SINOMA
中国中材

俄罗斯FER项目
The Russia FER project

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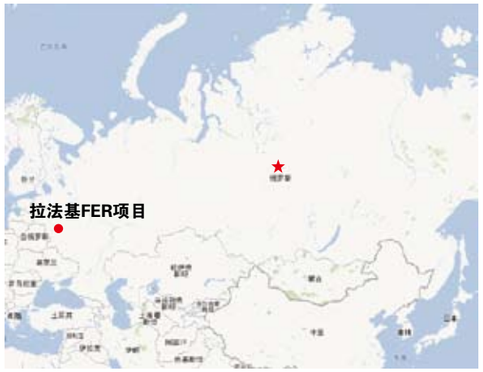
THE RUSSIA FER PROJECT

俄罗斯FER项目

sinoma 中国中材

▲ 俄罗斯国旗
Flag of Russia



▲ 项目所在位置
Project location

工程技术特点：

设计采用俄罗斯标准(不含工艺)，项目施工图执行当地设计机构转化及签章程序；设备国产化率高；设计和供货适应当地低温环境；污水零排放，粉尘及硫氮氧化物排放均采用欧洲标准；使用可替代燃料(垃圾)。

Project engineering characteristics:

Except for process, the plant is designed in strict accordance with Russian requirements. All drawings have to be adapted and stamped by local accredited engineering office. Most of the mechanical & electrical equipment come from Chinese manufacturers. Not only the engineering but also the equipment have to be fit for low-temperature working condition. In terms of environment protection, no sewage disposal is allowed and the emissions of dust, sulfur and nitrogen oxides have to be in line with European criteria. Moreover, the plant makes use of prepared wastes as one source of energy.

▲ 项目全景
Scene view

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1、项目概况 Introduction

拉法基俄罗斯FER项目新型干法生产线位于俄罗斯的卡卢加州，地处首都莫斯科西南约200公里处。该项目由法国拉法基集团投资新建，项目隶属拉法基俄罗斯OAO水泥公司，设计产能日产水泥熟料5000吨，年产水泥90万吨。中国中材旗下的原中材建设有限公司作为该项目主要承包商，于2010年5月与拉法基集团签订项目设计、供货、安装、调试服务合同。目前该项目的土建施工处于高峰期，安装工程已展开，预计14年2月点火投产。

该项目供货本土化比例较高，设备、钢结构和材料当地制造或供货超过1万吨，站项目供货总量40%。项目实施国际化程度也比较高，将有来自4个国家的承包商参与本项目建设。在这个项目上，业主计划实现俄罗斯境内同类项目，能源效率、安全施工、环保指标取得重大突破，吨碳排放量减少31%，能耗相当当地一半的水平。

Lafarge Russian FER project is for a new dry cement production line located in Kaluga state of Russian Federation, 200KM Southwest from the capital Moscow. The project is invested by the French group Lafarge and executed by its subsidiary OAO Lafarge Russia. The production capacity of the plant is designed for 5000TPD of clinker and 900KT per year of cement. The Contract is signed in May 2010 between Lafarge and SINOMA as the main contractor for design, supply, erection and commissioning. At present, the civil works enters into the peak time and the mechanical erection just starts. It is expected that the plant begins its production around February 2014. A large quantity of the plant equipment is purchased locally. In total, the supply of mechanical equipment, steel structure and other materials attains more than 10,000 tons which equals to 40 percent of the total supply volume. Moreover, the project is a great example of “melting pot” in which four contractors from four different countries take part in the project construction works. The objective of Lafarge is to have plant of low energy consumption, safety work and environment green compared to other similar projects. The CO_2 emission can be reduced by 31 percent while the energy consumption can be saved 50 percent compared to local requirement.

▲项目签字仪式
The project signing ceremony

▲拉法基高层参观项目现场
Visit of lafarge top management at site

2、项目建设节点 Project milestone

- 2010年7月8日，设计供货开工令（NTPep）
- 2012年6月1日，现场施工开工令（NTPc）
- 预计2014年2月1日，熟料线投产
- 预计2014年4月，熟料线IPT
- 预计2014年5月，水泥磨IPT
- 预计2014年6月，获得业主颁发的PAC证书

- July 8th 2010, NTP for design and supply (NTPep)
- June 1st 2012, NTP for site construction (NTPc)
- February 1st 2014, first clinker expected
- April 2014, IPT clinker expected
- May 2014, IPT cement expected
- June 2014, PAC expected

▲现场制作
On-site production

▲目前现场进度
The current site progress

3、项目实施本土化管理 Localization in project management

结合俄罗斯特殊国家环境，和复杂的工程建设管理体系，在项目执行过程中，积极推动工程管理、项目供货本土化资源的利用。

1）、项目工程当地体系管理人才本土化

在设计、设备认证、施工资质及许可、工程资料和文件的方面，聘用熟悉当地体系的技术、管理人才，纳入sinoma项目管理体系：组建了以俄罗斯认证专家为核心的认证及设备文件专业小组，执行满足当地体系的供货设备文件编制和供货设备认证工作；聘用当地安全、机械、电气、钢结构工程师组成现场专家团队，在施工资质申请、各项许可、当地机构协调、执行当地施工规范，当地工程文件制作等方面发挥主导作用；聘用俄籍物流工程师指导和编制满足俄罗斯物流体系的各项物流单据及技术资料，协调清关公司、内陆运输各项事务，以提高当地物流工作成效。同时，在设计、财税、法律咨询等方面与当地业务能力较强的服务公司签订专项服务合同，让当地人解决当地的问题，力求各项文件和施工活动满足当地的法律体系、技术体系、项目管理体系。

2）、项目供货本土化：

为提高当地供货采购本土化比例，项目规划供货范畴内的当地采购或制造总量将到达10150吨，重量占供货总量的40%。这不仅减小了计量设备当地认证风险，减小了钢结构及非标材料当地符合性风险；同时大幅度减少项目物流，有利于项目供货综合成本的控制。

In the consideration of the special country background in Russia and the complicity of the project construction management, we have encouraged making use of local rich resources in terms of project management and equipment supplies all along our construction works.

