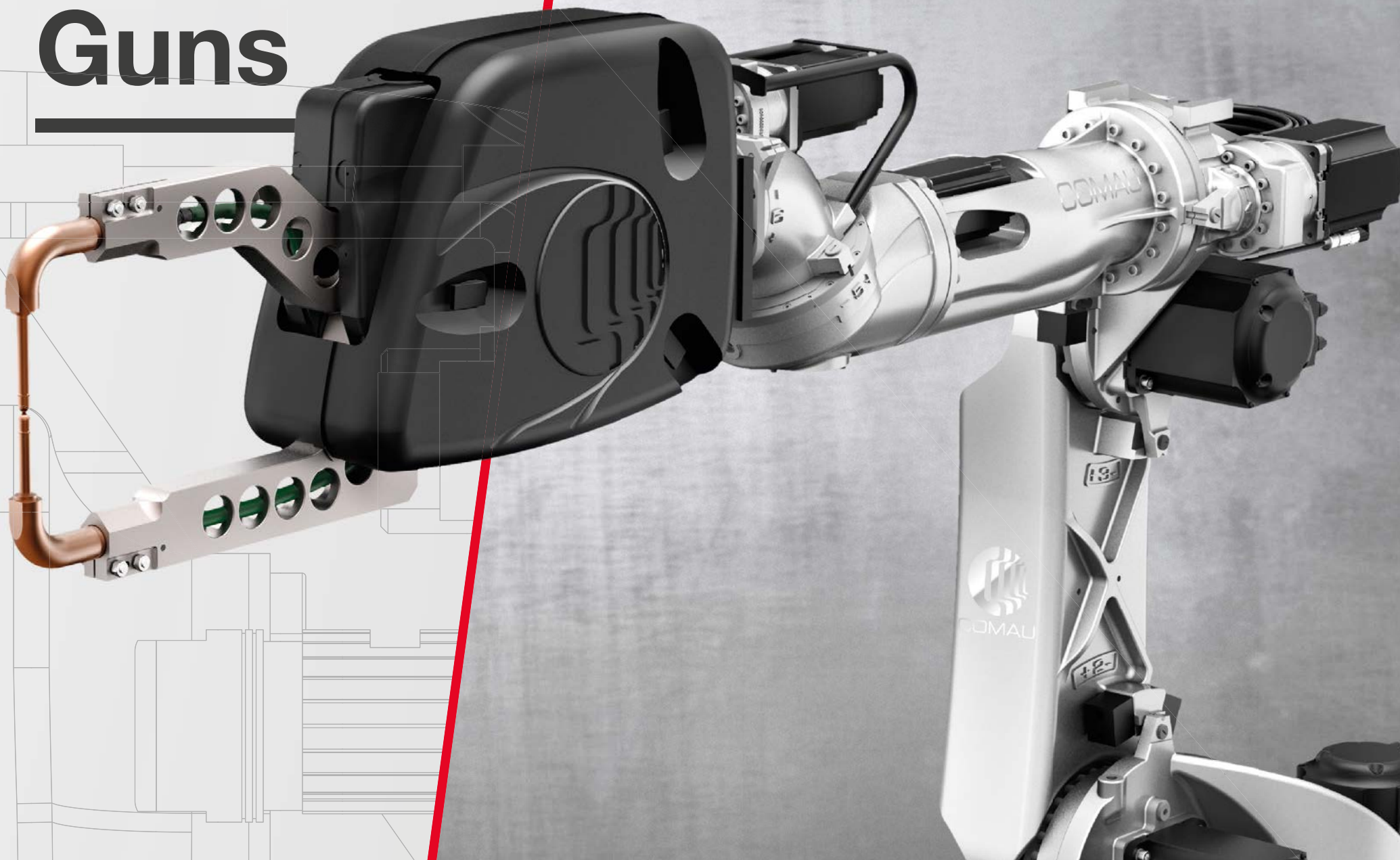


# Welding Guns





## Comau Robotics and Automation Products

is the global, experienced supplier for the General and Automotive industries

Long term experience is engraved into Comau’s history: experience is continuously driving Comau to widen its offer, to meet Customers’ improvement targets by anticipating Smart Factory requirements and accomplishing World Class Manufacturing standards.

*“Facts are in our focus, as we believe that being concrete is the motor behind all the tangible products and the happy solutions that we like to imagine”.*

