

Solid Electron EPC & Intelligence: Smart Construction of Industrial Infrastructures

Next-Generation Turnkey (EPC) Solutions for Large-Scale Cryogenic, Oil, Gas, and Chemical Facilities

"The Power of Mechanics Meets Digital Intelligence Under One Roof."



Redefining the Traditional EPC Model

Industrial gas, petrochemical, and liquefied energy facilities are massive investments. In traditional projects, mechanical manufacturing is given to one company, piping to a subcontractor, and automation to a completely different software company. This fragmented structure leads to integration crises, security vulnerabilities, and operational inefficiencies.

The Solid Electron Difference

We are not a standard EPC company; we are an integrated technology and engineering company operating with the "EPC-A" (Engineering, Procurement, Construction + Automation) model, personally coding the digital brain of the heavy steel infrastructure we produce.

Why Are We Different?

By bringing steel and code together at the same table, we offer investors **zero integration errors** and **100% accountability**. We don't just build facilities; we establish measurable, Industry 4.0 compliant, autonomous industrial ecosystems.



Solid Electron Difference: Single Point of Accountability

 SINGLE POINT OF CONTACT



Seamless Integration

From the design table to the moment the first gas is pressed, the entire process is under the control of a single project management team.



Speed and Cost Advantage

By running mechanical manufacturing and software development processes in parallel, project delivery times are shortened, and unexpected integration costs are eliminated.



Performance Guarantee

Since we also develop the software for the hardware we build, we have full control over the thermodynamic and physical behavior of the system.

Our Turnkey Scope

Turnkey Project Process



STEP 1 / 4

Engineering

A successful facility is won at the design desk, not in the field. Our multidisciplinary engineering team models the entire project lifecycle according to international standards (ASME, API, EN, ISO).

1

FEED

Conceptual design, feasibility studies, and budgeting.

2

Process and Instrumentation (P&ID)

Detailed thermodynamic modeling, computational fluid dynamics (CFD) analyses, and smart control philosophy development.

3

Energy and Efficiency Optimization

Process improvements to minimize the facility's OPEX costs. We develop specific engineering solutions that uncover up to **60% energy savings** potential in processes through analyses of pumps, compressors, and rotating equipment.

4

3D Modeling and Clash Analysis

Error-free projection of piping, equipment placement, and cable trays via digital twin.

Procurement & Manufacturing

STEP 2 / 4

We don't leave the supply chain to chance. We manufacture critical heavy equipment in-house and bring the highest quality components to the field with our global partner network.



Heavy Mechanical Manufacturing

Large volume cryogenic storage tanks (LOX, LIN, LAR, LNG, LH₂), LPG sphere tanks, ammonia and jet fuel storage units.