1) local human resources in management team

We have employed a team of technical and project management experts to be engaged in Sinoma project management system in various areas like engineering, equipment certification, construction permission, and construction documentation preparation. For instance, we have organized a team leading by Russian certification experts focusing on equipment technical documentation collection for different Russian certifications; moreover, we have also had another team of engineers to be in charge of safety, mechanical, electrical and steel structures erection. They have played an important role in obtaining the construction permits and other various certificates as well as in the coordination with local government bodies and preparation of all project documentations in order to ensure that all works are in compliance with local regulations. In addition, our Russian logistic expert has provided great assistance in the preparation of local customs clearance documents and collection of equipment technical data, communication with the customs agent and organization of the inland transportations, which helped improve the project logistic management. Meanwhile, we have signed service agreements with local well-known design office, and accounting and legal service providers. Our objective is to use local human resources to solve local problems, so that our project documentations and construction works can be fitted into Russian legal, technical and project management systems.

2) Equipment supply localization

We have planned to purchase or manufacture in Russia around 10150 ton of equipment which equals to 40% of the total equipment weight for the whole project. To increase the volume of local purchasing is not only cost effective in terms of budget control but also helped minimize our risks in obtaining Russian equipment certificates especially for instrumentations and risks of local steel compliance.

4、主机设备详表 Main equipment specifications

序号 NO.	车间名称 Name of workshop	主机名称 Name of equipment	型号、规格、性能 Type/Specification/Performance	数量 (台) Quantity (set)	功率 (Kw) Power(KW)
1	原料破碎机储存 Raw material crushing and storage	石灰石破碎机 Limestone crusher	型号Type: LPC1020D18 规格：锤式破碎机 Specification: Hammer crusher 破碎能力Curshing capacity: 900t/h	1	2*630
		粘土破碎机 Clay crusher	型号Type: WS14/20 规格：辊式破碎机 Specification: Roller crusher 破碎能力Crushing capacity: 900t/h	1	2*315
		石灰石堆取料机 Limestone stacker and reclaimer	堆取料机型号Type of stacker & reclaimer: SRC120 规格：圆形堆取料机 Specification: circular 堆料能力Capacity of stacking: 1080 t/h 取料能力Capacity of reclaiming: 500 t/h	1	堆料皮带功率：75 取料刮板功率：90 Power of Stacking belt: 75 Power of reclaiming scraper: 90
		粘土堆取料机 Clay stacker and reclaimer	堆料机型号Type of stacker: STKP 24/1200 取料机型号Type of reclaimer: BEL C 200/17 规格：长形堆取料机 Specification: linear 堆料能力Capacity of stacking: 2*1080 t/h 取料能力Capacity of reclaiming:150 t/h	2 stacker & 1 reclaimer	
2	原料粉磨及废气处理 Raw material grinding and dust treatment	立式磨 Vertical roller mill	型号Type: MPS 5000/ 5300 B 生产能力Capacity: 400 t/h	1	3000
		原料磨风机 Raw mill fan	风量Gas flow: 1100000 m^3/h 全压Full pressure: 10500Pa	1	4500
		窑尾废气处理袋收尘 Upstream dust collector	处理风量Operation gas flow:1094400 m^3/h 过滤面积Filtration area: 18543m^2 出口含尘浓度Dust density at outlet: ≤30mg/Nm^3	1	
		废气处理风机 Final fan	风量Gas flow: 1450000m^3/h 全压Full pressure: 3340Pa	1	2240
3	烧成系统 Burning system	预热器 Preheater	型号Type: 5000tpd 生产能力Capacity: 5000t/d	1	
		窑尾高温风机 ID Fan	风量Gas flow: 840000m^3/h 全压Full pressure: 8200Pa	1	2800
		回转窑 Rotary kiln	规格Type: φ5×74m 生产能力Capacity: 5000t/d	1	2*630
		篦式冷却机 Grate cooler	篦床面积Area: 121.48m^2 生产能力Capacity: 5000t/d	1	4*75
		热交换器 Heat exchanger	热交换面积Air-air exchange area: 6078m^2 入口风量Inlet gas flow: 383711 m^3/h 入口最高温度Inlet maxi. temperature: 450° C 出口风量Outlet gas flow: 359228 m^3/h 出口温度Outlet temperature: 200° C	1	热交换器风机功率 12*15KW Fan power of heat exchange: 12*15KW
4	水泥磨系统 Cement grinding system	辊压机 Roller press	型号Type: CLF170120-D-SD 生产能力Capacity: 550~747 t/h	1	2*1000
		水泥管磨 Cement mill	规格Type: φ4.2x14m 生产能力Capacity: 175 t/h	1	3800
		选粉机 Separator	型号Type: O-SEPA 生产能力Capacity: 175~220 t/h	1	250
5	包装系统 Packing system	包装机 Packing machine	型号Type: 6 RS-E 生产能力Capacity: 60 t/h	1	6*4kw
		码垛机 Palletizer	型号Type: SBQ1600 生产能力Capacity: 60 t/h	1	

5、友好往来 Friendly exchanges

◀ 为当地小学捐赠物品
Donated items for the local elementary school.

▲ 打雪仗
Snowball fights

◀ 堆雪人比赛
Snowman game

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