### Our Welding Gun Family

**Compact C-type / X-type / CXR** (steel joint)

**Compact high-force C-type / X-type** (aluminum joint)

**Versa B-type / C-type / X-type / CXR-type** (steel & aluminum joint)

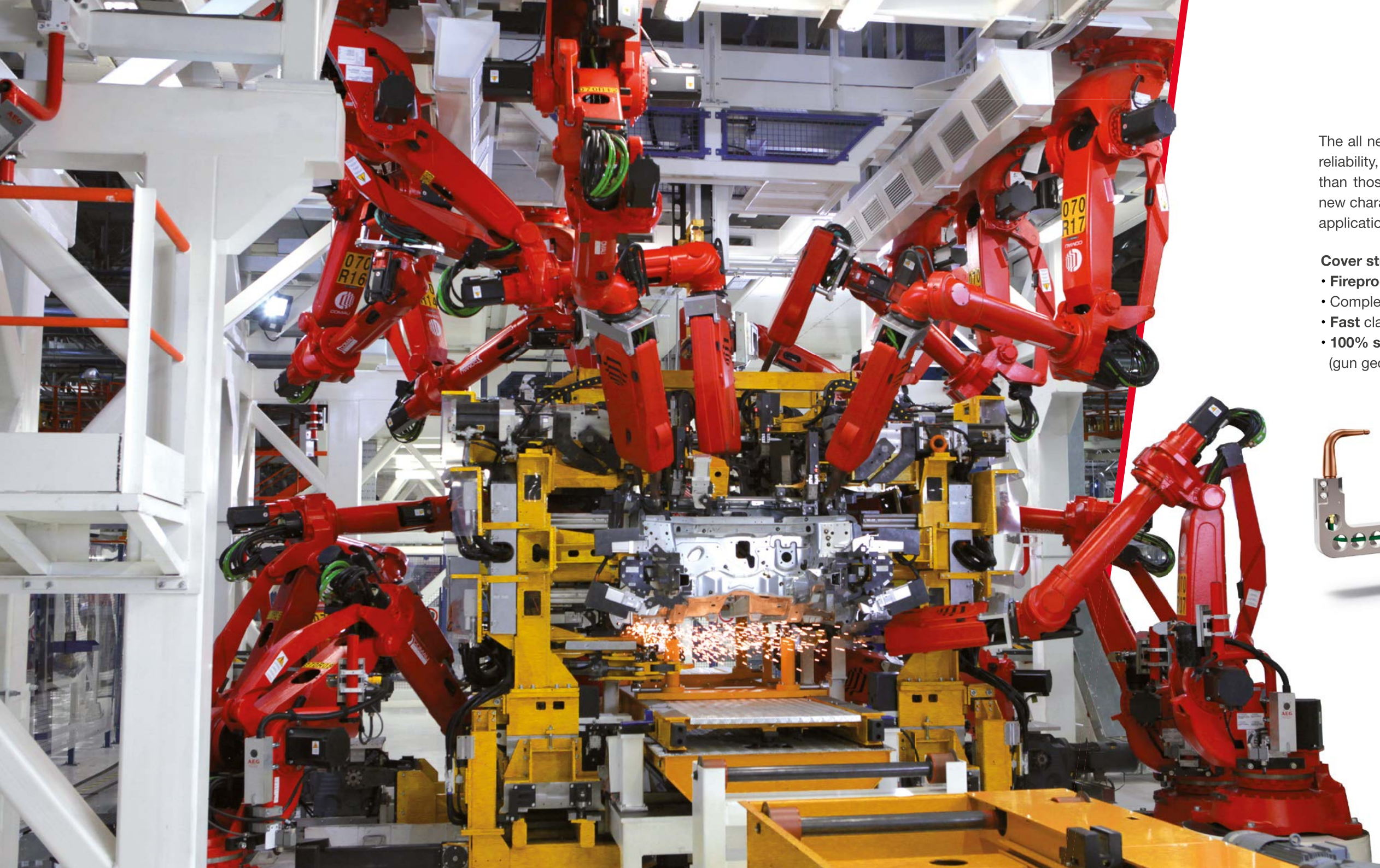
**Manual C-type / X-type** (steel joint)

Comau welding guns are the result of our capability to listen to the Customer: what really counts is to guarantee functionality, quality, cost effectiveness and process efficiency.

Our welding guns are modularly and symmetrically designed to reduce spare parts, overall weight and procurement lead time, and are available for steel and aluminum welding.

Our laboratory can provide consultancy in defining welding parameters, tip dressing processes and electrode life-cycle: a service to support our Customers - 360 degrees - in spot welding application.

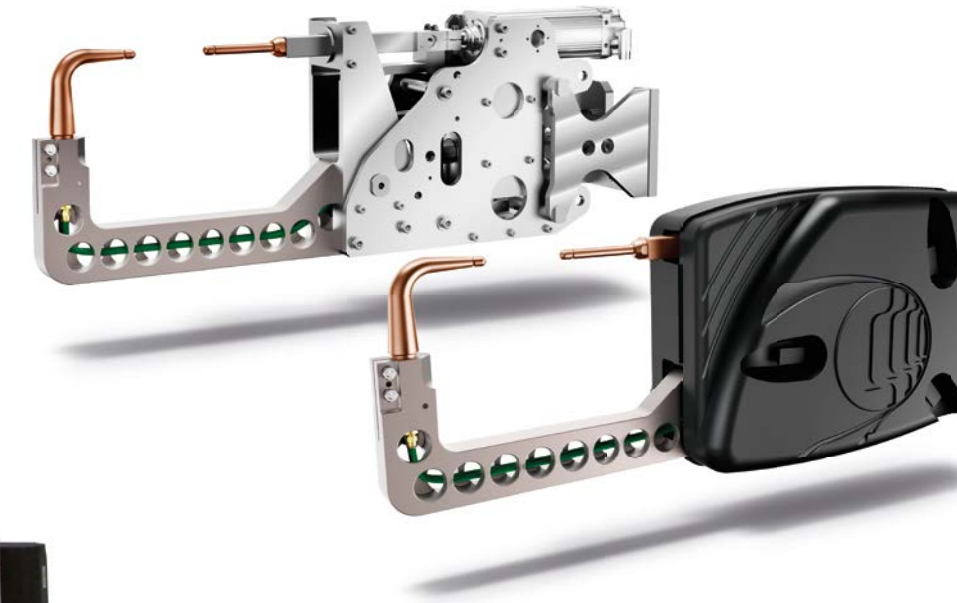




The all new Comau Compact sets the new global benchmark for simplicity, reliability, flexibility and low cost. The new Comau Compact gun weighs less than those of competitors and is about 300 mm more compact. All these new characteristics do not alter its performances. It can handle any welding application and enables the use of smaller Robots in high density stations.

