

the POWER of OSTIM about CEMENT PLANT



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OSTİM Industrial Investment & Business Inc. (Ostim Investment)

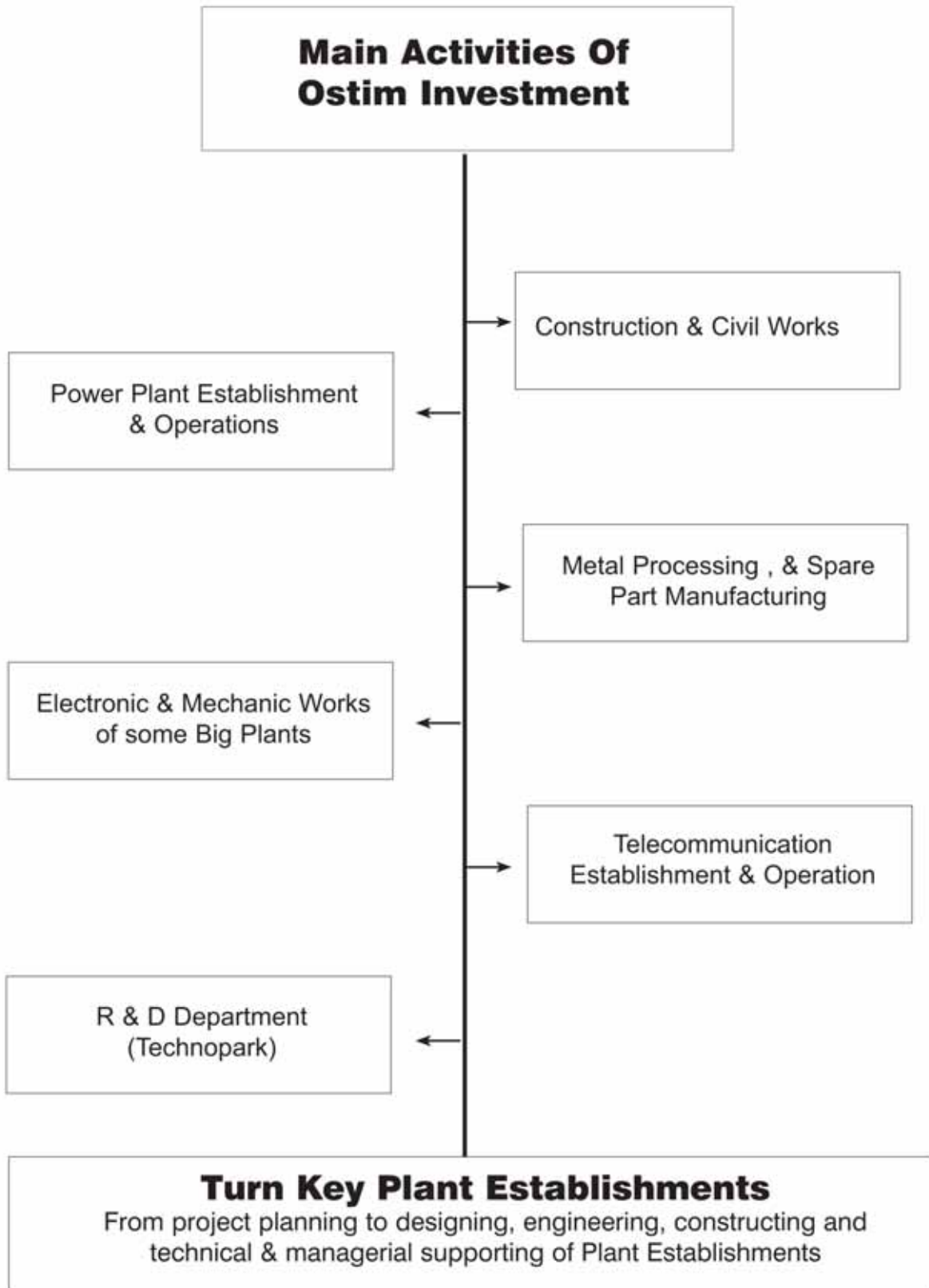
Ostim Investment was founded with the aim to establish a dynamic cooperation among 5.000 SMEs, which perform their activities in different business sectors in the Ostim SME's Industry Center, to realize the domestic and foreign projects and thus to increase the business capacity of Ostim.

