, integrated drilling
AIRBUS A400M	Wing assembly system	Six jigs, two CAWDE drilling machines, holes to 1"
BOMBARDIER C-SERIES	Wing assembly system	Ten cells with LTD drilling machines
AIRCELLE A320NEO	Inner fixed structure line	50+ units a month, 22 pulsed fixtures, robotic drilling
BOMBARDIER GLOBAL 5000/6000	Wing positioning system	Operators lock in reference points one at a time
BOMBARDIER GLOBAL 7000/8000	Final assembly line	Automated positioning and ATLAS conveyance

LINES IN PRODUCTION



C-SERIES WING

Ten assembly cells served by LTD drilling machines.



A320NEO IFS

Fixtures pulse between 10 manual stations and a robot cell.



GLOBAL 5000/6000

Wing positioning with "lock-in" reference points.

LINE SCOPE: PROCESS DESIGN | EQUIPMENT AND TOOLING | CONTROLS | FACTORY FLOW | METROLOGY | WORKER ACCESS

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ELECTROIMPACT

ASSEMBLY & TOOLING

TOOLING

Assembly fixtures, production tooling and ground space equipment, designed and built in-house to support automation.

Tier 1
Tooling and automation
Vertically integrated supplier

12
Cells on one line
737 vertical panel assembly line

4
Variants per fixture
777X panel and spar trim cells



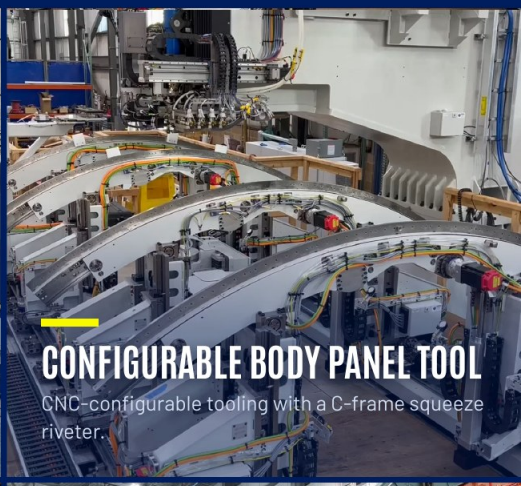
ROCKET ROLL CRADLES

First-stage roll cradles for launch vehicle assembly, 2022.



787 SECTION 41 MANIPULATOR

Mandrel segment manipulator with a vision gripper, 2025.



CONFIGURABLE BODY PANEL TOOL

CNC-configurable tooling with a C-frame squeeze riveter.



777X SPAR TRIM

One vacuum fixture configurable to four spars, 2025.



ROCKET STAGE POSITIONERS

5-axis servo positioners for stage assembly and alignment.

TOOLING FAMILIES



ASSEMBLY FIXTURES

Fixtures that set and hold part geometry for drilling, fastening and bonding, from single jigs to complete pulse lines.

- 737 vertical panel line: 12 pulsed cells
- C919 turnkey wing assembly tooling
- Embraer KC-390 wing panel jigs
- 787 aileron, flaperon and flap tooling



JOIN AND ALIGNMENT SYSTEMS

Servo positioning and laser metrology that bring fuselage and wing sections together at aircraft scale.

- 787 mid-body join: 4 cells, laser-aligned
- Global 7000 servo XYZ jacks
- 767 final body join, seismic-compliant
- Works with FlexTrack and robotic drilling



CONFIGURABLE TOOLING

One fixture that reconfigures automatically for each part variant, instead of a dedicated tool per part.

- 777X panel trim: 4 panels, one fixture
- 787 flap automated configuration fixtures
- 777X spar trim: 4 spars, one fixture
- CNC-configurable body panel tool



MANIPULATION AND MATERIAL HANDLING

Powered systems that lift, rotate and transfer large structures without risking the part.

- 787 Section 41 mandrel manipulator
- Transition tool on air bearings
- Vision-guided segment gripper
- A380 wing panel pick-up tooling



GROUND SPACE EQUIPMENT

Positioners, cradles and fixtures built around launch vehicle and spacecraft hardware.