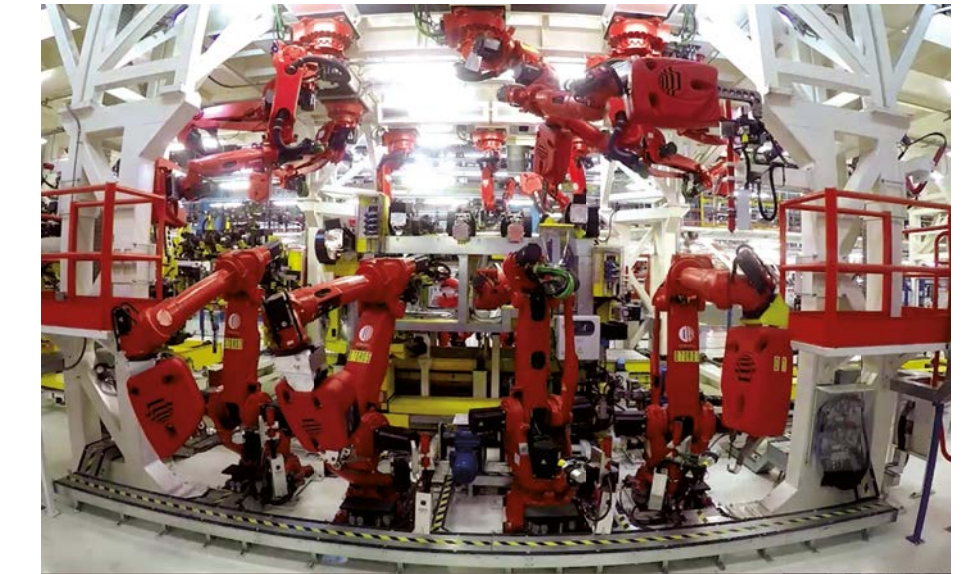
**Cover structure:**

- **Fireproof** thermoplastic
- Complete gun **protection**
- **Fast** clamp/unclamp
- **100% safe** offline programming and simulation (gun geometry is completely defined)



**Comau welding guns are symmetrically designed, producing advantages in:**

- Spare parts **reduction** (no left/right differences)
- **Savings** in 3D Simulation and off-line programming (left/right mirroring)



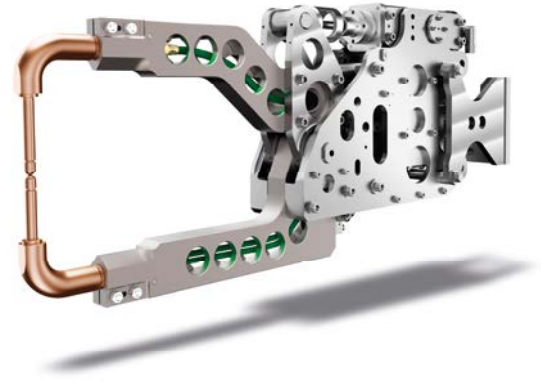
- **Lightweight**
- Design for **simplified** maintenance
- Compact design allows **increased** robot density
- **No exposed** hoses or cables
- Available for **any type** of robot brand
- Improved water flow: all connections **within** the aluminum arms
- Design life cycle: **30 million cycles**
- **30 minutes** MTTR



Compact welding gun: a complete range for steel and aluminum

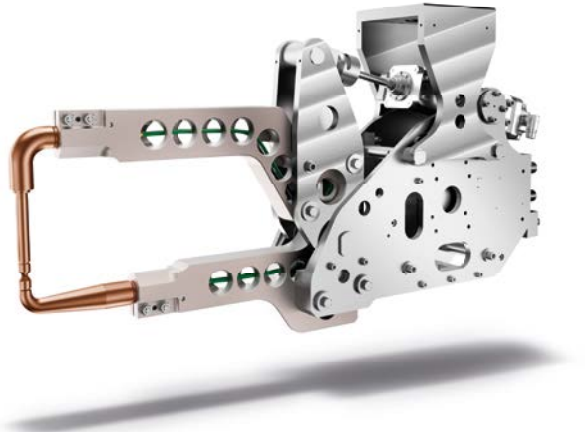
Comau Compact can accomplish 100% of typical Body in White welding missions.  
Body Gun Assembly (BGA) and arms are made in aluminum, with no casting components (only machining) for:

- Weight reduction
- Overall stiffness



Steel joint

Compact	
Weight	65 ÷ 90 kg
MFDC Transformer	106 KVA at 50% DC
Welding Force	X-type 440 daNm / C-type 790 daN
Actuator (Inverted roller screw)	X-type 1764 daN / C-type 790 daN
Equalizing	by SW
Feedback for adaptive quality system	Voltage



Aluminum joint

Compact high force	
Weight	110 ÷ 130 kg
MFDC Transformer	255 KVA at 50% DC
Welding Force	X-type 600 daNm / C-type 790 daN
Actuator (Inverted roller screw)	X-type 1764 daN / C-type 790 daN
Equalizing	by SW
Feedback for adaptive quality system	Voltage / Force

Compact CXR gun, specific welding section

CXR welding guns are expressly designed for steel welding in specific part sections that are not reachable with a standard welding gun.

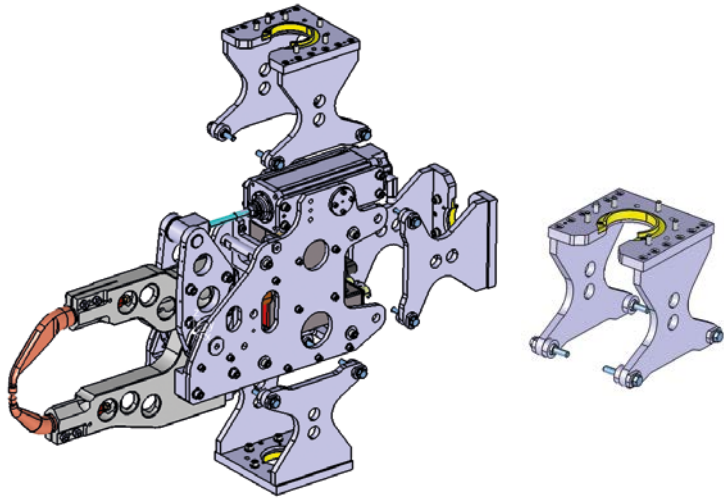
CXR guns are as small as a Compact C-type with the functionality of a Compact X-type welding gun.