Ostim Investment with 1,800 partners was founded in 1998 and maintains its activities under the supervision of the Capital Markets Board of Turkey.

Ostim Investment follows and implements domestic and international projects as a turnkey basis with the Ostim Manufacturer Companies.

While the projects are being implemented by manufacturer companies in Ostim Industrial Center, Ostim Investment establishes project based strategic business co-operations with them by providing the followings :

- ✓ Financial support (cash & non-cash)
- ✓ Management & organization support
- ✓ Working capital supply
- ✓ Project management
- ✓ Marketing support
- ✓ Technical Support





Some domestic buildings and business centers constructed by Ostim Investment.



Natural Gas Power Plant in OSTİM Industrial Center

Construction & Civil Works

Ostim Investment Construction Group works on Industrial Building Projects, Residential Building Projects, Infrastructure Construction Projects (sewage systems, road, electricity system, drinking water system, etc.)



Coal washing and packaging plant in Bursa



*Ostim Combined Cycle Gas Fired
Power Plant*

Power Plant Establishment & Operation

the Power Plant which was started to build by Ostim Investment in 2003 in Ostim Industrial Center and completed in 2004, Ostim produces required electrics for its companies and these companies use the electrics with a very competitive prices.

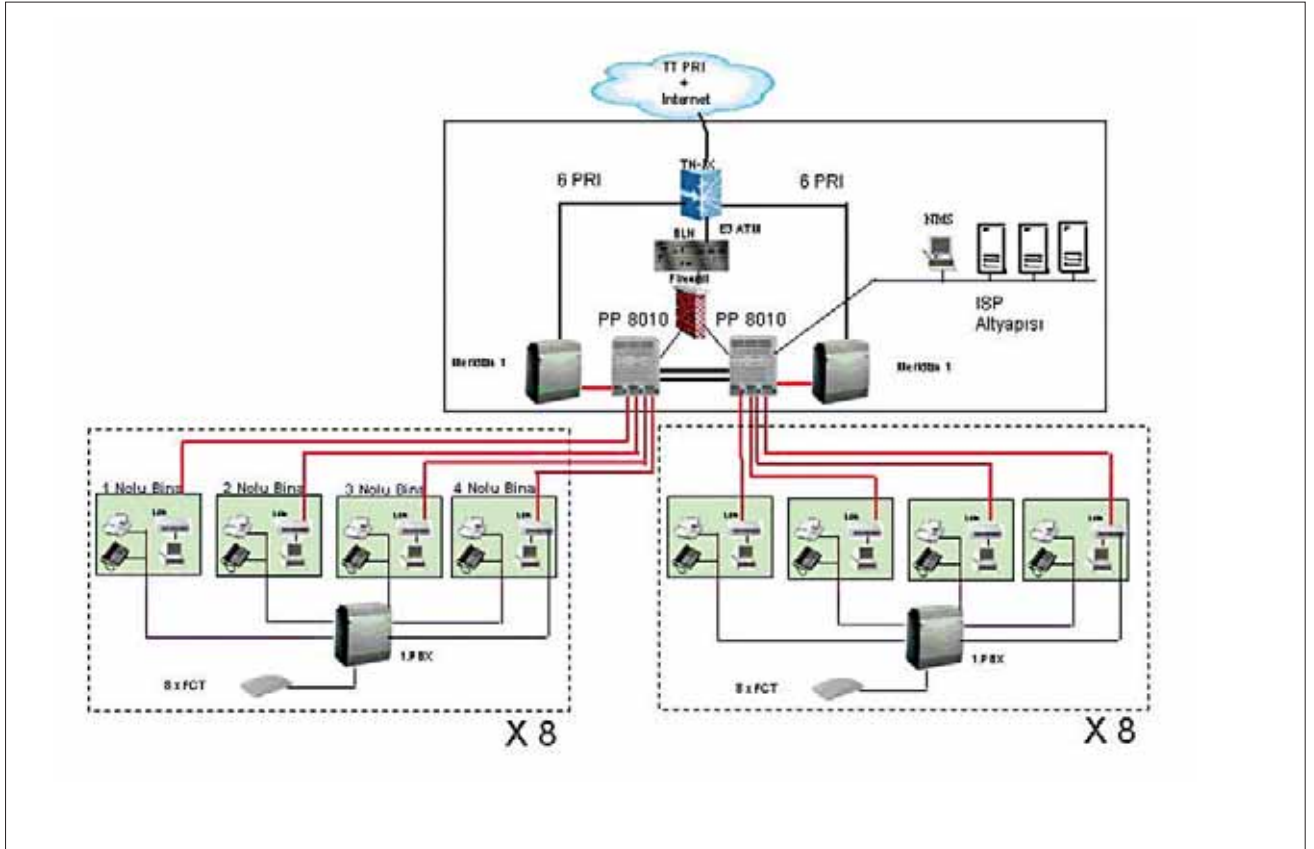
Total capacity of the plant is 50 MW



Metal Processing & Spare Part Manufacturing

A large kind of spare parts has been manufactured in Ostim Industrial Center by Ostim Investment. These parts has been used for different fields such as industrial plants, earth moving machines, construction machines etc.





Telecommunication Establishment & Operation

The Ostim Telecommunication Center established in 2005 by Ostim Investment is a joint venture project with Sabanci Telekom who is the second biggest group of Turkey .

The system serves in these 3 areas