- 5-axis rocket stage positioners
- First-stage roll cradles
- 5-DOF rocket nozzle positioners
- Strake and weld fixtures

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ELECTROIMPACT

ASSEMBLY & TOOLING

SPACE SYSTEMS

Rotation fixtures and positioners that hold spacecraft in any orientation, with ergonomic access from ground level.

25,000 lb
Proven capacity
Assembly and test fixtures

5 m
Payload diameter
Proven designs

3.25M in-lb
Moment capacity
Proven designs

150”
Max payload height
3-axis fixture, vertical



2-AXIS POSITIONER

Rotates the spacecraft for access from ground level.



DISPENSER LOADING

Systems that load satellites onto their launch dispensers.



PANEL HANDLING

2-axis communications panel handling fixture, 4,000 lb.



MOBILE POSITIONING

Positioning dollies with integrated drive-steers.



TRANSPORTERS

Road- and air-transportable containers for flight hardware.

SPACECRAFT POSITIONING FIXTURES

- 3-axis fixture holds the payload in any orientation, even upside down
- Access from ground level and from all sides
- 3-axis fixture: vertical payload from 42″ to 150″ off the floor
- Mobility: MGV, air casters or roller casters
- Battery-powered capability
- Clean-room compatible
- Mass simulators and specialized lifting equipment
- Designed around the hardware, not a standard spec



3-axis fixture: payloads from 42″ to 150″ off the floor when vertical.

IN SERVICE



BOEING 702SP

3-axis turnover fixture, 6,000 lb.



BALL AEROSPACE BTAP

2-axis positioner, 16,000 lb.



DRAGONFLY

3-axis payload rotation, 12,000 lb.

FIXTURES DELIVERED

PROGRAM	FIXTURE	CAPACITY
BOEING 702SP	3-axis spacecraft turnover fixture	6,000 lb
VIASAT E4030	3-axis payload rotation fixture	7,000 lb
DRAGONFLY	3-axis payload rotation fixture	12,000 lb
HYPERION	2-axis spacecraft positioner	12,500 lb
BALL AEROSPACE BTAP	BCP8000 2-axis positioner	16,000 lb
SHIPPING CONTAINER	2-axis breakover fixture	25,000 lb

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ELECTROIMPACT

SURFACE PREP & INSPECTION

LASER ABLATION

Robotic IR and UV laser systems for primer removal, paint prep and surface treatment. No chemicals, consistent results.

200+ m²
Surface treated
Ariane 6 cryotank cell

500 W
IR fiber laser
Integrated scan head

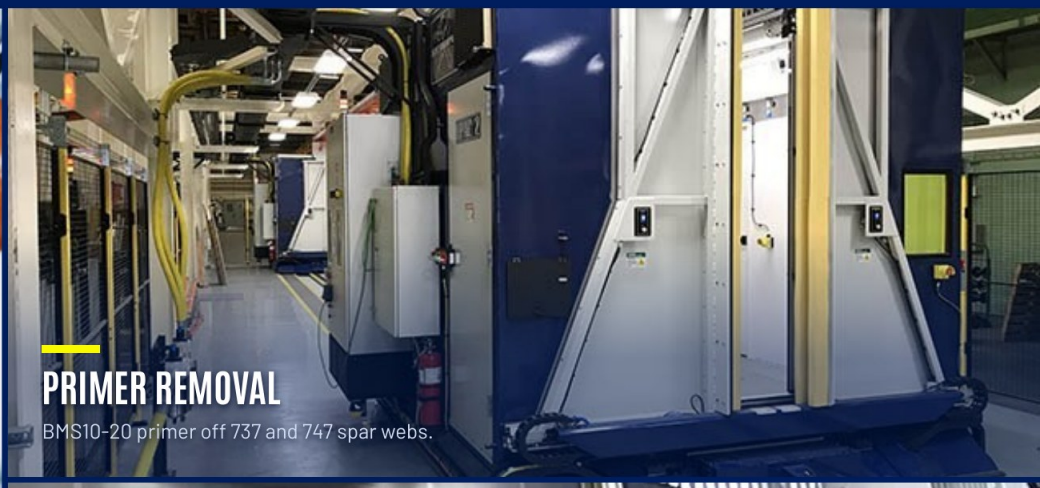
55 W
UV laser
Custom optics

±20 µm
Gantry linear accuracy
UK CO2 scribing system



ROBOTIC LASER HEAD

IR or UV laser with on-axis vision on a commercial robot.