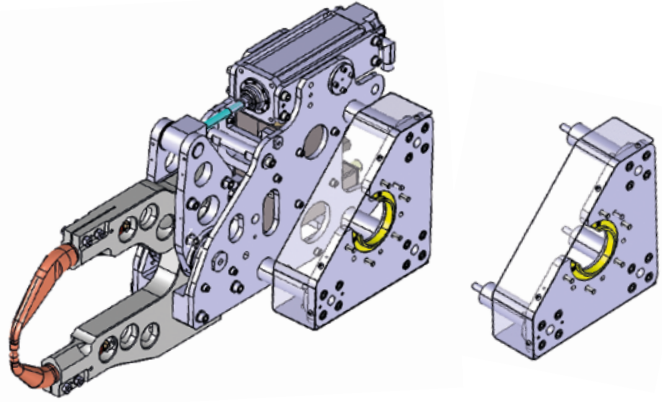
Compact CXR	
Weight	60 ÷ 75 kg
MFDC Transformer	106 KVA at 50% DC
Welding Force	150 daNm
Actuator (Inverted roller screw)	X-type 1764 daN
Software equalizing available	by SW
Feedback for adaptive quality system	Voltage

Comau Compact mounting flexibility

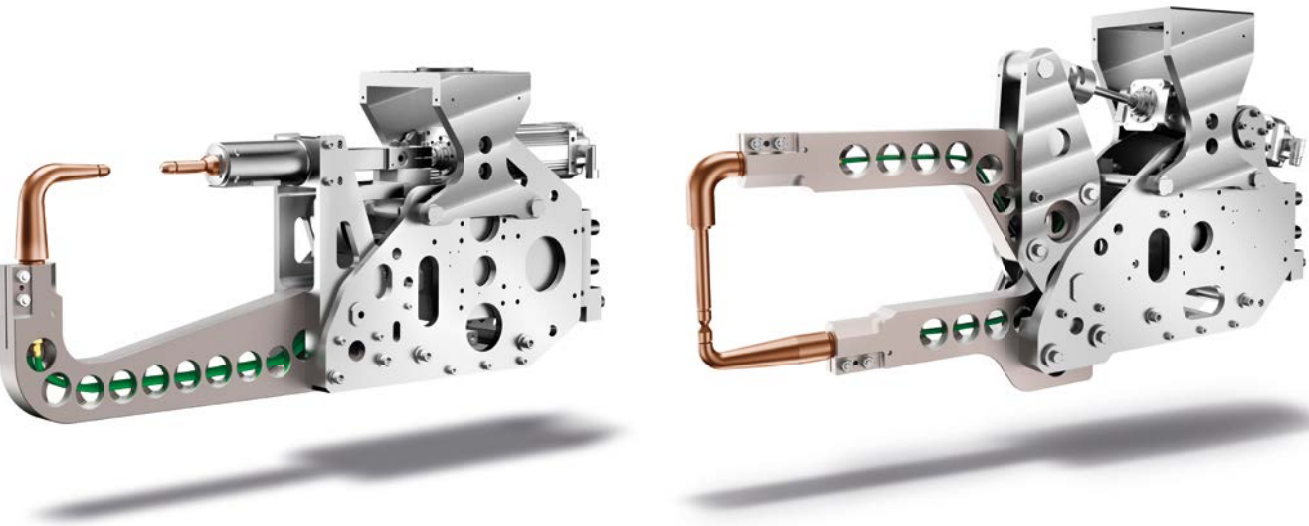
Standard End Mount bracket (top, back and bottom position)



Standard Side Mount bracket (left and right)



# Compact high-force: one welding gun for any joint



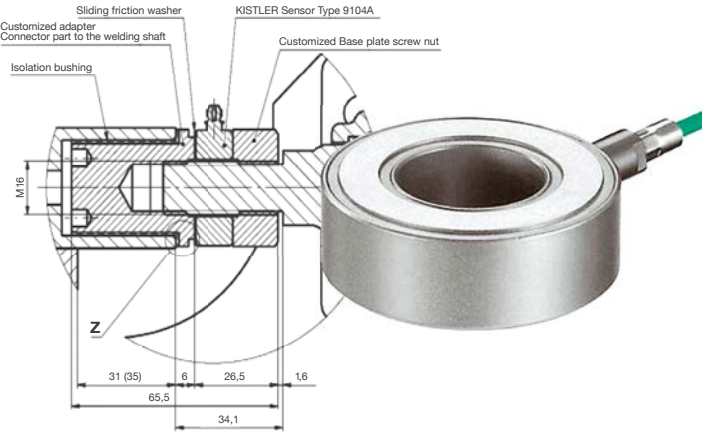
A Compact high-force gun designed for welding aluminum that is fully capable of welding steel:

it simply required a changeover of **electrode geometry** and the adoption of a slightly **different electrode maintenance** to fully optimize the process for either material.

One load washer sensor and one amplifier are installed on Compact high-force guns. This allows the welding process to be monitored by measuring metal melting in each spot.

The quality of welding is constantly ensured.

## Force Sensor



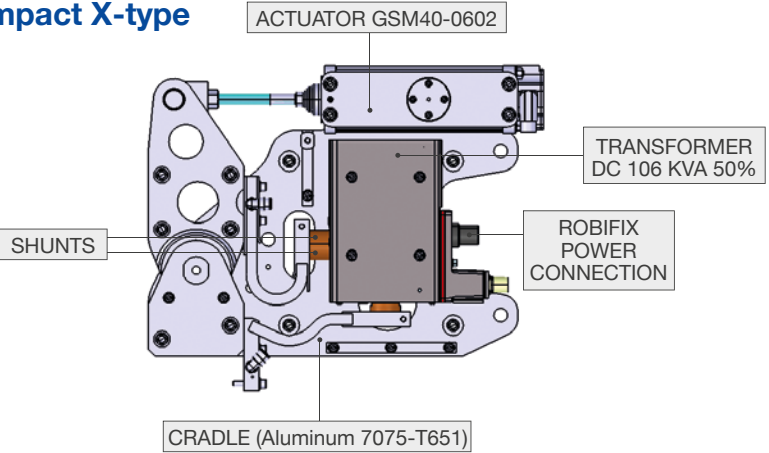
Real time force management to ensure homogeneous nuggets and the reduction or suppression of cracks or porosities.