- With its fiber/optic network that reaches 5000 SME's in the Ostim Industrial Area, it provides all of its SME's a high speed broad band internet at low cost in a local network..
- All the Ostim Enterprises and around 3000 houses near the area are able to use our SOUND Network and IP phones at low cost.
- In our F/O Network we have added value services area where we are able to sell software products through a hiring system. By this way the whole system is able to function under one network and bring a strong mainframe for developing an Artificial Factory.



Electronic & Mechanic Works of some Big Plants

- Engineering support
- Software maintenance
- Maintenance of industrial areas
- Industrial sensors
- Real time industrial monitoring packets
- Industrial computers
- Weighting system controllers
- Concrete indicator
- Weight indicators
- Weight transmitters
- Load cells



Ostim Technopark Center



R & D Department (Technopark)

Ostim Investment has an R&D Department to support the creation of synergy between the partners through activities increasing the cooperation among university, industry and another related sides and thus realize big projects.



Cement Plant Sections

SECTIONS OF A CEMENT PLANT

1. CLINKER PRODUCTION :

- 1.1. Crushing plant of raw materials,
- 1.2. Handling and storage,
- 1.3. Blending of raw materials,
- 1.4. Milling ,
- 1.5. Homogenizing
- 1.6. Raw meal storage ,
- 1.7. Clinker burning ,
- 1.8. Cooling ,
- 1.9. Transportation and storage ,
- 1.10. Fuel system,
- 1.11. Central control room and
- 1.12. All related civil engineering work.

2. CEMENT PRODUCTION :

- 2.1. Crushed gypsum and clinker handling,
- 2.2. Cement mill,
- 2.3. Cement transportation system,
- 2.4. Compressor house,
- 2.5. Cement silos and
- 2.6. All related civil Engineering works.

3. CEMENT PACKING, LOADING And BULK CEMENT LOADING :

- 3.1. Packing machines,
- 3.2. Automatic loading stations for bulk and packed cement,
- 3.3. Control room,
- 3.4. Weighing Bridges and
- 3.5. Related civil Engineering Works.