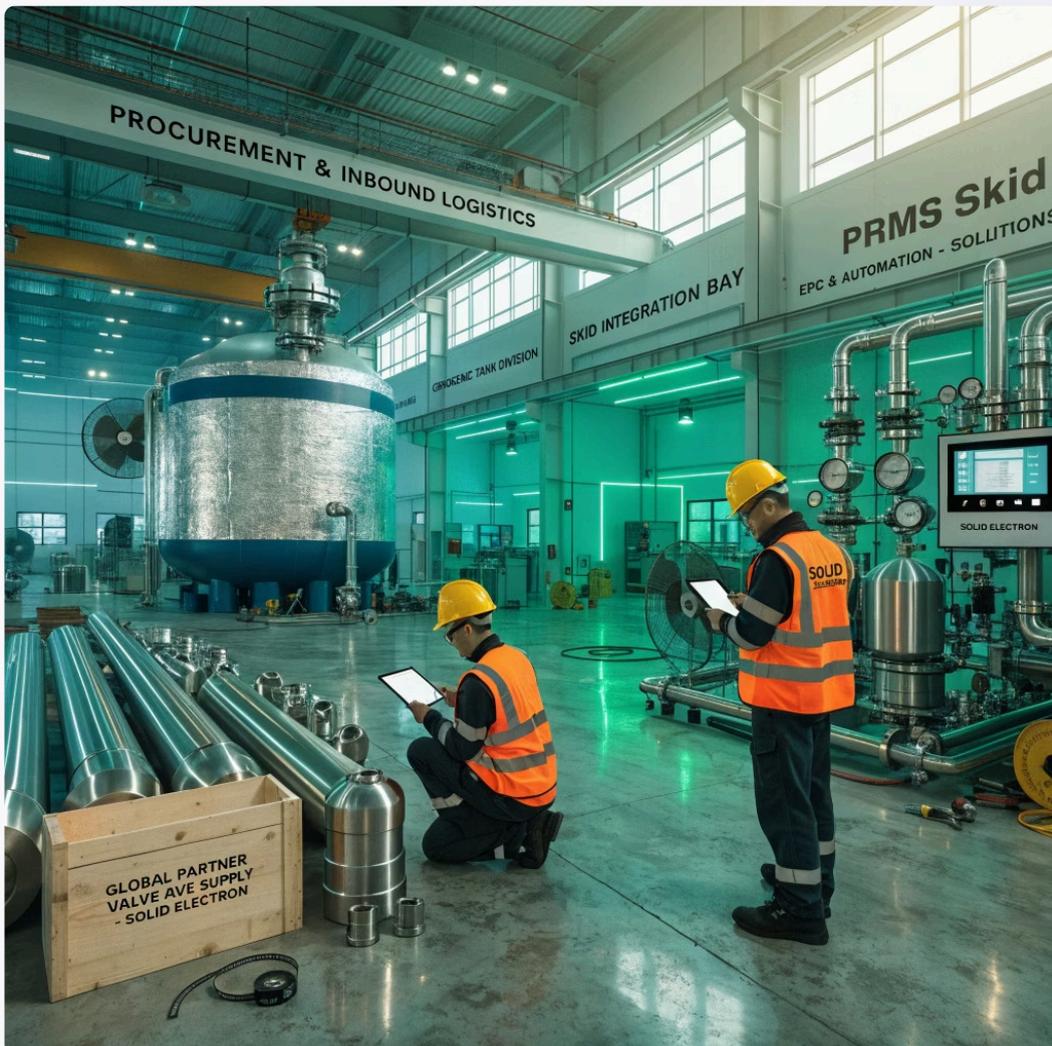
Modular Skid Manufacturing

Pre-assembled and tested pump skids, vaporizer units, and metering (PRMS) stations manufactured in our factory to minimize welding and assembly time on site.



Global Supply Management

Project-specific, timely supply of the world's best Ex-proof instruments, valves, and automation hardware.



Construction

STEP 3 / 4

We go to the field in different geographies around the world, under the most challenging climatic conditions, with the goal of **zero work accidents**.

Construction and Structural Coordination

Foundation soil surveys, reinforced concrete works, and heavy steel structure installations.

Mechanical and Piping Assembly

Precise cryogenic lines, vacuum insulated pipes (VIP), high-pressure industrial gas lines, and non-destructive testing (NDT) processes.

Electromechanical and Instrumentation

Field cabling, installation of Ex-proof panels, MCC panels, and millimeter-accurate integration of instruments.



Our Turnkey Scope – Commissioning & Automation

STEP 4 / 4

The Solid Electron project doesn't end when the hardware is installed, but when the facility "wakes up." We draw our strength from the [Predixi SCADA](#) platform and our advanced automation philosophy.

Cold Tests and Loop Controls

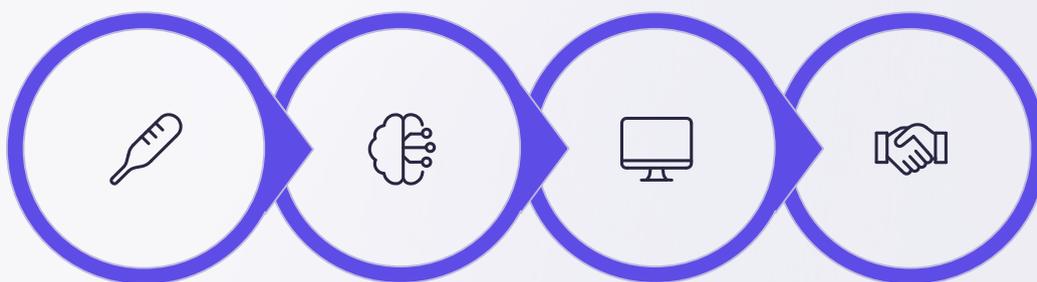
Verification of the system's mechanical and digital responses through extremely low temperature and high-pressure simulations.

Advanced Field Automation (PLC/SIS)

Redundant control architectures processing data with microsecond precision. Emergency Shutdown (ESD/SIL) scenarios that activate within seconds in case of possible leaks, fires, or pressure anomalies, without waiting for human intervention.

Central Monitoring and Handover

Real-time monitoring of all inventory, boil-off gas (BOG) rates, and operational efficiency through Predixi SCADA. Personnel training, As-Built documentation, and "Turnkey" operational handover.



Cold Tests

PLC/SIS
Automation

SCADA
Integration

Turnkey
Handover

Each stage builds upon the previous one, ensuring the facility reaches full operational capacity.

Critical Sectors We Serve

We specialize in heavy industry projects requiring high volume, maximum security, and uninterrupted continuity:

Cryogenic and Air Separation (ASU)

LOX, LIN, LAR, LHe, and LH₂ storage areas and distribution systems for the iron-steel, petrochemical, and medical sectors.

