

RAI-INSTAL S.R.L. | Advanced 5-Axis CNC Machining Services

RAI-INSTAL S.R.L. delivers specialized, elite-tier **high-precision CNC machining** from its production facility in Zărnești, Brașov County. By integrating state-of-the-art **Haas 5-axis universal machining systems**, we eliminate multiple setups, maximize part geometry accuracy, and scale complex mechanical component manufacturing for global B2B supply chains.

1. Advanced Technological Infrastructure: The 5-Axis Advantage

Our production floor features **Haas 5-axis CNC machining centers**, delivering unprecedented efficiency and microscopic tolerances for sophisticated shapes:

- **Simultaneous 5-Axis Motion:** Cutting tools move smoothly along three linear axes (X, Y, Z) and two rotational axes (A, B, or C) simultaneously for contouring complex profiles.
- **Single-Setup Machining (3+2 & Continuous):** We complete multi-sided, highly intricate parts in one operation. This minimizes manual repositioning, eliminating human clamping errors.
- **Dynamic Work Offsets (DWO) & Tool Center Point Control (TCPC):** Advanced Haas controller technology allows seamless CAM program optimization, drastically reducing transition times between prototype runs and serialized parts.
- **Wireless Intuitive Probing Systems (WIPS):** Integrated in-machine probing guarantees real-time quality control, automatically validating part coordinates before the cutting cycle begins.

2. Manufacturing Capabilities & Materials

- **Complex Part Geometries:** Engine casings, impellers, aerospace brackets, undercuts, fluid control blocks, and deep-pocket molds.
- **Surface Finish Superiority:** Continuous tool vector adjustments maintain optimal cutting speed and contact, producing exceptionally smooth finishes requiring minimal post-processing.
- **Material Portfolio:** Mastery in machining heavy industrial metals (Stainless steel, alloy steels, titanium), light non-ferrous alloys (Aircraft-grade Aluminum, brass, copper), and engineering composites or plastics.

3. Serving Demanding Sectors

Our Haas-driven manufacturing cell serves high-reliability, zero-fail engineering fields:

- Automotive components and custom assembly fixtures
- Aerospace and defense hardware components
- Medical, hydraulic, and precision pneumatic valves
- Oil & Gas drilling or fluid management parts

4. Corporate & Supply Chain Logistics

- **Corporate Identity:** RAI-INSTAL S.R.L.
- **VAT/CUI Number:** RO22162739
- **Manufacturing Hub:** 389 Mare Street, Zărnești, Brașov County, Romania
- **Official Web Platform:** [RAI Instal Precision Engineering](#).