4. AUXILIARIES :

- 4.1. Work shops,
- 4.2. Laboratories,
- 4.3. Safety requirement including fire fighting and
- 4.4. Others.

5. CIVIL ENGINEERING WORK And UTILITIES :

- 5.1. Stores, road,
- 5.2. Yards, and
- 5.3. All other civil engineering works and utilities not included in other sections.

1. CLINKER PRODUCTION :

a. Crushing plant of raw materials :

a.1. Limestone and clay Crushing

In this scheme, the limestone and clay are crushed by a common hammer crusher, there are two feeding hoppers and two apron feeders in front of the crusher, which convey the limestone and clay respectively.

CRUSHER



a.2. Additive Materials (gypsum, iron ore) crushing and conveyor :

Additive Materials (gypsum, iron ore) are charged to the receiving hopper and then fed into the crusher by apron feeder with variable speed drive respectively, the additive materials are crushed by impact crusher into proper size. Crushed materials are conveyed to the additive materials preblending stockpile.

b. Handling and storage :

A longitudinal or circular limestone preblending stockpile is built with a several tons storing capacity. The mixture of limestone and clay are stored in preblending stockpile via side stacker. A bridge scraper reclaimer is employed. There are two stockpiles, one for stacking and other for reclaiming.



c. Blending of raw materials :

c.1. Raw Materials preblending:

A longitudinal or circular limestone preblending stockpile are built with a storing several tons capacity. The mixture of limestone and clay are stored in preblending stockpile via side stacker. A bridge scraper reclaimer is employed. There are two stockpiles, one for stacking and other for reclaiming. Preblended mixture is taken by the reclaimer and then conveyed to proportioning station via belt conveyer.



c.2. Additive Materials (gypsum, H.G.limestone, iron ore) preblending:

A longitudinal or circular preblending yard with several thousand tons storing capacity for gypsum, several thousand tons storing capacity for iron ore are built. A reclaimer is employed for reclaiming all additive materials. The iron ore and H.G. limestone are conveyed to raw materials proportioning bins by belt conveyer respectively. But the gypsum is delivered to the cement feeding proportioning station.

c.3.Raw Material Proportioning:

Four proportioning bins are planned in the raw materials proportioning station to store limestone & clay, H.G limestone, iron ore and standby. The materials are fed via the weighing feeder at the bin bottom according to the proportion ratio respectively. Bins and extraction are dedusted. The proportioned raw materials are conveyed via belt conveyer to raw mill. The chemical composition of the raw materials mixture are monitored by XRF analysis on samples taken at the mill outlet on a 30min max. time basis. On the basis of analysis results, raw meal composition are controlled through adjusted the weigh feeders.

d. Milling :

A roller mill or air swept with a high efficiency separator are used for raw materials grinding and drying.

In order to reduce the air velocity of nozzle cascade of the mill, finally reduce the system power consumption, the vertical mill system has outward cycle, the maximum outward cycle quantity can reach 30% the ground fine particle is carried by air to the cyclone separator and coarse particle is collected by the integrated separator and returned to mill for regrinding. The dust-laden air out of the cyclone separator is treated in a pulse jet bag house before being emitted into the atmosphere. The raw meal product captured in the cyclone separator is sent to the homogenizing silo. Space for a kiln dust silo and/or bin has to be provided to collect the bag house dust.



e. Homogenizing

Homogenizing silos are installed for blending and storing the raw meal before it is fed to the kiln system. In order to guarantee the silo blending effect. The raw meal product captured in the cyclone separator are transported by air slides and elevator and distributed evenly into the silo. Extraction from the bottom of the silos are via discharge air slides and dosing valves to the kiln feed bin. The fluidization/ extraction air is supplied from air blowers.



f. Raw meal storage :

The kiln feed bin is mounted on load cells, and a gravimetric metering system controls the flow of raw meal into the preheater. For an emergency stop of preheater feed and for start-up procedures, the preheater feeding elevator is equipped with a by – pass flap, which sends the raw meal back to the homogenizing silo.