PRIMER REMOVAL

BMS10-20 primer off 737 and 747 spar webs.

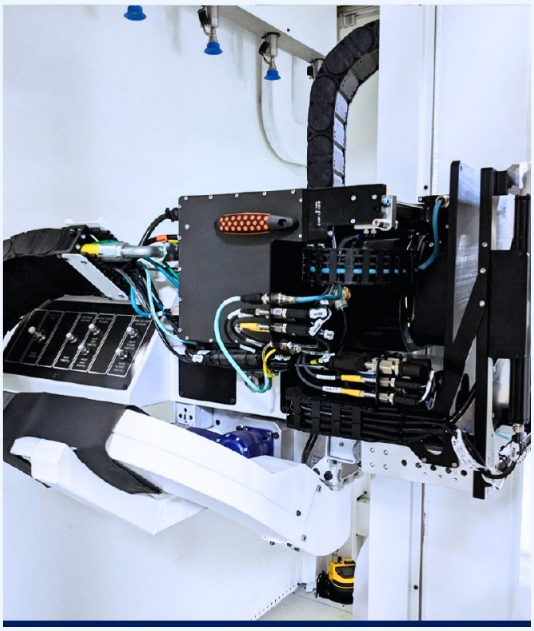


LASER PAINT PREP

UV laser prepares CFRP panels for paint, with no chemicals.

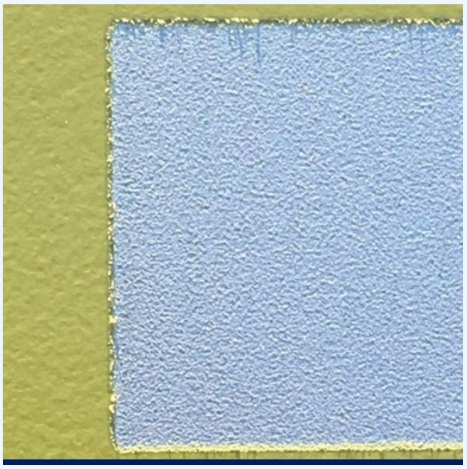
MULTI-FUNCTION LASER HEADS

- IR: 500 W fiber laser with integrated scan head
- UV: 55 W laser on a quick-change head
- On-axis vision through the tool point removes off-axis error
- Vision finds holes, edges and targets for transforms
- Vision inspects the ablated pattern
- Auto-normality to the surface
- Low-angle lighting and surface recognition feedback
- Class 1 laser enclosure with fume extraction
- Health-check station, coupon holder and power meter
- Commercial robots with Siemens numerical control



IR laser head with automated vision and auto-normality.

PROCESS



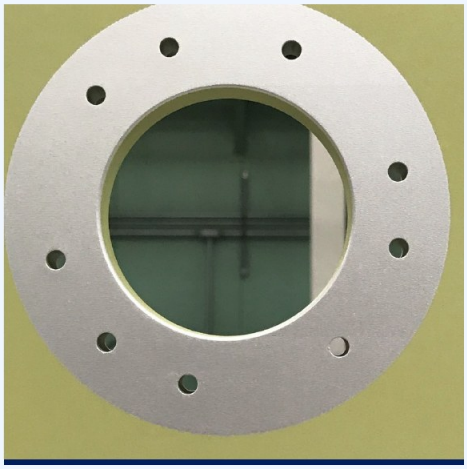
ABLATED PATTERN

Vision inspects the pattern after ablation.



UV LASER MODULE

Custom optics on a quick-change head.



ECO-FRIENDLY

Replaces chemical treatment and cuts exposure for workers.

