



WELD GUN PRODUCT GUIDE

Version 2.0


centerline
(WINDSOR) LIMITED

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WELDING GUNS

COMPLETE SOLUTIONS

RESISTANCE WELDING EXPERTISE

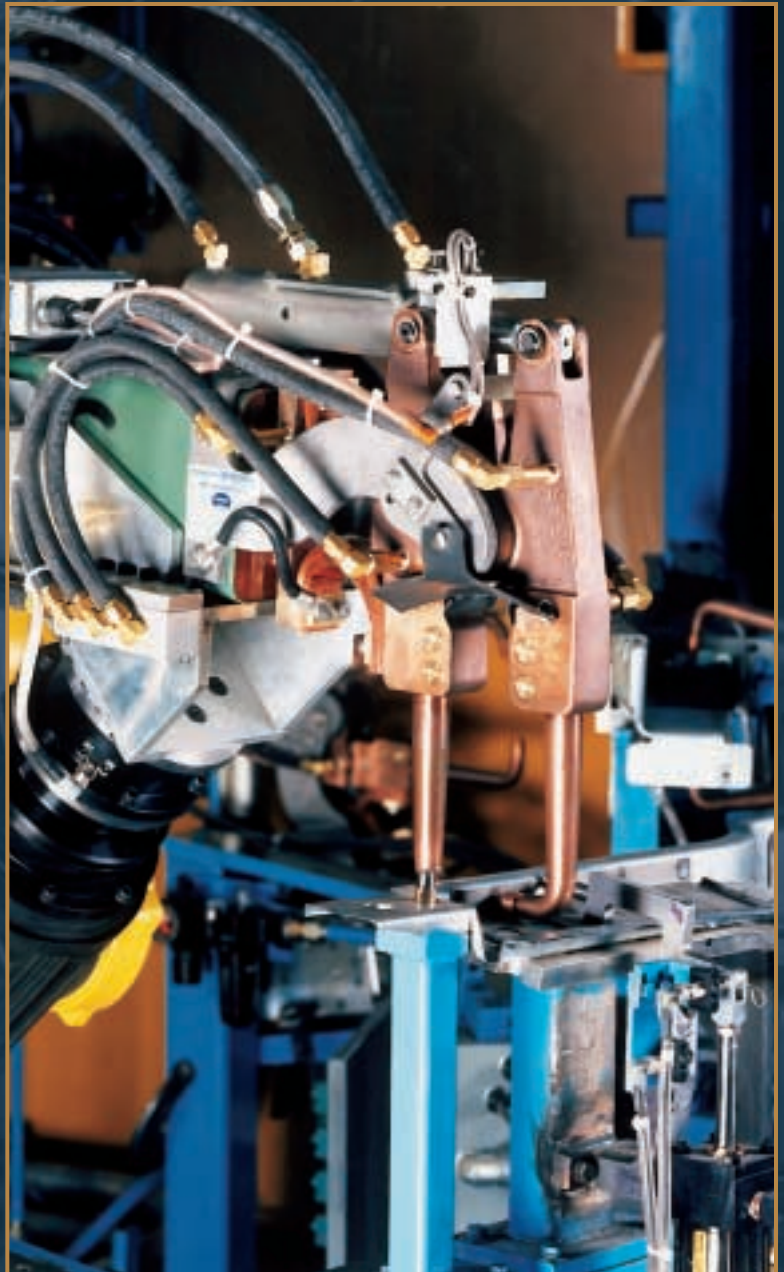
CenterLine has a broad range of proven resistance welding gun solutions.

The CenterLine™ product range includes:

- **basic solutions to satisfy your general needs**
- **custom solutions to address your unique requirements**
- **innovative solutions to meet your future needs.**

Our knowledge and experience are reflected in a family of resistance welding gun solutions that are well suited for tough industrial environments. A culture of continuous improvement has helped us improve our product line by simplifying installation, improving durability, and requiring minimal maintenance.

We have diverse engineering and manufacturing capabilities to turn your unique requirements or ideas into a solution that will give you a competitive advantage.

