

# DEFENCE EXPERTISE

OUR EB SOLUTIONS MEET ALL YOUR CHALLENGES

**ELECTRON BEAM WELDING**

# TABLE OF CONTENTS



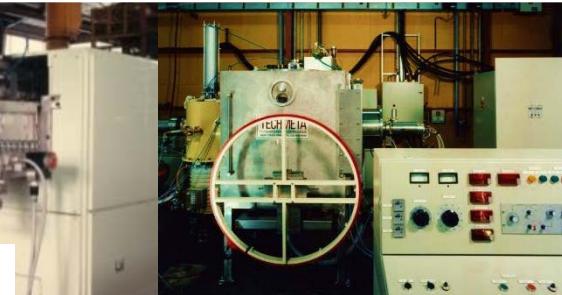
DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

SPECIFIC  
MACHINES

# DEFENCE EXPERTISE



SINCE 1980 →  
**36 YEARS**  
**OF EXPERTISE**



DEFENCE  
EXPERTISE

# WE HAVE THEIR TRUST...

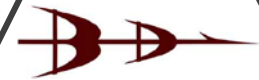
## SEVERAL DEFENCE CLIENTS

**TECHMETA**  
GROUPE **Bodycote**

TIER-1 SUPPLIER  
FOR MOST OF  
OUR CLIENTS



**MECABRIVE INDUSTRIES**  
USINAGE-TRAITEMENTS DE SURFACE MONTAGE/INTÉGRATION



**BHARAT DYNAMICS LTD.**  
(A Govt. of India Enterprise)

DEFENCE  
EXPERTISE

# THE PARTNER OF YOUR PROJECTS

OUR WILLING IS TO GO FURTHER BY YOUR SIDE

**TECHMETA**  
GROUPE **Bodycote**



DEFENCE  
EXPERTISE

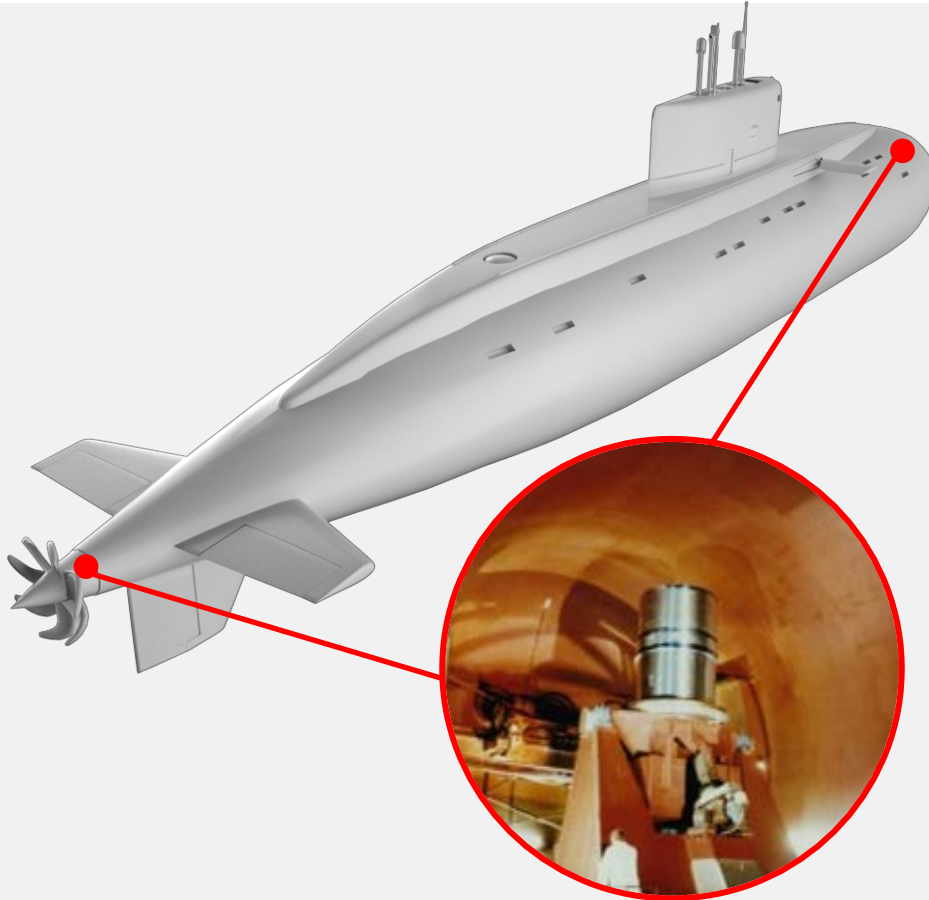
THE PARTNER OF  
YOUR PROJECTS



# PARTS WELDED BY TECHMETA

ON SUBMARINES – PARTS OF SHIPS, SUBMARINES MISSILE LAUNCHING TUBES

**TECHMETA**  
GROUP **Bodycote**



## PARTS INFORMATION

- Thickness: 160 mm penetration
- The development process lead to the realisation of a machine after the welding process development.

## MOTION FEATURES

- X motion : 2000 mm,,
- Y motion : 6000 mm,
- Z motion : 6000 mm.

## MACHINE

- To this day, biggest machine realised by TECHMETA,
- Volume : 800 m<sup>3</sup>
- Loading capacity : 80 tons,
- Upgraded in 2013.