INSTALLATIONS

SITE	LASER	APPLICATION
ARIANEGROUP, LES MUREAUX FR	IR	Ariane 6 cryotanks, 16 m × 5 m, fully autonomous
BOEING, AUBURN WA	IR	BMS10-20 primer removal, 737 and 747 spar webs
SALT LAKE CITY UT	UV	Paint prep for CFRP panels; retrofit for production
UNITED KINGDOM	CO2	Scribing gantry, 23 × 3 × 1.55 m travel

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ELECTROIMPACT

SURFACE PREP & INSPECTION

NON-DESTRUCTIVE INSPECTION

Fully automated robotic and cartesian ultrasonic inspection cells, customized to the part.

Pulse-echo

One-sided access

Thickness and defect depth

Thru-trans

Complex and cored parts

Curved, honeycomb and foam-core

Phased array

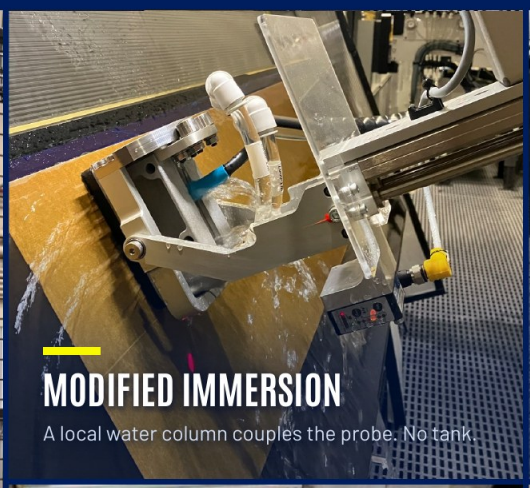
Flat and radius probes

Feature-tracing sensors



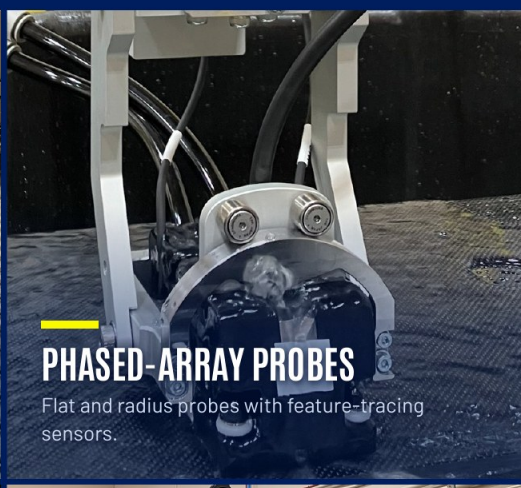
NDI DEVELOPMENT CELL

Prove out the process before production.



MODIFIED IMMERSION

A local water column couples the probe. No tank.



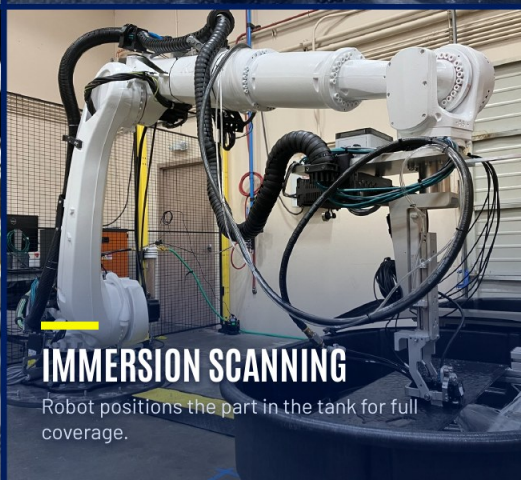
PHASED-ARRAY PROBES

Flat and radius probes with feature-tracing sensors.



DEFECT MARKING

A pen tool marks selected defects on the part.