## Amplifier



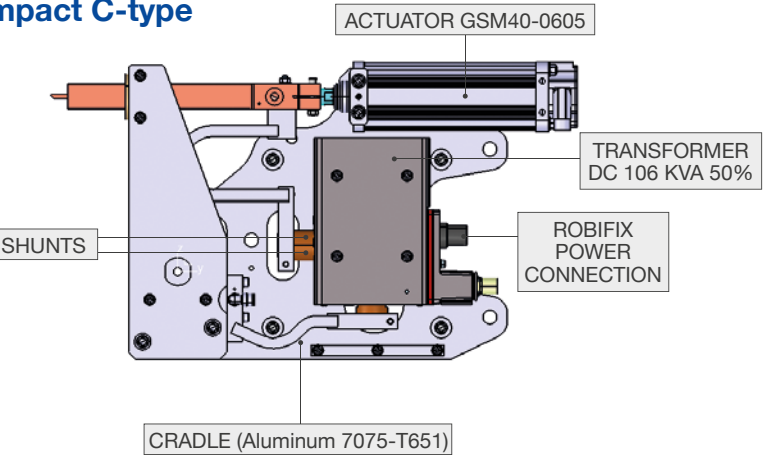
# Main components

## Compact X-type



Dimensions: 577x425x150 mm

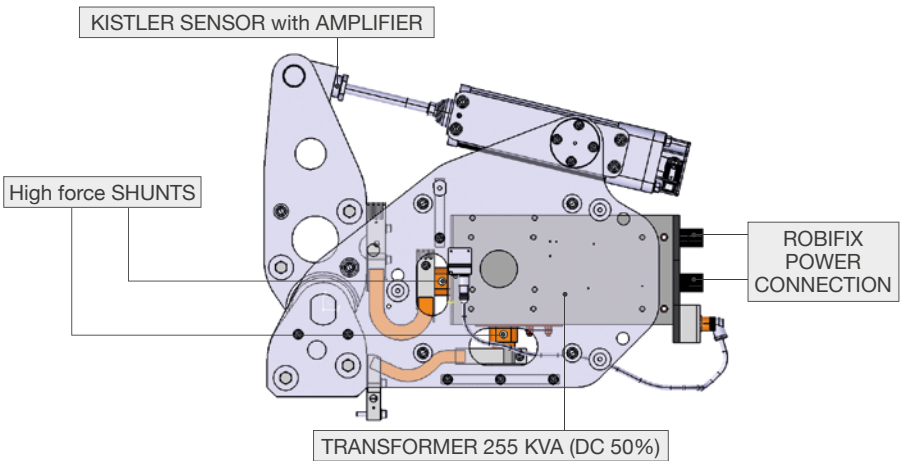
## Compact C-type



Dimensions: 640x425x150 mm

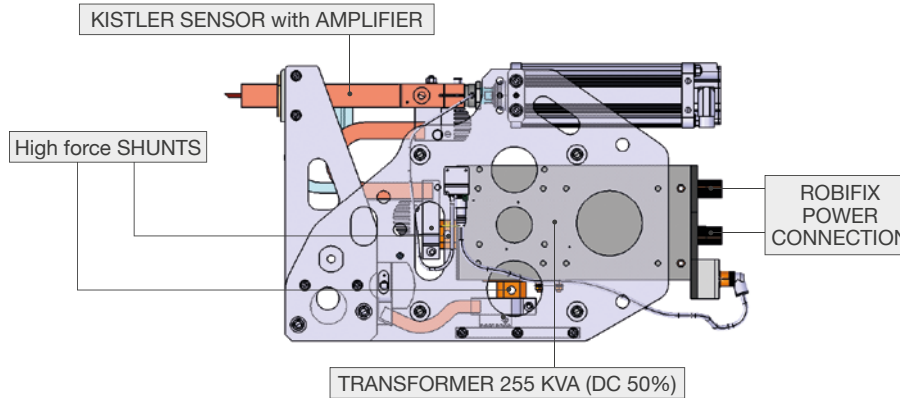
Only 1 connection between transformer and arm

## Compact High-force X-type



Dimensions: 680x545x177 mm

## Compact High-force C-type



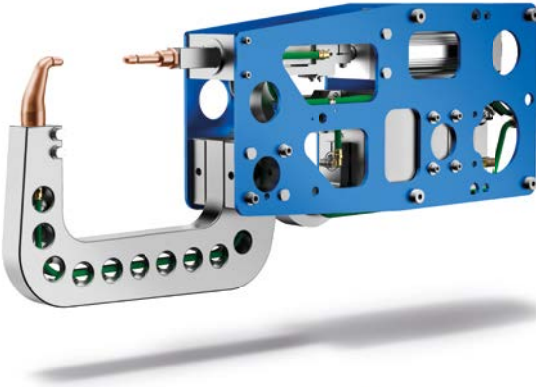
Dimensions: 662x425x157 mm



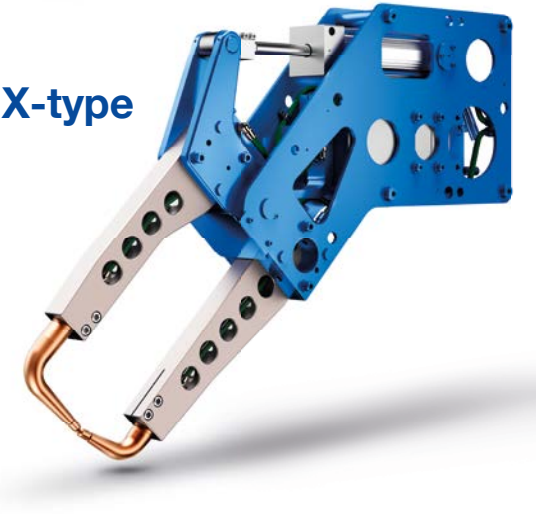
### Versa Welding gun

- Robust and reliable
- For steel and aluminum
- UL compliant (for NAFTA market)