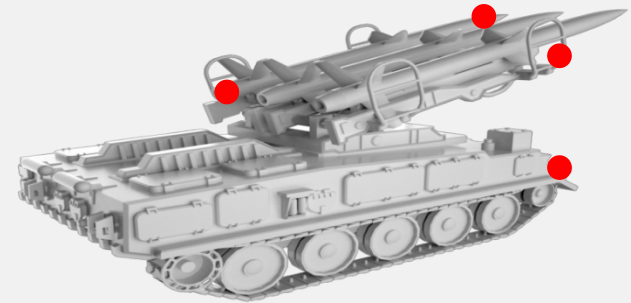
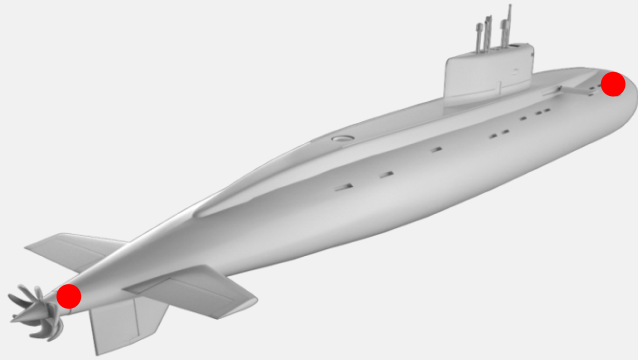


DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

# PARTS WELDED BY TECHMETA

**TECHMETA**  
GROUPE **bodycote**



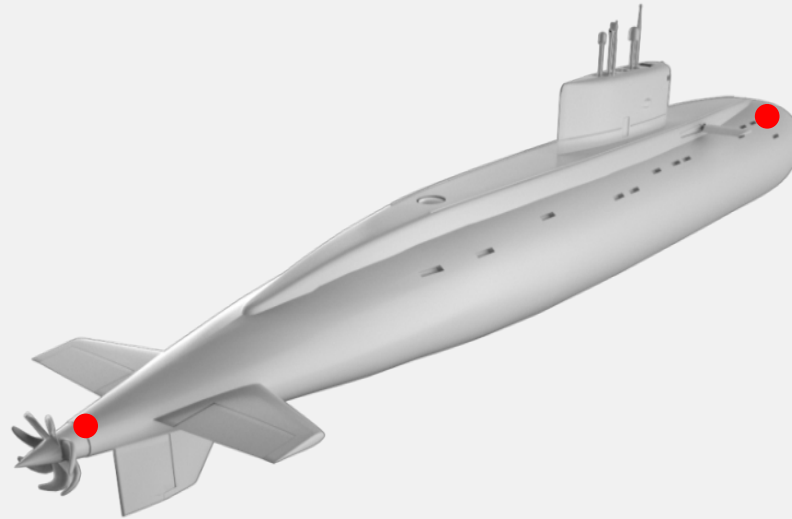
OVER 10 PARTS WELDED FOR THE  
SECTOR

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

# PARTS WELDED BY TECHMETA

**TECHMETA**  
GRUPE Bodycote



## 3 PARTS WELDED FOR SUBMARINES

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS



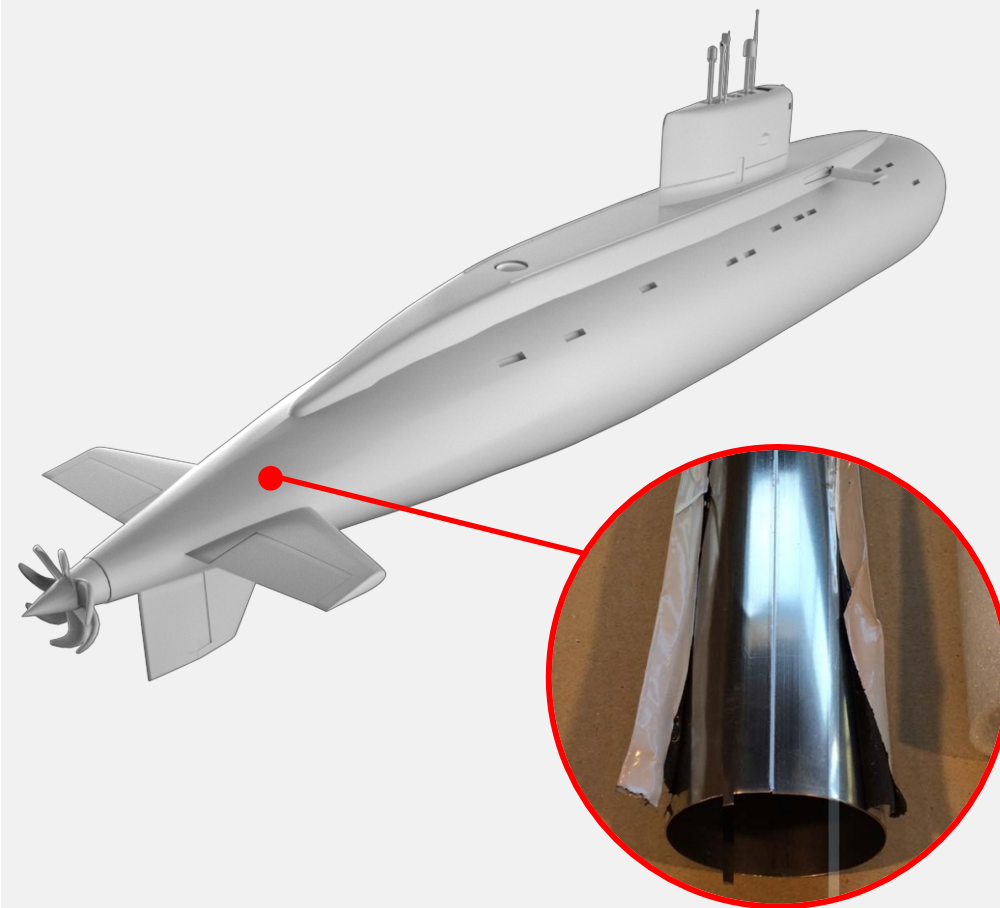
# PARTS WELDED BY TECHMETA

## ON SUBMARINES – ROTOR SLEEVE

**TECHMETA**  
GROUPE Bodycote

### MAIN FEATURES AND CHALLENGES

- For engine, used in confined space,
- Alloy: nickel,
- Thickness: from 0,4 vto 0,7 mm,
- Length : between 400 and 2500 mm.



DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

# PARTS WELDED BY TECHMETA

**TECHMETA**  
GROUPE **bodycote**



## 1 PART WELDED FOR PLANES

DEFENCE  
EXPERTISE

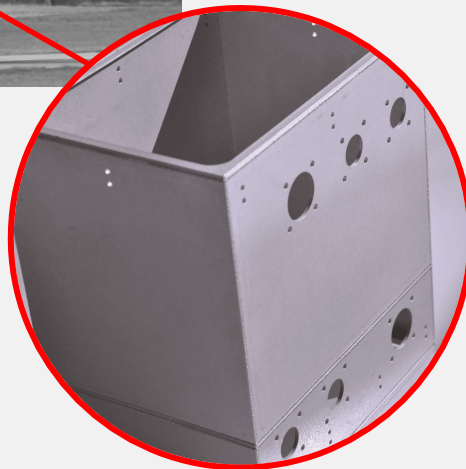
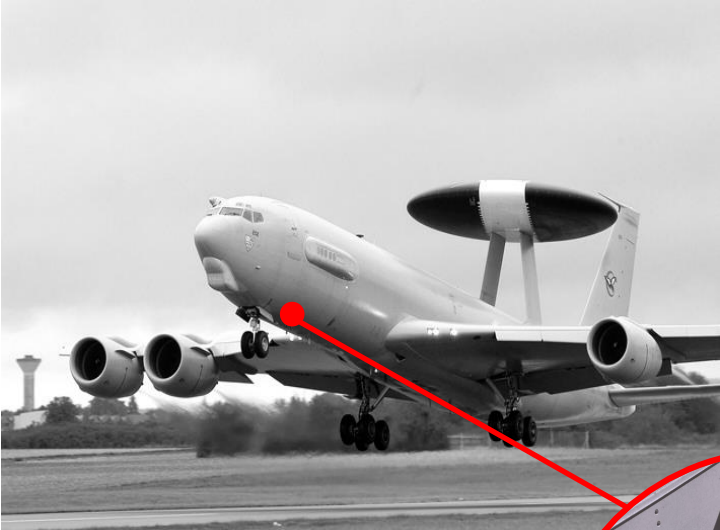
THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

# PARTS WELDED BY TECHMETA

## ON PLANES – ELECTRONIC BOARDS' HOUSING

**TECHMETA**  
GROUPE Bodycote



### MAIN FEATURES AND CHALLENGES

- Vacuum and pressure hermetic box,
- Reconstituted box from sheet of metal
- Thickness: very low penetration tolerance.

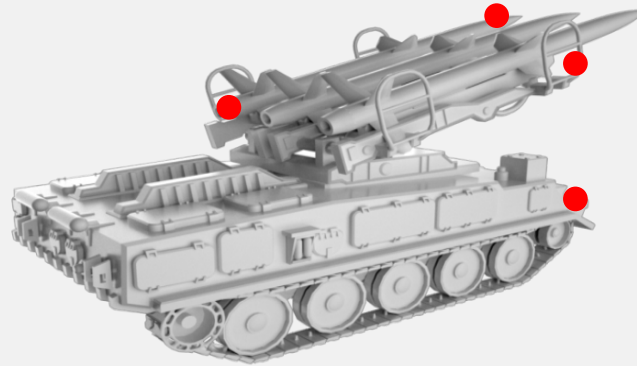
DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

# PARTS WELDED BY TECHMETA

**TECHMETA**  
GROUPE **bodycote**



## 3 PARTS WELDED FOR TANKS

DEFENCE  
EXPERTISE

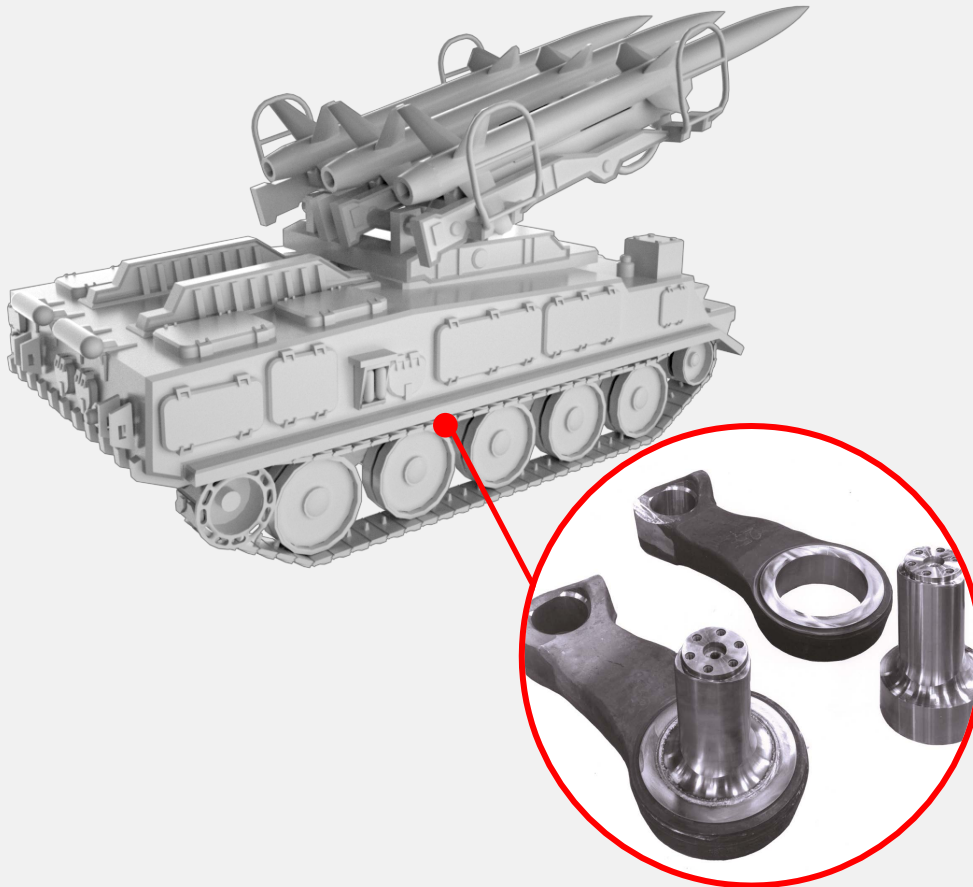
THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