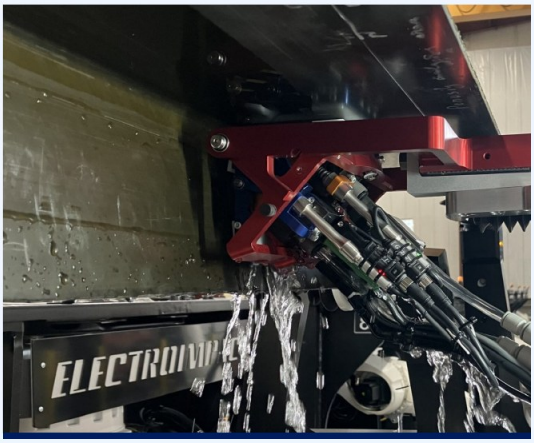


IMMERSION SCANNING

Robot positions the part in the tank for full coverage.

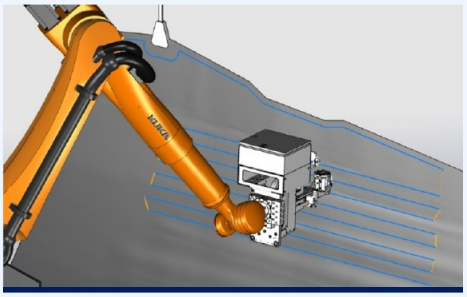
CAPABILITIES

- Industrial CNCs and PLCs with COTS sensors
- Automated part datums: setups go from hours to minutes
- Pulse-echo: one-sided access, thickness and defect depth
- Through-transmission for curved and cored parts
- Synchronized robots for TTU scanner and receiver
- Thickness verification from time-of-flight data
- Backtracking rescans only the poor-data stretch
- NDI development cell to de-risk before production



Phased-array end effector with contact sensors.

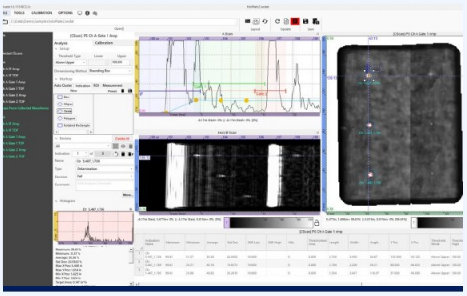
SOFTWARE



OFFLINE PROGRAMMING

Path planning, optimization and simulation done offline. No teaching necessary.

- Path planning and optimization
- Scan zones integrate with tooling fixtures
- Process simulation
- Rapid re-scanning of selected areas

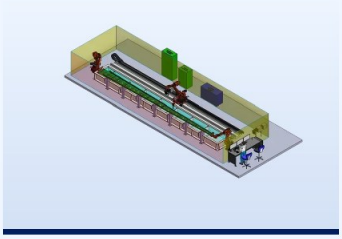


INSPECTION SOFTWARE

UTEX InspectionWare suite, from scan setup through data analysis and reporting.

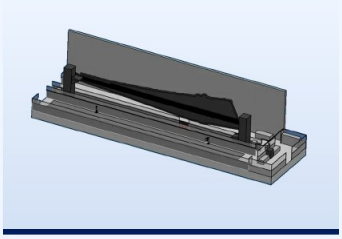
- IW Scan: setup and data collection
- IW Evaluate: offline data analysis
- Automated defect detection
- IW Automate: links scan and cell
- BAC 5980 compliant reporting
- A-, B- and C-scan views

CELL LAYOUTS



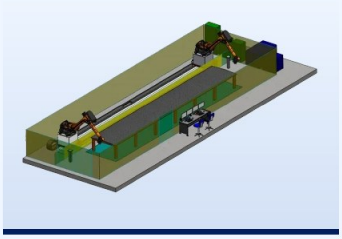
IMMERSION

Robot positioner and scanner.



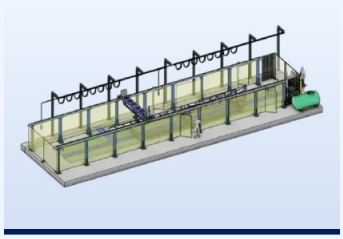
VERTICAL PANEL

Modified immersion, robot scanner.



HORIZONTAL PANEL

Modified immersion, robot scanner.



GANTRY ROBOT

Modified immersion, horizontal panel.