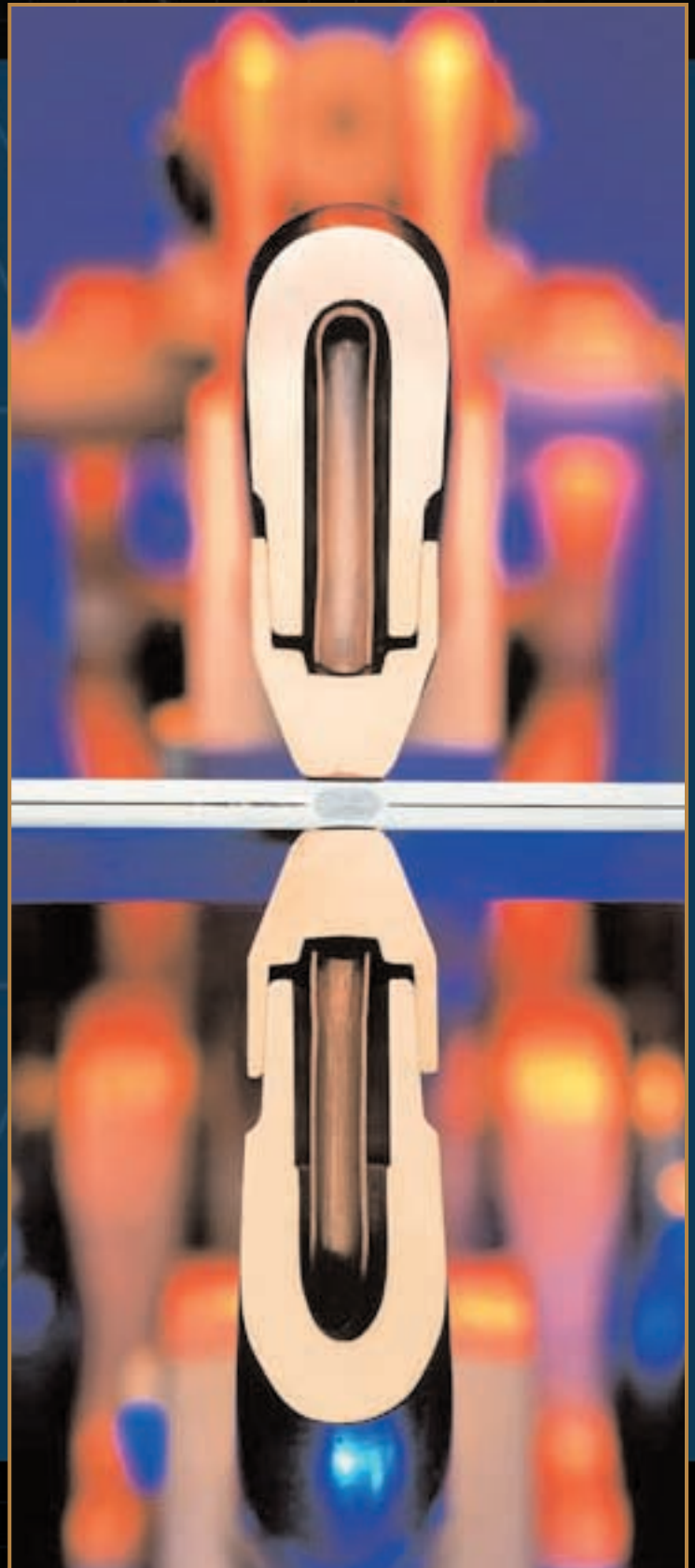


The complete joining company.

THE LEADER IN LOW-IMPACT OPERATION

Standard CenterLine™ solutions all offer low-impact operation. Our Staac™ air cylinder, OHMA® air/oil cylinder, or servo-electric actuator, will help ensure you can:

- maximize up-time by decreasing wear
- reduce operating cost by maximizing consumable life
- minimize noise
- decrease shock and vibration
- minimize electrode skidding
- control dimensional variation
- improve weld appearance



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WELDING GUNS

THE SOURCING DECISION

There are almost as many resistance welding gun possibilities as there are applications to use them in. The process can be greatly simplified by considering your resistance welding gun strategy, operational requirements, and application configurations to narrow down your search.

STRATEGIC ISSUES

Your strategy will influence the way the resistance welding guns are designed and applied. These decisions should be evaluated with consideration of the long-term impact on your organization.



APPLICATION METHODOLOGY

- Modular
- Standardized
- Customized

CONSTRUCTION TYPE

- Cast
- Machined
- Fabricated

GOVERNING STANDARDS

- Customer standard
- ISO Standard
- CenterLine standard



When you are looking for a quality resistance welding gun

Your specific resistance welding project goals can be realized with a solution from the broad CenterLine product range.

OPERATIONAL FACTORS

Evaluation of the operating environment, operational objectives, or future expectations are required to make some selection choices.

APPLICATION REQUIREMENTS

Some of the easiest choices are those that are application driven.

