THE COMPANY TARGET

The Company target is to offer its service to Clients involved in developing new projects or in the production field such as Power, Cement, Desalination and Petrochemical Plants, Float glass industry, Refineries and any kind of Industrial Plants where chimney and refractory linings are requested. The North African, Middle Eastern, Far Eastern and American market.

COMPANY ACTIVITIES

The Company activities are based on four product lines:

1. Chimneys repair works
2. New chimneys works
3. New refractory works
4. Refractory repair works

1. NEW CHIMNEYS WORKS

Chimneys and Refractories International S.r.l. (CRInt) is specialized in turn key project as EPC Contractor for Chimneys of Industrial Plants.

The Company has the capability to develop the Engineering, to Produce all the necessary materials and to Construct Reinforced Chimneys with mono or multi-flue internal liners of different nature (steel, brick, FRP), with different kind of internal protections whenever required (anti-acid concrete, borosilicate or flake lining, Hastelloy or Titanium cladding) and also with borosilicate protection directly applied on concrete windshield.

CRInt is also capable of running EPC contracts for reinforced concrete tall structures such as telecommunication towers, highway piers, silos, suspended water tanks, etc.

ENGINEERING

The company can provide:

A) Thermofluodynamic design for:
   - Optimisation of diameters and durations on the basis of:
     - Flue gas design, required pressure at interface duct/liner transition piece between external duct and chimney liner
     - Flue gas velocity (wet or hot stacks)
   - Pressure profile along the chimney
   - Temperature profile through chimney components and relevant stresses in steady and transient conditions
   - Ventilation of inner space through natural/forced draft
   - Loss of temperature along chimney height
   - Quantity and aggressivity of condensates, if any

B) Structural design according to recognised International Standards and local design codes for:
   - Reinforced concrete foundations and piling
   - Reinforced concrete windshields
   - Reinforced concrete or steel platforms for liners guide and support
   - Freestanding and sectional anti-acid brick liners
   - Top hung / bottom supported steel liners
   - Heavy lifting systems equipment
   - Provisional working platforms and decks for new constructions

Procurement

Selection of the construction materials suitable for the operating service conditions, purchase and delivery to the working site.

Construction

A) Construction at site using qualified team and equipments for:
   - Slipforming, concreting, steel reinforcement installation and wood forms construction / assembling under patent of GLEITBAU Ges.m.b.H Salzburg - Austria
   - Construction of internal brick liners using suspended working platforms
   - Installation of internal brick liners using suspended working platforms certified by authorities or fabrication of internal steel liners and assembling at ground level
   - Heavy Lifting of internal concrete slabs, steel platforms and steel liners using hydraulic jacks under patent of GLEITBAU Ges.m.b.H Salzburg - Austria
   - Installation of auxiliary items such as lightning and lighting system, Aircraft Warning Lights, Drainage system, Expansion joints, Personnel Elevator
   - Painting of outer surface of the concrete shell

B) Supervision at site, start up procedures and commissioning.
2. CHIMNEY REPAIR WORKS

Inspections, ordinary and extraordinary maintenance and upgrading of existing industrial chimneys.

For such works the Company can provide:

A) Revamping and repowering design for:
   - Re-sizing of liners on the basis of new operating conditions
   - Definition of anti-acid / thermal protection of liners according to the new operating conditions by calculation of the modified thermal profile through all chimney components
   - Control of liners internal pressure along flue gas path
   - Control of ventilation efficiency under the new operating conditions

B) Structural design verifications for:
   - Stability and structural capacity of windfield and liners under operating conditions
   - Chimneys retrofitting under new design or change of operating conditions
   - Repair works on the basis of inspection reports including recommendations and maintenance programs
   - Provisional access facilities to elevated working areas according to local design codes and safety regulations
   - Vibration analysis and check of resonance of existing structures with detailed monitoring reporting and proposal for suitable repair solutions

C) Selection of the construction materials suitable for the operating service conditions

D) Construction at site using qualified team and equipments for:
   - Dismantling and lowering of heavy structures and lifting of the new ones under patent of GLEITBAU Ges.m.b.H Salzburg - Austria
   - Internal brick liners and steel liners maintenance

E) Supervision at site, start up procedures and commissioning

F) Video Inspection of the internal Chimney Liners during Plant Shutdown by means of Digital Camera and Reporting of the conditions encountered