# PARTS WELDED BY TECHMETA

## ON TANK – DAMPER ARM FOR HEAVY VEHICLES

**TECHMETA**  
GROUPE Bodycote



### MAIN FEATURES AND CHALLENGES

- High alloy steel,
- Complex welding process (pre-heating by EBW and post-heating by EBW),
- Penetration : 90 mm.

DEFENCE  
EXPERTISE

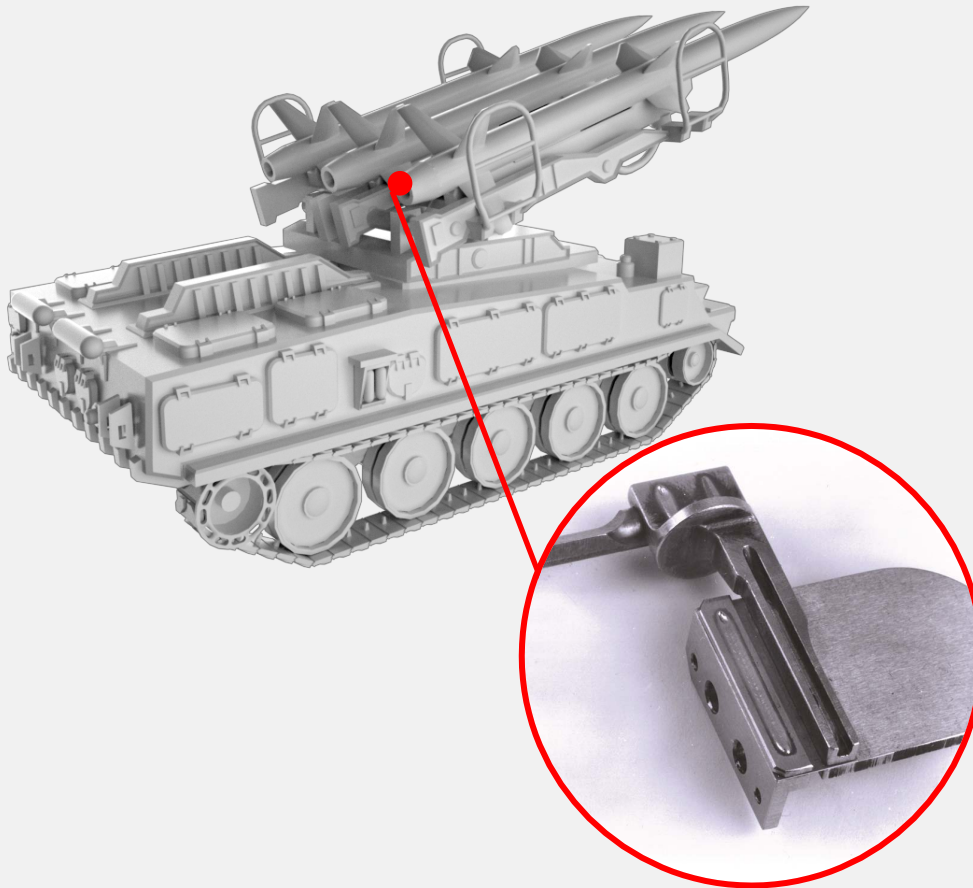
THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

# PARTS WELDED BY TECHMETA

## ON TANK – MISSILE GUIDANCE PART

**TECHMETA**  
GROUPE Bodycote



### MAIN FEATURES AND CHALLENGES

- Multi-elements and multi-material welding,
- Precision items without machining recovery after welding,
- 6 welds by item.