APPLICATIONS WING SKINS | FAN CASES | SPARS | COMPOSITE PANELS | COMPLEX CURVED STRUCTURES

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ELECTROIMPACT

FATIGUE LIFE ENHANCEMENT

COLD WORKING



Sleeve and split-mandrel cold working: pullers, mandrels, sleeves, pumps and hoses built to Boeing spec.

3-5×
Fatigue life
Cold-worked vs untreated holes

44,000lb
Pull force
Large sleeve-type puller

10,000psi
Hydraulic pressure
Powerpacks and hoses

8”
Max stackup
Sleeve-type pullers



CORDLESS PULLER

Compact sleeve-type puller, designed for portability and ease of use.



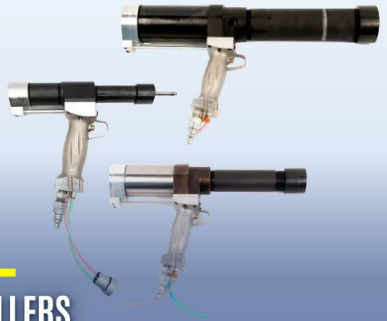
SLEEVES

Flared and straight EI-CBS sleeves for 3/16” to 1 51/64” holes, lengths from 0.5” to 3”.



MANDRELS

Cold bore mandrels from 5/32” to 1 51/64” holes, plus right-angle mandrels for tight access.



PULLERS

Small, medium and large sleeve-type guns from 9,780 to 44,000 lb.



PUMPS AND HOSES

Air-driven powerpacks to 10,000 psi, with 10,000 psi quick-change hoses.

SPLIT-MANDREL COLD WORKING

- Sleeveless process: no disposable sleeves to buy, track or discard
- Developed by Boeing and West Coast Industries in the 1980s
- Works in all forms of aluminum
- PL-10 and PL-20 puller guns: 9,600 lb at 10,000 psi
- 1" and 2" stackup guns, 11.54" and 13.54" long
- Puller weight 5.5 to 8 lb depending on stackup
- EI-CMX split mandrels with pilot pin, sizes 08 to 14
- Pilot wrench available
- Powered by 10,000 psi hydraulics
- Custom sizing on request



PL-10 / PL-20 split-mandrel puller gun.

SPLIT-MANDREL TOOLING



SPLIT MANDRELS
Sleeveless mandrels for aluminum.



HOSE ASSEMBLY
10,000 psi quick-change hoses.



EI-PUM-S PUMP
20.5 lb, 6 cu in/min at 10,000 psi.

For wings and tight spaces



EI-PUM-M POWERPACK
81 lb, 46 cu in/min at 10,000 psi.

SPX-based, filter and oiler

SLEEVE VS SPLIT MANDREL

	SLEEVE COLD WORKING	SPLIT-MANDREL COLD WORKING
CONSUMABLES	One disposable sleeve per hole	None
MATERIALS	Aluminum and titanium	All forms of aluminum
PULL FORCE	Up to 44,000 lb	9,600 lb
STACKUP	Up to 8"	1" or 2" guns

For full part numbers, tooling sizes and kit configurations, see the Electroimpact Cold Working catalog.

ALSO AVAILABLE COMBINATION GAGES · WEAR GAGES · NOSECAPS · RIGHT-ANGLE ADAPTERS · SLEEVE INSTALLATION TOOL · NOSE CAP WRENCHES

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ELECTROIMPACT

SERVICES

CUSTOMER SUPPORT

The engineers who design your system build it, buy it off and stay with it, from first concept through production.

450
Engineers globally
The same team designs, builds and supports your system

7
Offices worldwide
Local support on five continents

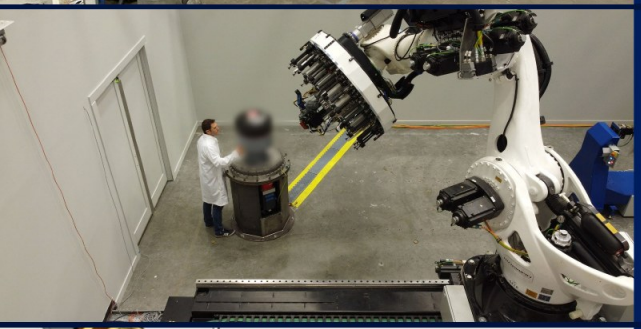
35+
Laser trackers
Leica, FARO and API, available to rent