G) Re-sizing of liners on the basis of new operating conditions
   - Definition of anti-acid / thermal protection of liners according to the new operating conditions by calculation of the modified thermal profile through all chimney components
   - Control of liners internal pressure along flue gas path
   - Control of ventilation efficiency under the new operating conditions
   - Stability and structural capacity of windfield and liners under operating conditions
   - Chimneys retrofitting under new design or change of operating conditions
   - Repair works on the basis of inspection reports including recommendations and maintenance programs
   - Provisional access facilities to elevated working areas according to local design codes and safety regulations
   - Vibration analysis and check of resonance of existing structures with detailed monitoring reporting and proposal for suitable repair solutions
3. NEW REFRACTORY WORKS

Refractory lining with bricks, concrete, fibers for Boilers, Furnaces, Reactors, Cyclones, Ducts of Power Plants, Cement Acid resistant linings, resin and film membranes lining, thinning compounds for floors and basins protections for any kind of industrial plants.

For such works the company can provide:

A) Design for:
- Insulating and refractory linings in accordance to the specification issued for each project including detailed construction drawings and bill of materials
- Thermal calculations based on specified operating conditions

B) Selection of the construction materials suitable for the operating service conditions:
- Definition of lining composition according to the above thermal calculations
- Selection of suitable refractory materials, steel supports and anchors according to material properties and imposed operating conditions

C) Construction at site using qualified team and equipments:
- Brick lining installation by wide experienced team
- Abrasion resistant linings applied by hand packing method
- Refractory and abrasion resistant linings applied by vibracasting method
- Insulating and refractory linings applied by gunning / shotcreting method
- Ceramic fibers lining installation

D) Supervision at site, start up procedures and commissioning:
- Planning of site activities
- Brick lining installation by wide experienced team
- Abrasion resistant linings applied by hand packing method
- Refractory and abrasion resistant linings applied by vibracasting method
- Insulating and refractory linings applied by gunning / shotcreting method
- Ceramic fibers lining installation

4. REFRACTORY REPAIR WORKS

Insulations, ordinary and extraordinary maintenance and upgrading of Boilers, Furnaces, Reactors, Cyclones, Ducts for Power Plants, Cement and Petrochemical Plants and Glass Industry.

For such works the company can provide:

A) Selection of the construction materials suitable for the operating service conditions:
- Definition of lining composition according to the client's specifications
- Selection of suitable refractory materials, steel supports and anchors according to material properties and imposed operating conditions

B) Construction at site using qualified teams and equipments:
- Planning of site activities
- Brick lining installation by wide experienced team
- Abrasion resistant linings applied by hand packing method
- Refractory and abrasion resistant linings applied by vibracasting method
- Insulating and refractory linings applied by gunning / shotcreting method
- Ceramic fibers lining installation

C) Supervision at site, start up procedures and commissioning.
SPECIALIST ASSOCIATIONS

The Company retains its membership of CICIND (International Committee on Industrial Chimneys) and provides a wide knowledge of the design Standards developed under this worldwide association.

Members of the Company have been an active part in developing the European Standard prEN 13084 - Free Standing chimneys drawn up CEN/TC 297.

DESIGN AIDS AND FACILITIES

Computer aided facilities and in-house softwares are used for detailed design, static and dynamic analysis of tall structures and finite elements components like foundation slabs, windshield, steel frames, concrete slabs.

The engineering expertise from a wide range of case histories studies and design optimization process provides its benefits to construction oriented and cost saving design solutions.

QUALITY CERTIFICATION

The Company policy is the “Client satisfaction” to be achieved operating under an accurate QA/QC system starting from the QA Manual and detailed project Quality Plan that consider all the project phases from contract review, work program, design verification and approval, suppliers qualifications, quality control plans during construction up to the preparation of the final dossier.

The Company is certified according to UNI EN ISO 9001 : 2000 since December 2006.
Chimneys and Refractories International S.r.l.

The company was established in September 2004 by a group of professional people with deep experience in design construction of industrial chimneys, reinforced concrete tall structures, freestanding steel chimneys, refractory and antiacid linings.

The expertise of the team gained from many years of environment in large scale Projects offers to the Client a professional and valuable service both in engineering and construction areas.

The aim of the Company is to support the Clients with cost effective solutions reflecting the highest standard of the most recent technology specifically applied in the fields of chimney design and construction.

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Stock Capital € 2.000.000,0

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**CERTIFICATE ISO 9001:2008**

**CERTIFICA TE ISO 9001:2008**

**CERTIFICA TE OHSAS 18001:2007**