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS



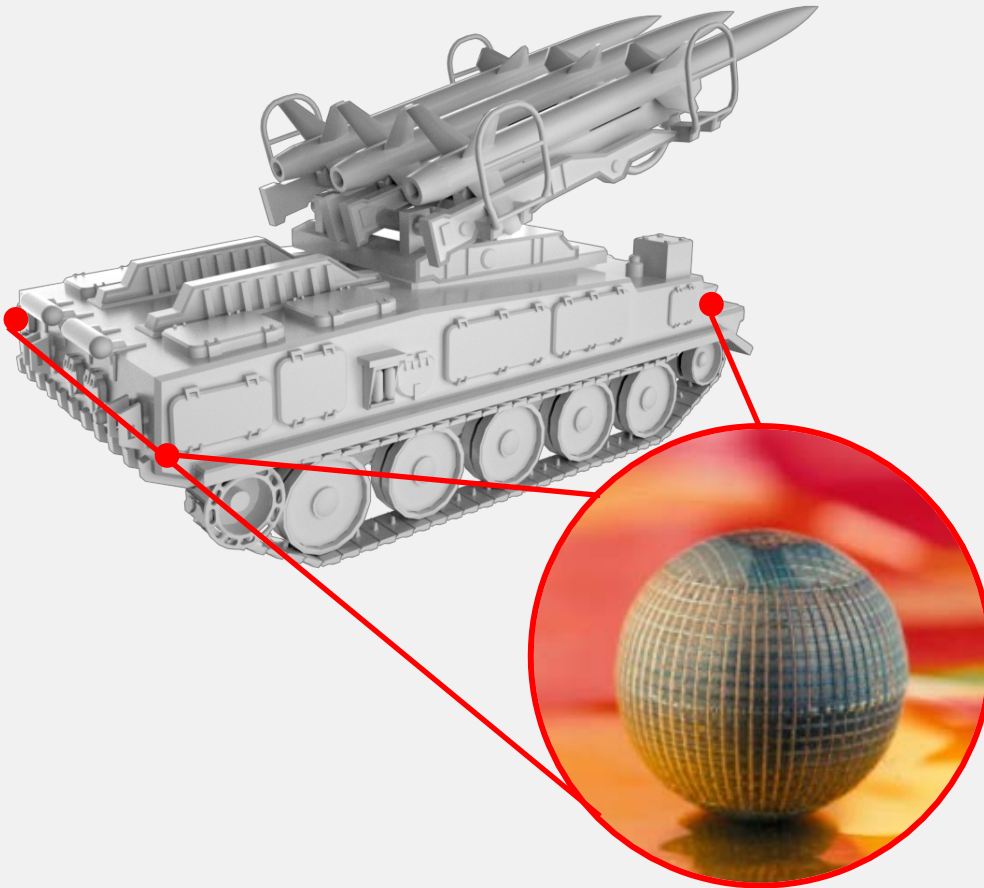
# PARTS WELDED BY TECHMETA

## ON TANK – GRENADE

**TECHMETA**  
GROUPE **bodycote**

### MAIN FEATURES AND CHALLENGES

- Multi-lace weld.



DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

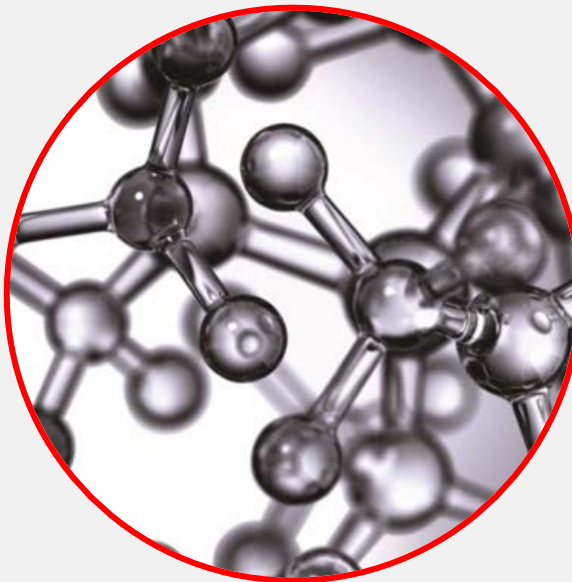
# PARTS WELDED BY TECHMETA

OTHER PROJECTS – MIRRORS CARRIER STRUCTURE FOR MEGAJOULES LASER

**TECHMETA**  
GRUPE Bodycote

## MAIN FEATURES

- Length : 8 m,
- Penetration : 45 mm maximum.



DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

# PARTS WELDED BY TECHMETA

## OTHER PROJECTS

**TECHMETA**  
GRUPE **bodycote**



DEFENCE  
EXPERTISE

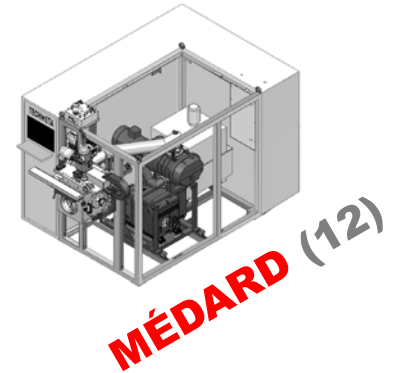
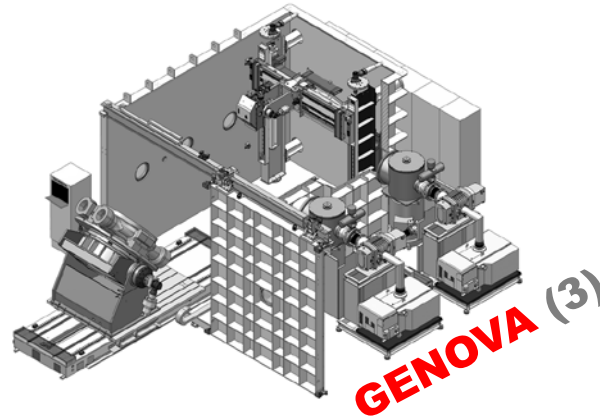
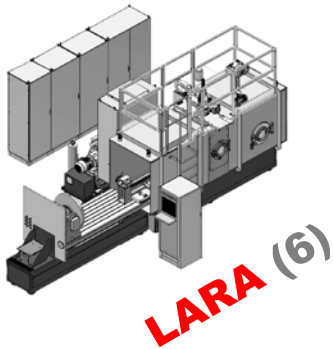
THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