175m
Longest machine bed set
Set straight and level by Electroimpact



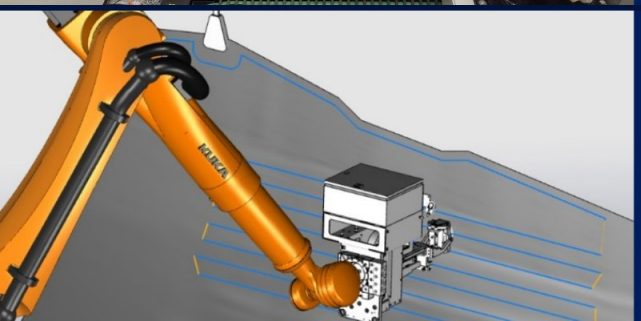
METROLOGY SERVICES

Machine alignment, bed setting, volumetric compensation and Nadcap-accredited inspection, from the team that sets our own machines.



PROCESS DEVELOPMENT

Development cells on our campus to prove layup rates, materials and part programs before production starts.

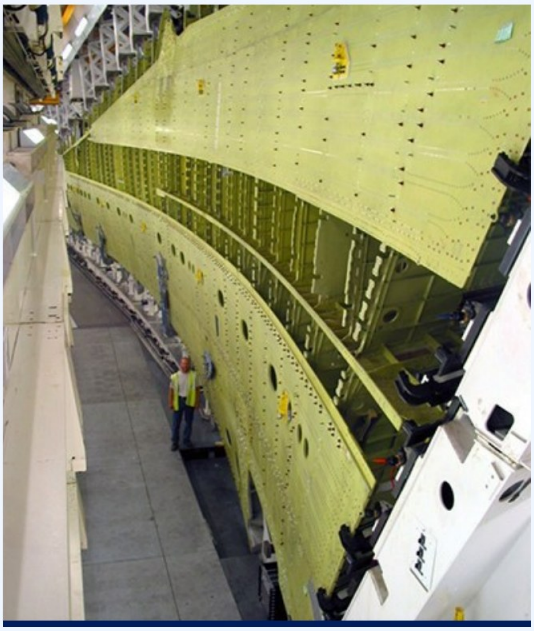


OFFLINE PROGRAMMING

Production-ready part programs, proven on your machine at tape tryout, with on-site training for your engineers.

SAME ENGINEERS, START TO FINISH

- The engineers who design your system build, buy off and support it
- Full buyoff on our campus before shipment
- High-bay build halls with 40-tonne cranes
- In-house machining, welding and fabrication
- Licensed electrical contractor for on-site installation
- Retrofits and controls upgrades for installed machines
- AS9100 Rev D registered quality system
- Nadcap accredited for measurement and inspection



A380 wing jig built by Electroimpact.

PROJECT LIFECYCLE

01
CONCEPT
Feasibility studies, simulation and digital twins of the process.

02
DESIGN AND BUILD
CATIA, FEA and in-house manufacturing under one roof.

03
BUYOFF
Rate and quality proven on our campus before shipping.

04
INSTALL
On-site installation, laser tracker alignment and tape tryout.

05
PRODUCTION
Process engineering, part programming and maintenance.

METROLOGY SERVICES

SERVICE	WHAT IT COVERS
MACHINE AND TOOL SETTING	Bed setting up to 175 m, tool setting and machine alignment
MACHINE COMPENSATION	Volumetric compensation of large multi-axis CNC machines
INSPECTION	Nadcap-accredited CMM, laser tracker and articulating arm
REFERENCE SYSTEMS	USMN monument installation and valuation
RENTAL AND TRAINING	Laser trackers, Spatial Analyzer and Nadcap training

TRAINING OPERATORS · OFFLINE PROGRAMMING · MAINTENANCE · LASER TRACKER · SPATIAL ANALYZER · NADCAP

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TALK WITH AN ENGINEER

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