

INTEGRATED SERVO-PNEUMATIC SOLUTION FOR RESISTANCE WELDING

SERVO CONTROL & SPEED. PNEUMATIC COST & QUALITY

Our MF inverter control unit drives a FESTO servo-pneumatic cylinder with built-in position and force sensors. It replaces the traditional pneumatic cylinder and rivals fully electric systems — with the best balance of performance, cost and industrial reliability.

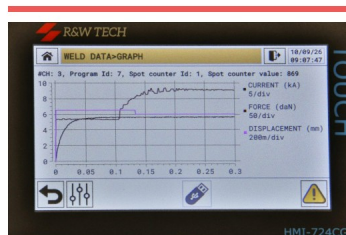


R&W TECH CONTROL

MF-RWC-4000

1-10 kHz MF inverter · Fieldbus:
Profinet, EtherCAT, Ethernet IP,
Modbus TCP · data management

POSITION + FORCE



REAL TIME, EVERY WELD

FESTO ACTUATOR

Servo-pneumatic cylinder

Servo valves with integrated position and force sensors — no external sensors to add

± 0.1 mm

positioning accuracy

0

external position / force
sensors needed

Auto

squeeze time — welds as
soon as force is reached

>100

robotic applications in
premium German
automotive

01 MEASURE

Position and force in real time, even while welding. Process data for every weld: monitoring, traceability and quality.

02 ADAPT

End-of-stroke height automatically follows part variations. Start height (double stroke) changes on the fly.

03 HIGH SPEED

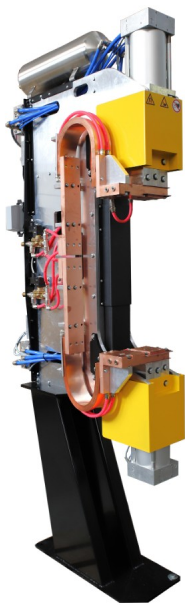
With a 40 mm stroke, a full motion cycle takes less than 250 ms.

NEW: DUAL-CYLINDER SELF-COMPENSATION

SEE OVERLEAF →

DUAL-CYLINDER CONFIGURATION

TWO CYLINDERS. *SELF-COMPENSATING.*



— Upper servo cylinder:
position + force

— Electrode wear detected

— Actual part height

— Lower servo cylinder:
position + force

With two opposing servo-pneumatic cylinders, both electrodes know exactly where they are and how hard they press – so the control corrects what a fixed-stroke machine cannot.

ELECTRODE WEAR COMPENSATED

As the tips wear, the closing point shifts automatically on both sides. Same force, same weld – no manual re-setting.

PART HEIGHT VARIATIONS ABSORBED

Unstable or imprecise part positioning? The electrodes meet the part where it really is, not at a fixed nominal height.

HOW IT COMPARES

	STD. PNEUMATIC + ext. sensors	R&W SERVO-PNEUMATIC	PURE SERVO
Positioning accuracy	N/A	±0.1 mm	±0.01 mm
Opening / closing speed	Average	High	High
Position + force sensors	External, high cost	Integrated, included	External
Purchase & integration	Cheaper, long installation	Medium price, fast installation	Expensive
Maintenance	Average (filters, valves, leaks)	Low	More complex

FASTER *CYCLES*

- No fixed squeeze time: welding starts as soon as weld force is reached.
- Rapid dynamic response and higher acceleration than standard pneumatics.
- Smooth force transitions and programmable start height (double stroke).

BUILT FOR *INTEGRATORS*

- Force/position control, automatic squeeze and integrated reporting.
- Adapts to new part geometries with no mechanical or manual changes.
- Simpler maintenance and greater robustness than pure servo in harsh shop environments.

www.rwtech.it

Resistance welding redefined
Made in Italy

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HEADQUARTER

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