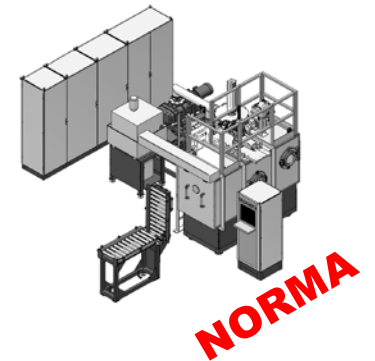
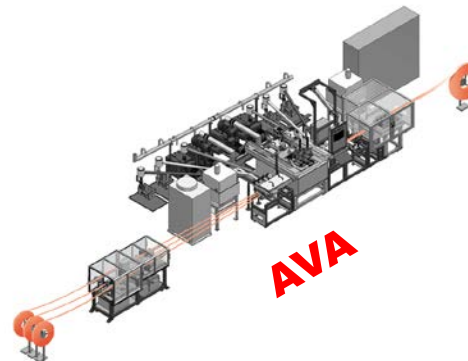
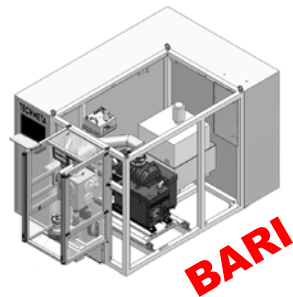
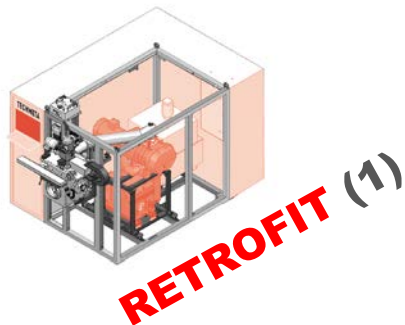
# MACHINES