### C-type



### X-type



### CXR-type B-type

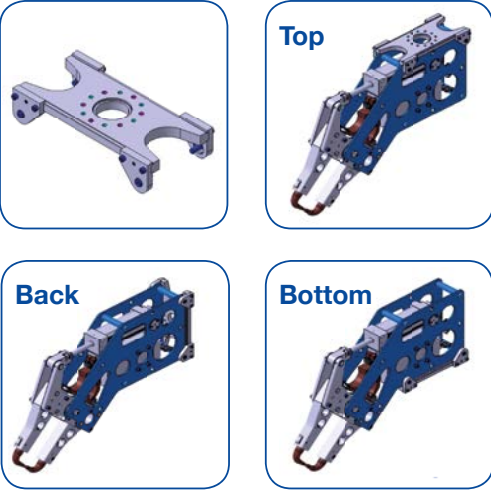


Versa gun	
Weight	85 ÷ 117 kg
MFDC Transformer	100 KVA at 50% DC
	185 KVA at 50% DC
Welding Force	X-type 529 daNm
	C-type 790 daN
	CXR-type 233 daNm
	B-type 452 daNm
Actuator (Inverted roller screw)	B-X-CXR-type 1764 daN
	C-type 790 daN
Equalizing	by SW

### Versa mounting flexibility

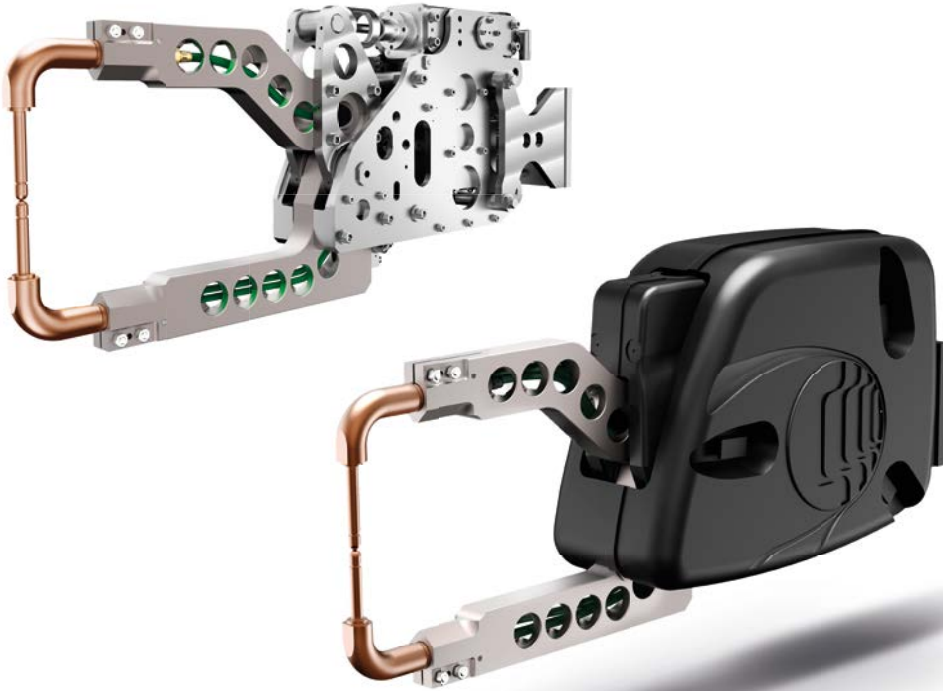
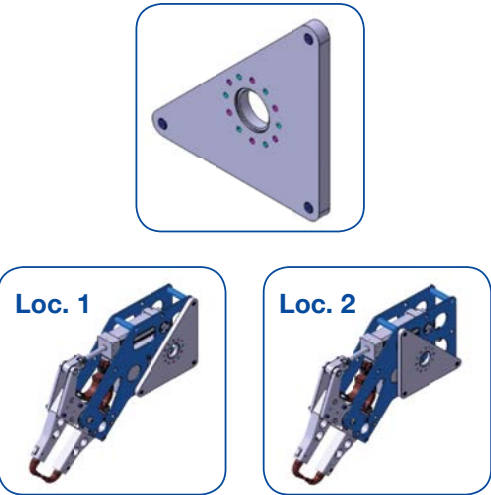
#### Standard End Mount

- 1 bracket with 3 locations



#### Standard Side Mount (left and right)

- 1 bracket with 2 locations



### Features

- Robotic and manual versions
- Comau patented system
- Standard arm library
- Aluminum lighter Body Gun Assembly
- Reduced quantity of spare parts
- No external cables

### Benefits

- Extensive standardization of components, reducing inventory cost, lead time
- Effective robcad simulation
- Fully integrated on Hollow Wrist robots Comau NJ4 (welding machine)

### Suitable standards

#### Basic configuration

- Compact Body Gun Assembly (BGA)
- Fireproof material cover
- Calibrated “Comau Servo Actuator” (inverted roller screw)
- MFDC transformer for steel or aluminum joint
- Robifix multi-contact primary power connection
- I/O receptacles
- Water hose package
- Standard bracket (for fixing the gun to the robot flange)
- Secondary voltage feedback for adaptive quality system (for steel)
- Secondary force feedback for adaptive quality system (for aluminum)

#### Options

- Custom “Product / Process” special arms
- Special bracket design

#### Specifications

• Design life cycle	30 Mil. cycles
• MTTR	30 minutes
• Servo motor speed	600mm/sec (C type) / 250mm/sec (X type)
• Water requirements	8 l/min. Δp 2 Bar



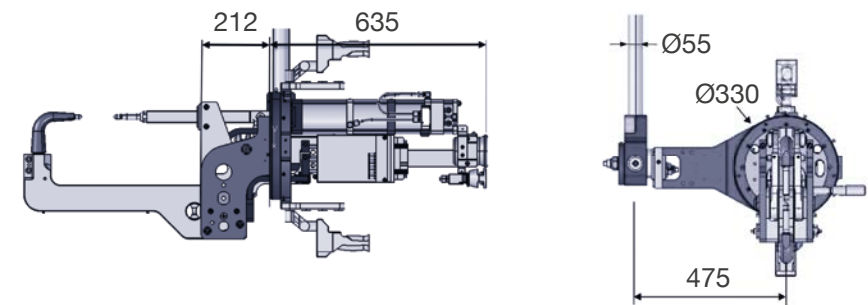
Also in steel Manual welding applications , Comau Manual guns feature all the advantages of compact guns in the hands of the operator: Light structure, easy maneuverability and reliability.