Oil, Gas, and Chemical Terminals

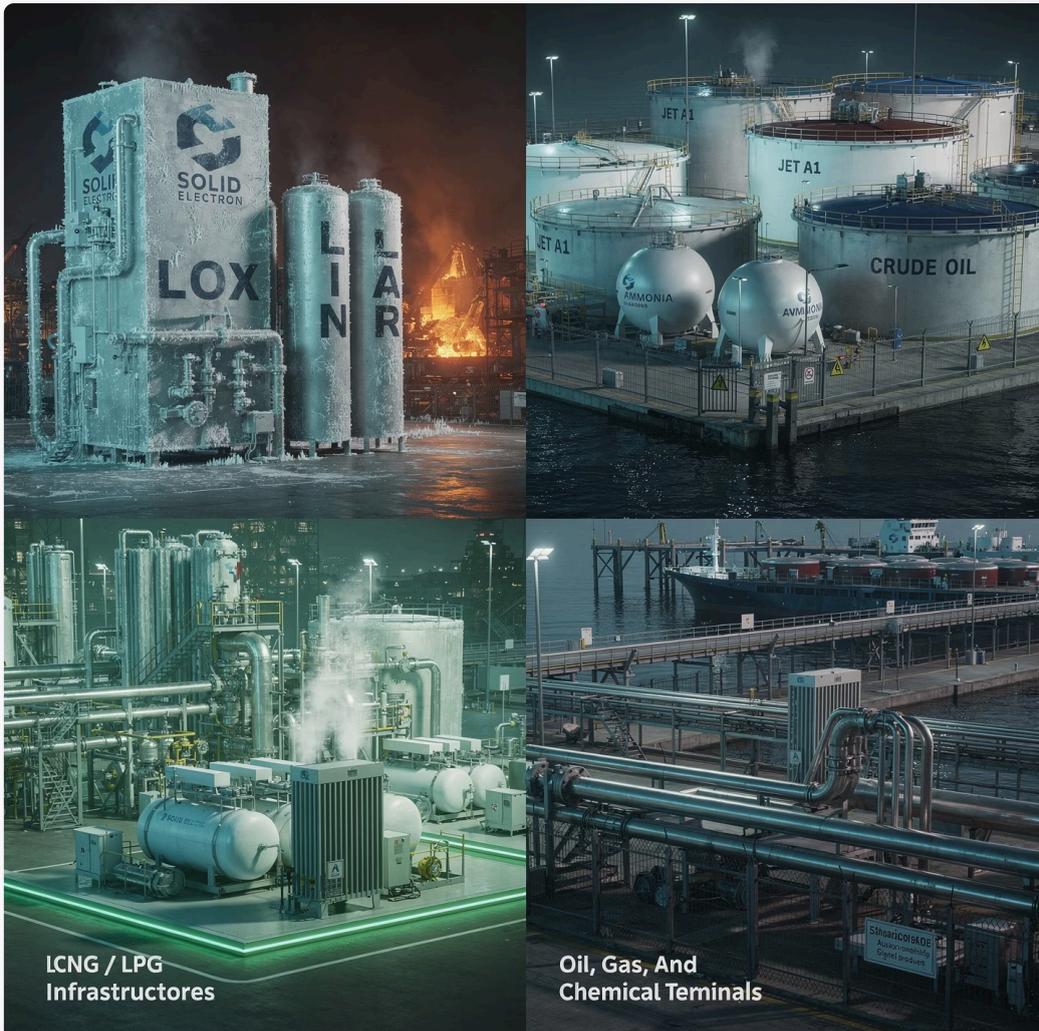
Massive tank farms, jet fuel facilities, storage of hazardous chemicals (Ammonia, etc.), and isolated transfer lines.

LNG / LPG Infrastructures

LNG satellite stations, regasification units, LPG spherical tanks, and fully automatic filling plants.

Energy and Natural Gas

Natural gas pressure reduction stations (RMS), large-scale pump and compressor stations.



Uncompromising Quality and HSE Policy

Occupational health, safety, and environment (HSE) is not a mere obligation for us, but a **corporate culture**. We build our facilities according to the highest engineering codes accepted by global authorities.



Design and Manufacturing Codes

ASME Sec. VIII Div.1/Div.2, API 650/620, EN 13458, EN 13530, AD 2000 Merkblatt.



Certification

Full integration with ISO 9001, 14001, 45001 quality management systems.



Risk Management

HAZOP, SIL analysis, and ATEX compliant ex-proof areas.

- HSE is not an obligation for us, but a **corporate culture**. We approach every project with a zero accident target.



Let's Build the Facilities of the Future Together.

Contact our expert engineering team to eliminate risks, reduce OPEX costs, and prepare your facility for Industry 4.0 in your heavy industrial infrastructure projects.

Solid Electron Control Technologies

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Contact Us

Visit Our Website