WE DESIGN AND MANUFACTURE THE MACHINE THAT  
BEST FITS WITH YOUR WELDING NEEDS

**TECHMETA**  
GROUPE **bodycote**



OVER 20 MACHINES AROUND THE WORLD



DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

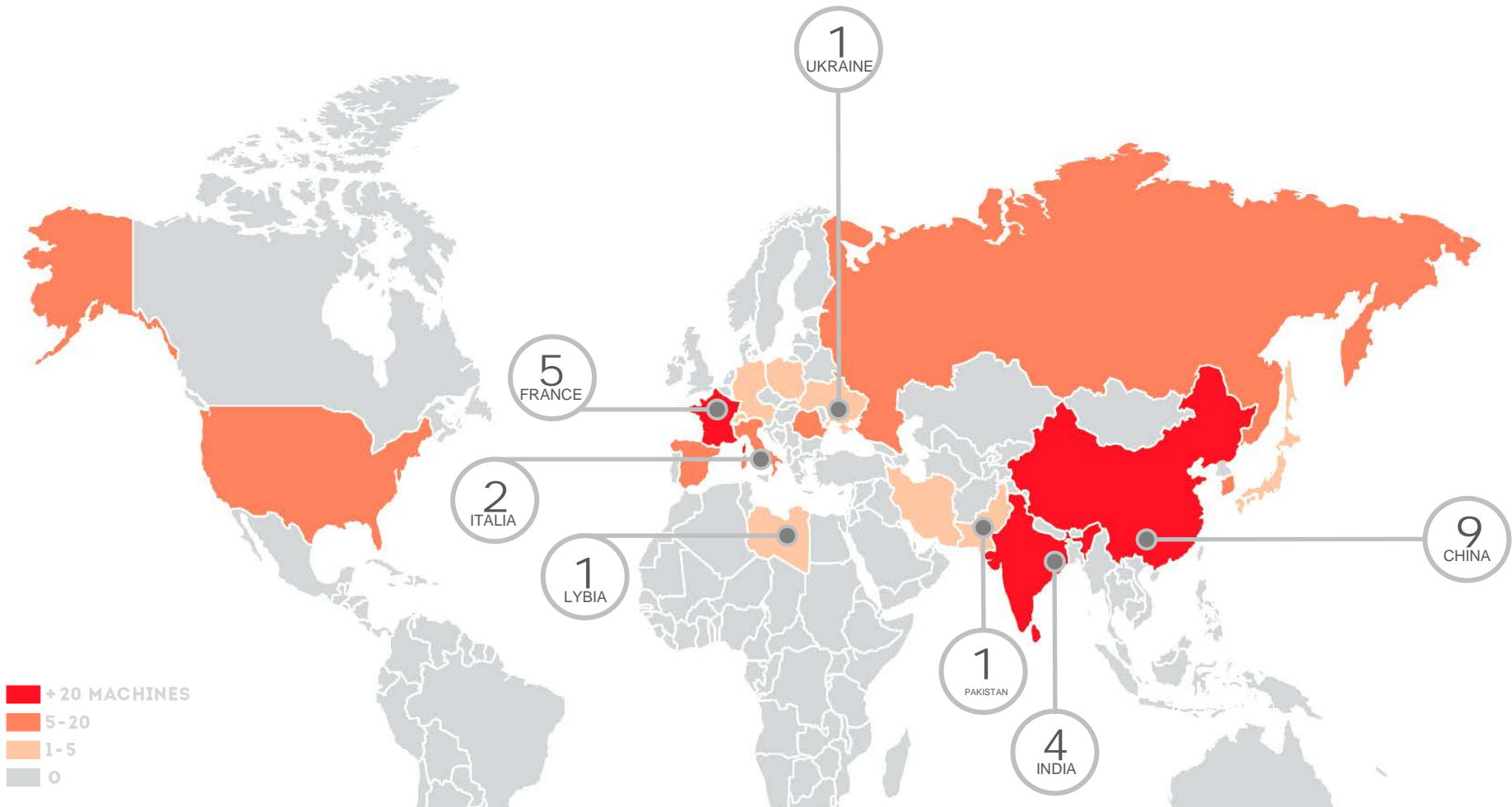
OUTSOURCING  
DEVELOPMENTS

SPECIFIC  
MACHINES

# MACHINES

WE DESIGN AND MANUFACTURE THE MACHINE  
THAT BEST FITS WITH YOUR WELDING NEEDS

**TECHMETA**  
GROUPE **Bodycote**



DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

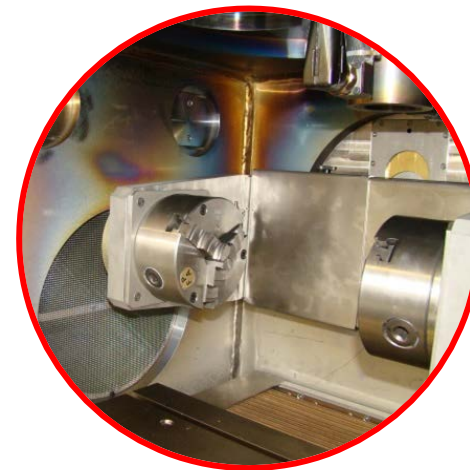
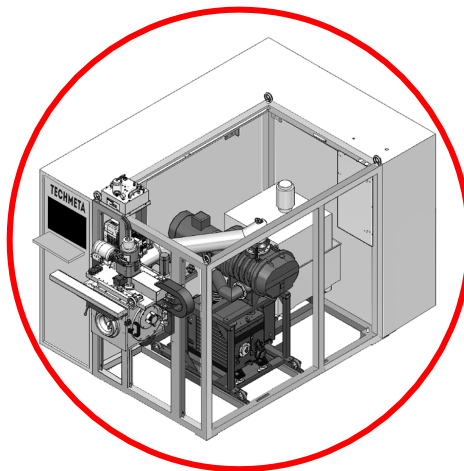
OUTSOURCING  
DEVELOPMENTS

SPECIFIC  
MACHINES

# PARTS WELDED BY TECHMETA

## MEDARD MACHINE – ROCKET PROPULSION PALLET

**TECHMETA**  
GROUPE Bodycote



### MAIN FEATURES

- Chamber volume : 500 x 500 x 500 mm,
- Worktable : 220 mm travel,
- Ultimate vacuum level :  $8 \cdot 10^{-5}$  mbar,
- Working distance : 50 to 500 mm

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

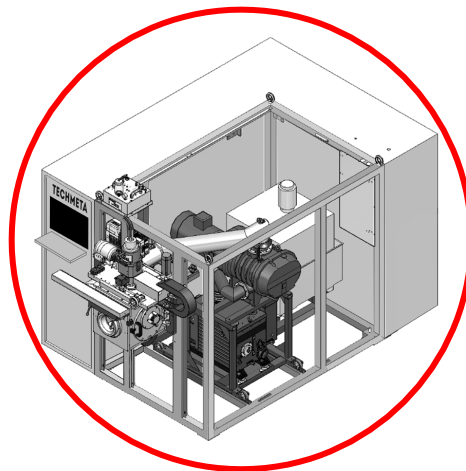
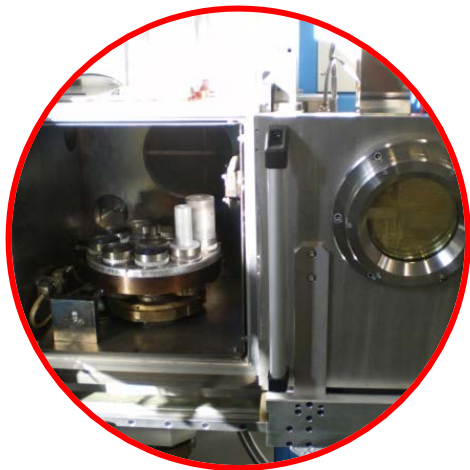
SPECIFIC  
MACHINES



# PARTS WELDED BY TECHMETA

## MEDARD MACHINE – ROCKET PROPULSION PALLET

**TECHMETA**  
GROUPE Bodycote



### MAIN FEATURES

- Welding chamber : 500 x 500 x 500 mm,
- Chuck in 9 posts,
- Double control unit,
- Horizontal shot gun.

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

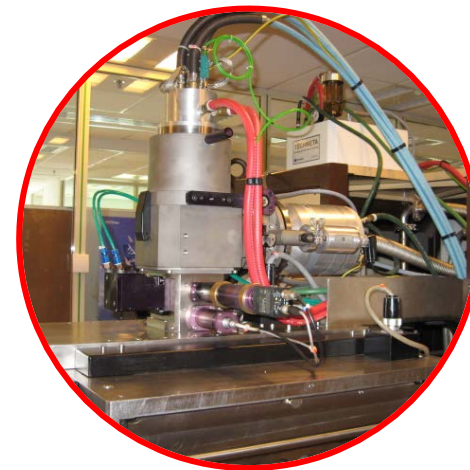
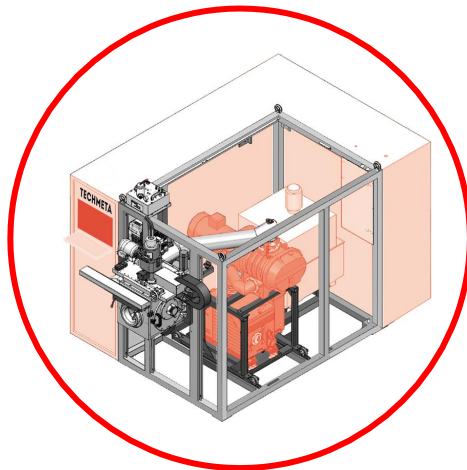
OUTSOURCING  
DEVELOPMENTS

SPECIFIC  
MACHINES

# PARTS WELDED BY TECHMETA

## MEDARD MACHINE – ROCKET PARTS

**TECHMETA**  
GROUPE Bodycote



### MAIN FEATURES

- Delivery : 1992,
- 2 upgradations (last one : 2015),
- Welding chamber : 500 x 500 x 500 mm,
- X-Y gun displacement : 200 mm,
- Adaptable machine,
- Material : stainless steel,
- Weld penetration : 1-2 mm,
- Part dimensions:
  - Diameter : 50 mm,
  - Length : 120 mm.

