

Orbital systems
 Launchers
 Satellites
 Transversal competencies



French SME: More than 50 years as **subcontractor expert in custom hermetic sealing & hermetic interconnections** for harsh environment (pressure, intensity, tension, temperature, etc...) and **Pure Gold Electroplating** for space environment.

Design and production of prototypes, small and medium series, **based on customer technical specifications.**
 Small size of pieces (Ø 0,2 mm up to 150 mm)

COMPETENCIES & CAPABILITIES

- **Glass to Metal seal** (including dilver P1 (kovar) and titanium) and **high and low temperature brazing** (ceramic, sapphire, etc...)
- Hermeticity: **Leak rate less than 10^{-8} mbar.l/s**
- Electric isolation: Isolation resistance over 10 GΩ
- Breakdown voltag : from 500 to 3000 V
- Pressure: up to **3000 bars**
- Operating temperature: **from -180°C to +300°C** (according to coating)
- Precious metal electroplating process; Our expertise: Selective custom work (savings), total deposit. Expert in high thicknesses in gold plating (up to 100µm) and silver plating (up to 500µm)

Glass to metal sealing & brazing are complementary technologies

Supercam LASER

Sapphire window brazed on Titanium



Glass to metal sealing interconnection 18 pin hermetic feedthrough

MICRONOR

PRODUCTS & SERVICES

- Products : feedthroughs, electronic packages, sensors, relay bases, connectors, isolators, igniters bases,
- Base and **Precious metal electroplating processes** (gold, silver) and common metal (tin, copper) for industrial applications (space, defense, etc...) – specific **99.99% pure gold electroplating** process for space application

Alkaline copper plating & Acid copper

Nickel-plating sulfamate & Bright Nickel

Silver plating

Direct gilding on stainless steel

Gilding (indirect) on molybdenum

Cobalt doped gold; Nickel doped gold, Pure space gold, 18K alloy gold

Tin-Lead & pure Tin

MAJOR SPACE PROJECTS & REFERENCES

- Hermetic brazing of the sapphire window for the perseverance's chemcam & lasercam (Thalès)
- Hermetic 18 pin feedthroughs connectic plate for the rover Perseverance
- Hermetic feedthroughs for pyrotechnic systems of Ariane 5 &6 rocket (Dassault)
- Gold electroplating for aluminium parts (Mirion,TAS)

POINT OF CONTACT

ADDRESS 62 boulevard de Beaubourg
77184 Emerainville – France

WEBSITE www.micronor.fr

PHONE +33 (0)1 60 17 60 60

POINT-OF-CONTACT Xuan DANG, technical partnership manager,
xuan.dang@micronor.fr, + 33 6 08 90 35 53

TURNOVER 9 M€

WORK FORCE 48

SPACE TURNOVER 2 M€

SPACE WORK FORCE 22