Comau Manual welding guns, allowing the operator to benefit from the light structure, easy maneuverability and reliability.

**Manual gun (steel-joint)**

Weight	70 ÷ 95 kg
MFDC Transformer	91 KVA at 50% DC
Welding Force	X-type 310 daNm / C-typen 760 daN
Actuator (Inverted roller screw)	X-type Ø 100 4 stages 1520 daN (5 bar)
Pneumatic Actuator	C-type Ø 100 2 stages 760 daN (5 bar)

**Pneumatic gun: Standard BGA**



**Manual welding gun  
(steel-joint)**



**Features**

- Light and compact
- Common Cradle for C and X types
- Transformer in MF 91 KVA
- Pneumatic cylinders Ø 100
- Pivot with roller bearings (on X type)
- Gyroscope with ring bearing
- Common arms library to that of the Robot
- No casting component
- Reduced number of spare parts

**A complete manual spot welding package**

Further to manual welding guns, Comau has developed its own standard package for:

- Welding Cabinets
- Media Panel
- Manual Tip Dresser

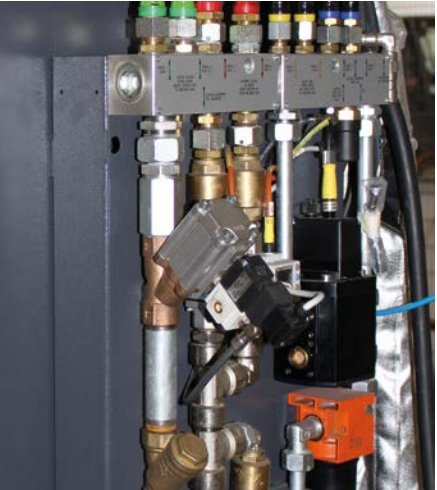


**Welding cabinet Comau**

- Single and dual welding gun version
- Standard welding gun command interface
- Ethernet for welding parameter management
- Ground or flag mounting

**Inverter**

- Bosch timer
- Water cooling
- Poka-Yoke & Model selection



**Media panel Comau**

- Single and dual gun version
- Proportional valve for weld force selection
- Water flow monitor
- Air filter

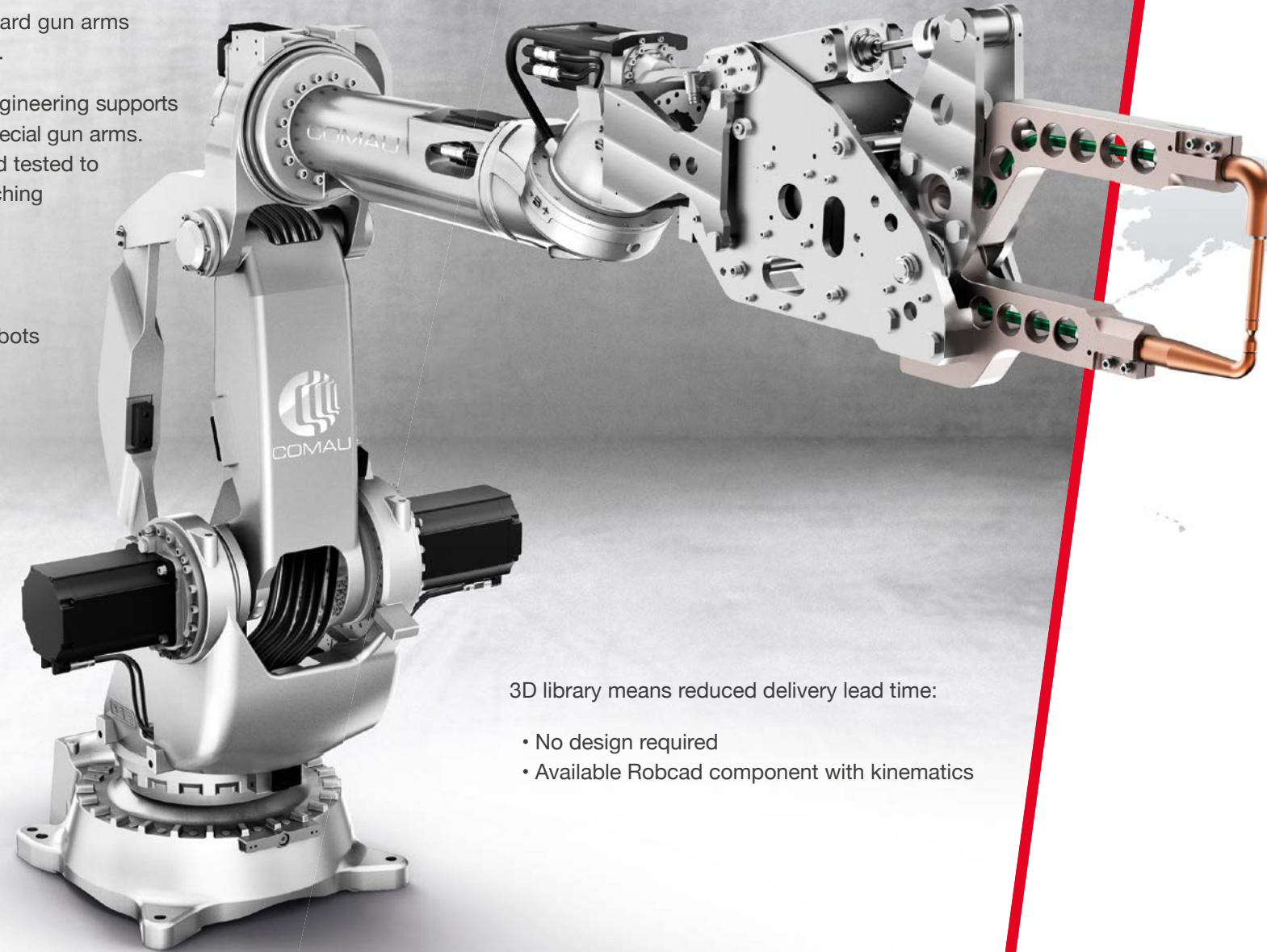


## ARMS library portfolio

Comau provides a full range of standard gun arms (small, medium, large and extralarge).