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

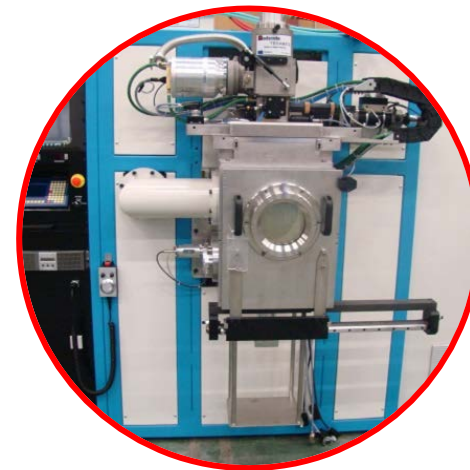
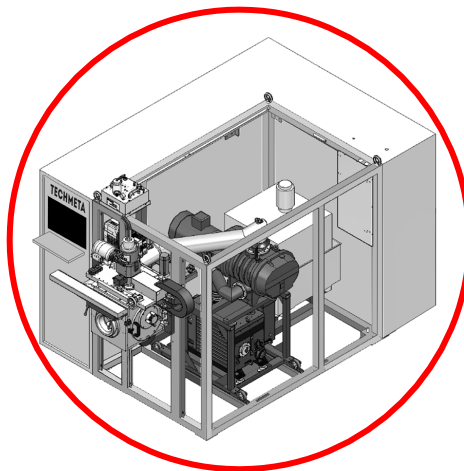
OUTSOURCING  
DEVELOPMENTS

SPECIFIC  
MACHINES

# PARTS WELDED BY TECHMETA

## MEDARD MACHINE – PERFORATING SHELL

**TECHMETA**  
GROUPE **Bodycote**



### MAIN FEATURES

- Double broche mandrel,
- Gun movement,
- Table,
- Welds copper and aluminium.

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

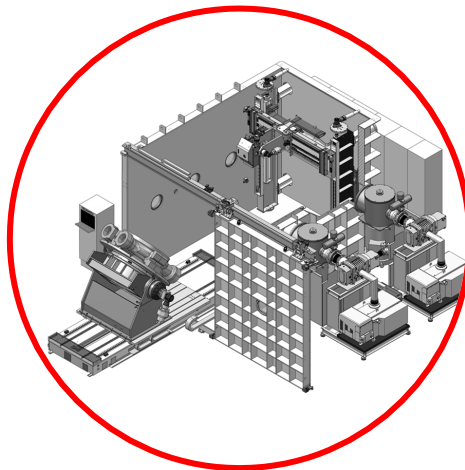
OUTSOURCING  
DEVELOPMENTS

SPECIFIC  
MACHINES

# PARTS WELDED BY TECHMETA

## GENOVA MACHINE – MISSILE

**TECHMETA**  
GROUPE Bodycote



### MAIN FEATURES

- Welding chamber : 5000 x 3000 x 3500 mm,
- Maximum loading capacity : 5000 kg,
- Worktable dimension : 3000 x 2000 mm
- 4 mechanical axis : X, Y, Z, C
  - X motion : 1600 mm,
  - Y motion : 1500 mm,
  - Z motion : 1500 mm,
  - C maximum rotating diameter : 2500 mm.

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

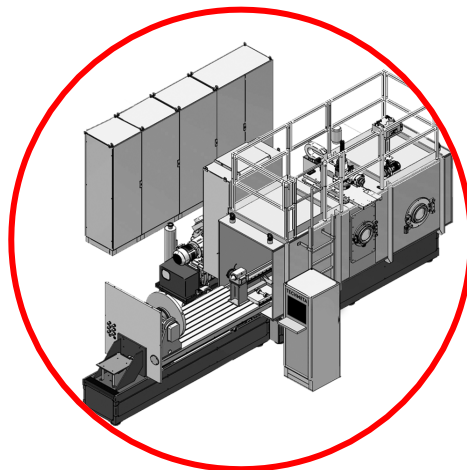
OUTSOURCING  
DEVELOPMENTS

SPECIFIC  
MACHINES

# PARTS WELDED BY TECHMETA

## LARA MACHINE – TANK PINIONS

**TECHMETA**  
GROUPE **Bodycote**



### MAIN FEATURES

- X axis : 200 mm,
- Working distance : 50 to 400 mm,
- Chamber volume : 375 L,
- Viewing system.
- Welding thickness: 17 mm,
- Maximum penetration in steel: 20 mm at 1 m/min.

DEFENCE  
EXPERTISE

THE PARTNER OF  
YOUR PROJECTS

OUTSOURCING  
DEVELOPMENTS

SPECIFIC  
MACHINES

# OUR EB SOLUTIONS MEET ALL YOUR CHALLENGES WHAT WILL BE YOURS?

36

35 YEARS OF  
EXPERTISE

10

ABILITY TO  
WELD OVER 10  
PARTS FOR THE  
SECTOR

20

OVER 20  
MACHINES  
AROUND THE  
WORLD



THANK YOU FOR  
YOUR ATTENTION

ANY QUESTIONS?

OUR EB SOLUTIONS MEET ALL YOUR CHALLENGES

**ELECTRON BEAM WELDING**