



FUTURE GENERATION TECHNOLOGY

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CONSULTANCY SERVICES

— Engineering • Projects • Procurement • Plant O&M —

FERRO ALLOY PLANT – DESIGN, ENGINEERING & EXECUTION

Integrated engineering support from concept and basic engineering through detailed engineering, procurement support, construction, commissioning and performance stabilization.

FGT Consultancy Services provides engineering and project execution support for ferro alloy plants and associated facilities. Our scope can be structured around the complete project life cycle, with emphasis on practical plant design, constructability, equipment integration, site execution, commissioning and safe start-up.

DESIGN & ENGINEERING	PROJECT EXECUTION
<ul style="list-style-type: none">• Process flow and plant configuration• Furnace, transformer and electrical system engineering• Raw-material handling, batching and charging systems• Fume extraction, gas cleaning and pollution-control interfaces• Cooling-water, compressed-air and utility systems• Civil, structural, mechanical, piping and layout engineering• Electrical, instrumentation, automation and control philosophy• Equipment specifications, datasheets and technical bid support	<ul style="list-style-type: none">• Project planning and execution strategy• Procurement and vendor engineering coordination• Fabrication, erection and installation supervision• Mechanical completion and system-wise commissioning• Electrical energization and functional testing• Furnace start-up support and operating stabilization• Trial production, performance monitoring and handover• Shutdown / maintenance and plant improvement support

Typical Ferro Alloy Plant Project Flow

RAW MATERIAL RECEIVING & STORAGE	CRUSHING / SCREENING & BATCHING	FURNACE SMELTING	FUME EXTRACTION & GAS CLEANING	TAPPING & METAL/SLAG HANDLING	CASTING / COOLING	CRUSHING, SCREENING & PACKING
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Note: The exact process route, equipment configuration and engineering deliverables are selected according to alloy grade, furnace capacity, raw materials, product specification, environmental requirements and client standards.

Major Engineering Packages

Package	Typical Scope
Process & Technology	Mass/heat balance, process flow, furnace operating philosophy, tapping/casting route.
Mechanical	Equipment selection, material handling, conveyors, bins, feeders, furnace auxiliaries, cooling and piping.
Electrical	Power distribution, furnace transformer system, busbar/cable philosophy, MCCs, drives, protection and earthing.
Instrumentation & Automation	PLC/SCADA architecture, field instruments, interlocks, alarms, sequence and control philosophy.
Civil & Structural	Plant layout, foundations, furnace platform, equipment supports, buildings and structural steel interfaces.
Environment	Fume extraction, ducting, bag filter/gas cleaning interface, dust collection and monitoring provisions.

Execution & Commissioning Methodology

01 PROJECT PLANNING	Define scope, WBS, engineering schedule, procurement plan, construction sequence, resource plan and interface matrix.
02 ENGINEERING	Freeze process/design basis, issue drawings and specifications, coordinate multidisciplinary engineering and resolve interfaces.
03 PROCUREMENT SUPPORT	Prepare RFQ technical requirements, evaluate vendor offers, review drawings/documents and support inspection/expediting.
04 CONSTRUCTION	Coordinate civil, structural, mechanical, electrical and piping works; monitor quality, safety, progress and work fronts.
05 INSTALLATION	Equipment erection, alignment, piping, cabling, busbar systems, instrumentation, utilities and auxiliary systems.
06 PRE-COMMISSIONING	Inspection, flushing, testing, loop checks, motor solo runs, interlock checks, protection testing and punch-point closure.
07 COMMISSIONING & START-UP	System-wise commissioning, furnace auxiliaries start-up, controlled furnace start-up, tapping/casting system trials and process stabilization.
08 PERFORMANCE & HANDOVER	Trial production, operating parameter review, documentation, training/support and final handover against agreed project requirements.

Typical Ferro Alloy Plant Areas

• Raw-material yard, receiving and storage	• Crushing, screening, drying and sizing systems
• Batching, weighing and furnace charging	• Submerged Arc Furnace (SAF) with transformer, electrode system and furnace auxiliaries
• Fume extraction, ducting and bag filter / gas-cleaning system	• Cooling-water and utility systems
• Tapping, ladle handling and slag handling	• Casting, cooling, crushing, screening and product handling
• Electrical substation, MCC, drives and control room	• Laboratory, workshop, stores and plant infrastructure

Ferro Alloy Plant Capabilities

Engineering and execution support can be developed for ferro alloy projects such as FeSi, SiMn, HC FeMn and other submerged-arc-furnace based alloy plants, subject to the selected technology, capacity and client design basis. Services may be provided as complete project support or as individual engineering, procurement, construction-management, commissioning and plant-improvement packages.

ENGINEERING • PROJECTS • PROCUREMENT • PLANT O&M;
Practical, multidisciplinary support for ferro alloy plant development, execution, commissioning and operational improvement.

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