For specific requirements, Comau engineering supports customers in modeling, designing of special gun arms. 3D model shape can be simulated and tested to grant a process reliability before launching manufacturing.

- Available with ø16 or ø20 caps
- Complete with cover
- Integrated solution with Comau Robots (Welding Machine)
- Mountable on any robot brand



3D library means reduced delivery lead time:

- No design required
- Available Robcad component with kinematics

## Comau's center of excellence

**Core competency: over 40 years** of experience in spot welding applications

**2 plants:** Romania and USA

**2 welding engineering centers** in Italy and USA





## Spot Welding Machine

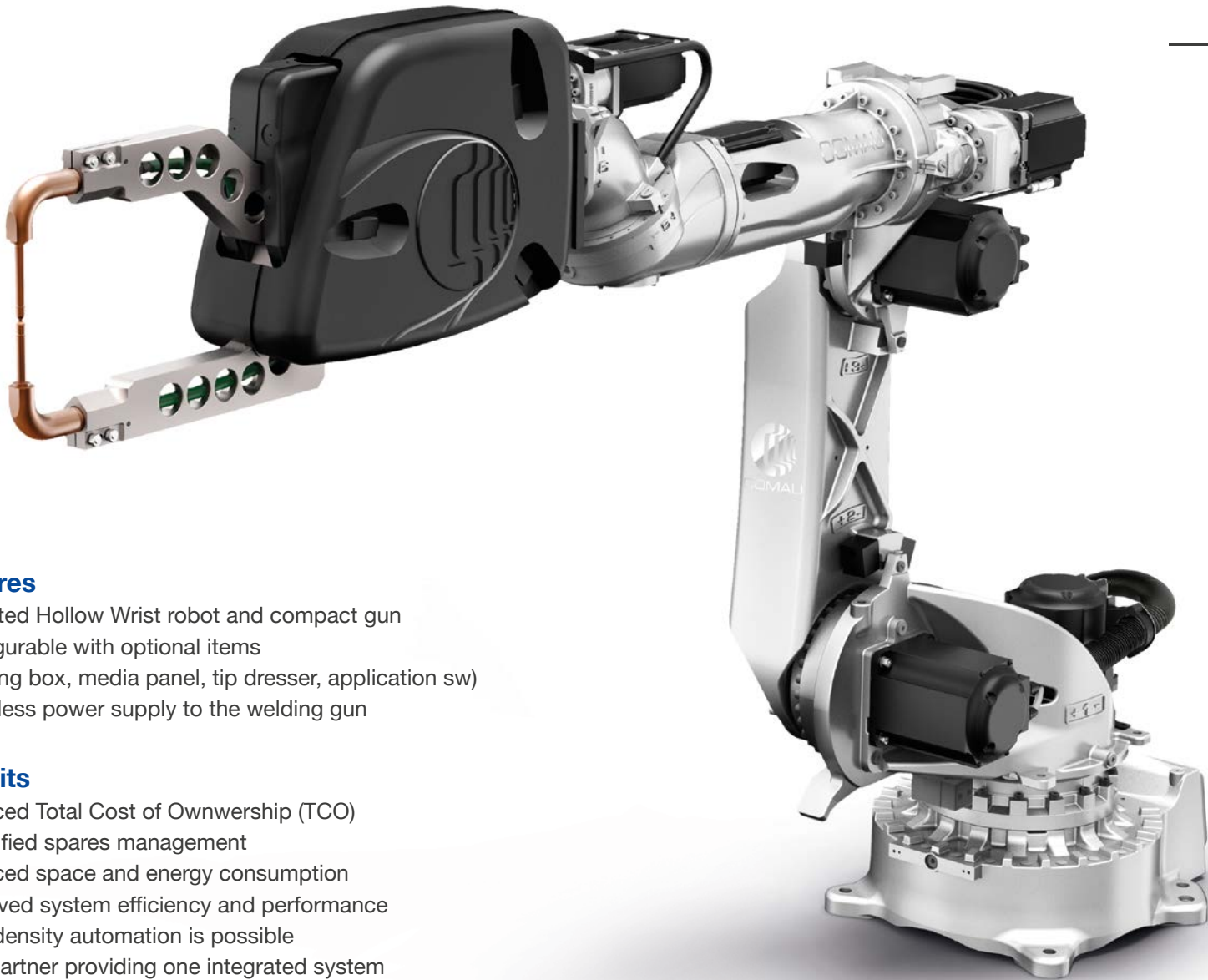
When talking about spot welding application we think with the Customers' mind-set.

The request is to reach efficient results in the simplest way.

The answer is what we call the Comau Spot Welding Machine: a package designed to multiply the advantages of integrated solutions.

Comau Robotics and Automation Products is a global supplier, providing a complete range of tested components, based on specific needs.

- Spot Welding Robot "Hollow Wrist Technology"
- Integrated power supply within Robot arm
- Automatic or manual welding guns
- Spot Welding Box (Bosch Inverter for manual/automatic guns)
- Smart Spot Application, with adaptive software
- Media panel
- Fixed or swinging Tip dresser with new calibrated cutter
- Automatic cap changer



### Features

- Patented Hollow Wrist robot and compact gun
- Configurable with optional items (welding box, media panel, tip dresser, application sw)
- Seamless power supply to the welding gun

### Benefits

- Reduced Total Cost of Ownership (TCO)
- Simplified spares management
- Reduced space and energy consumption
- Improved system efficiency and performance
- High density automation is possible
- One partner providing one integrated system

A complete reliable, high-performance, standard and customizable Spot Welding Machine.

**Ready to weld, ready now.**



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The illustration does not necessarily show the products in their standard version.

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