ACTUATOR STYLE

- Air
- Hydraulic
- Air/Oil
- Intensifier
- Servo-electric

OPERATION

- Soft-touch
- Low-impact

INTEGRATION LEVEL

- Cable gun
- Transgun
- Integrated dress package

DESIGN STYLE

- Pinch
- X-type
- Scissors
- C-type
- J-type
- Equalizing
- Nut-welding
- Dual-gun
- Strip-clearance
- Cylinder-gun
- Transverse

POWER SUPPLY

- MFDC
- AC
- Parallel
- Series
- Inverter
- ISO Standard
- High-flux

GUN MATERIALS

- Copper
- Aluminum
- Stainless Steel

INSTALLATION TYPE

- Robot
- Fixture
- Pedestal
- Portable

DIMENSIONS

- Metric
- Imperial
- Mixed

WELD FORCE

- Low force
- Medium force
- High force

In all cases, CenterLine is ready to support your decision making efforts. We have a wide range of services to assist you to apply, install, and maintain our resistance welding gun solutions. Whether your requirement is for similar guns or a totally new configuration, you have the assurance of knowing that CenterLine will be there as an integral part of your supplier team.



solution - the company you can trust is CenterLine.

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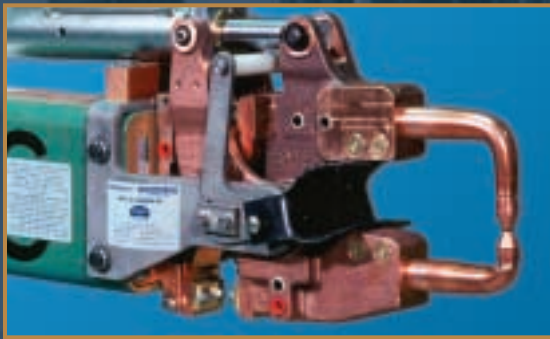
WELDING GUNS

GUN SYSTEM

The resistance welding gun package includes a gun assembly, actuator, transformer, and some ancillary items.

GUN ASSEMBLY

There are essentially three types of gun constructions plus obviously hybrid combinations. All of these constructions can be adapted to standard, custom, or modular gun configurations.



- **Castings**

Copper castings can be implemented in configurations not possible with other technologies. Properly designed castings are robust and have minimal connections to maintain electrical efficiency and guarantee minimal maintenance. If there are constraints on size or weight, castings can incorporate variable cross sections or targeted reinforcement to attain optimum results.



- **Fabricated**

CenterLine's extensive fabrication experience has been applied to create this welding gun family. The gun body is fabricated from stainless steel sheet that has been cut, formed, welded and machined to standard or customized configurations. This innovative product family is a prime enabling technology for lead time reduction and life-cycle cost reduction.



- **Machined**

There are times when it makes sense to machine major gun components from wrought metal such as copper or aluminum. These wrought materials have optimum strength-to-weight ratios and yield guns that are lighter and easy to configure. There are configuration limitations and may be increased costs due to specialized materials and machining processes.

**Contact CenterLine to discuss your current or future resist
CenterLine product that best meets your goals and require**

ACTUATOR SELECTION

Resistance welding gun actuators are available in many types, styles and sizes. Interchangeable actuators may allow the resistance welding gun to be adapted to a different actuator in the future. Solutions tailored to the requirements of a specific actuator will be able to take advantage of its key attribute.



- **STAAC™ Air Cylinder**

- air actuators are well understood technology
- operable with conventional densification packages
- low-impact



- **OHMA® Cylinder**

- compact package
- wide force range
- minimize time to weld force
- low-impact



- **Servoactuator**

- significant opportunities for process feedback (e.g. detection of worn, broken, stuck, or missing electrodes; detection of parts, fit-up gap, or sealer; detect tip wear, gun deflection and collision)
- opportunities for performance improvement (e.g. improved motion control on large guns; direct robot integration)
- wide force range
- minimize time and response to weld force

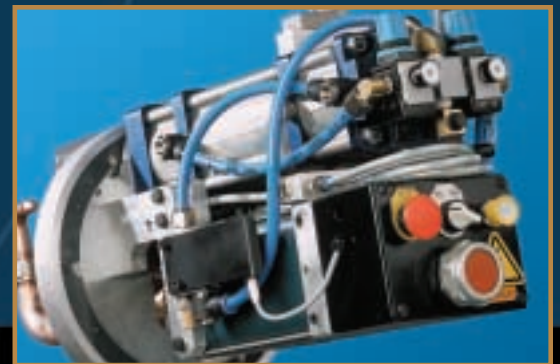
TRANSFORMER

The transformer can be integral to the resistance welding gun (a Transgun), or connected to an external resistance welding transformer. It is important to keep the transformer as closely coupled to the welding gun as possible.

ANCILLARY ITEMS

Integrated dress package can include valves, custom electrical control components or custom water manifolds. Various mounting bracket options can adapt the resistance welding guns for fixture, robot or portable installations. Other example items include:

- protective shrouds
- safety or automation components
- custom part gauging
- special transformer connections



**ance welding gun projects. We will direct you to the
ments.**



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