g. Clinker burning :

Burning system is consist of preheater with precalciner, a rotary kiln, as well as a grate cooler.



h. Cooling :

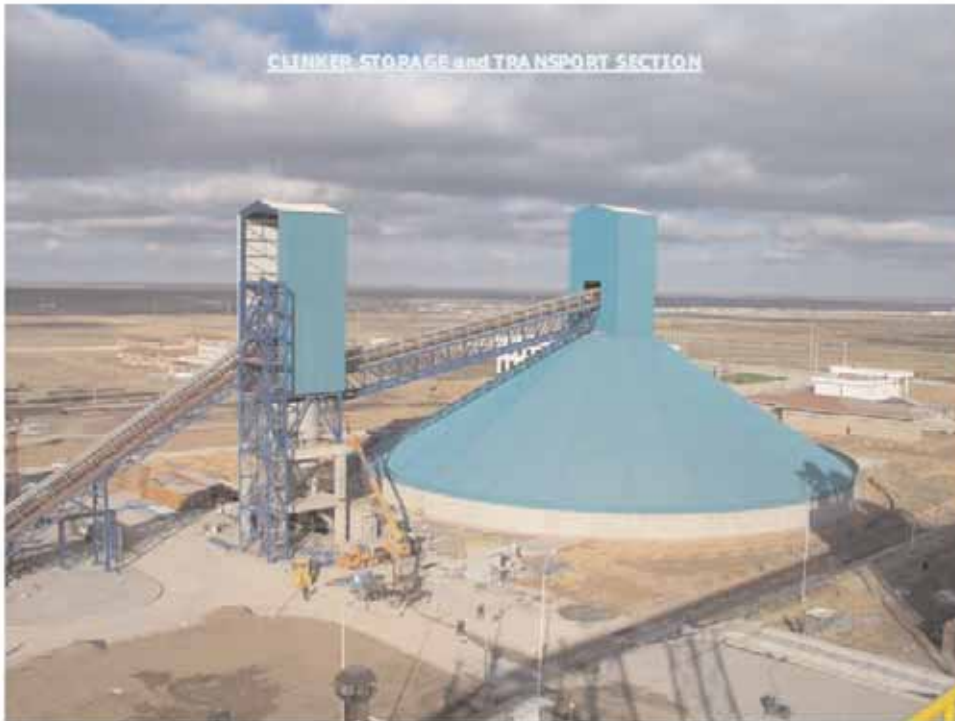
The cooler has three grates; the grid bed is moved by hydraulic system. The crusher which has the same width as the cooler grate is of hammer type and installed at the end of the grate. Water spray system within the cooler is also necessary for dedusting and in order to control the EP inlet temperature. Electrical equipment, a central lubrication group, etc of the cooler are included. The grate cooler and chain conveyer below the cooler chamber are installed above ground level. Cooler air fans are to be equipped with silencers and adjust valves.



i. Transportation and storage :

Covered circular clinker storage is used to store the clinker. The clinker storage has three extraction galleries with low speed belt conveyer below ground level.

The clinker out of the cooler is transported by the pan conveyor to the storage. The bag filter on the top of the storage is sized for the feeding by the pan conveyor and thermal air expansion in the storage. The clinker extracted from the storage is transported by belt conveyors to the cement proportioning. Necessary dedusting filters are designed at the chutes of clinker on to belt conveyors to the cement proportioning.



j. Central control room:

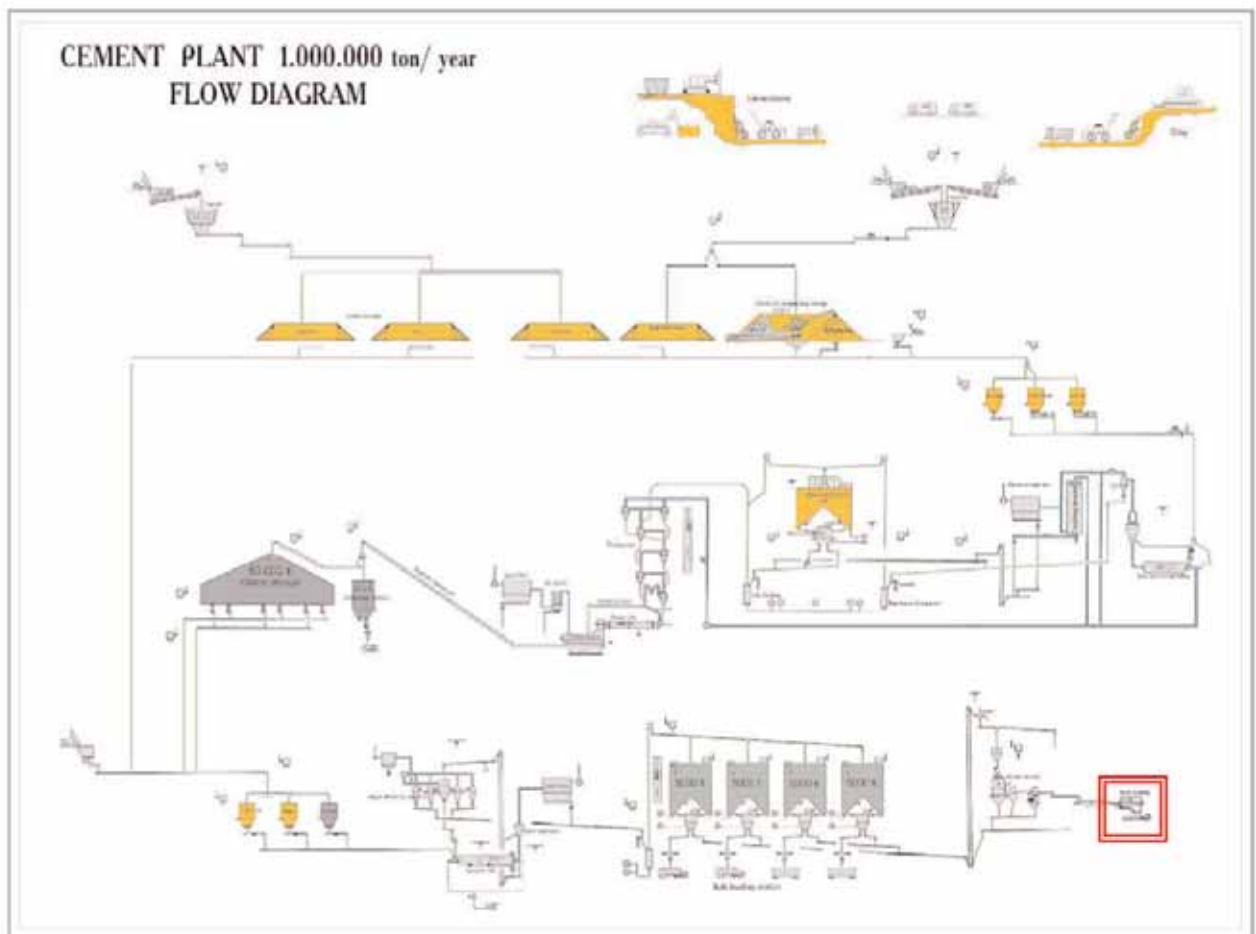
j.1. Control Philozophy:

The whole process line are controlled by DCS (Distributed Control System). The entire single about the equipment running status sent sent to a PLC. The motors are sequentially started or stopped according to the process flow as initiated by the commands from the operator's keyboard. Operating and monitoring of equipment are on the operating station installed in CCR.

j.2. Process Control System :

In addition to automation directly associated with equipment supplied, our projects are included below:

- central control room,
- control system,
- communications system.



2. CEMENT PRODUCTION

a. Crushed gypsum and clinker handling,

Gypsum stored in a preblending shed. These materials reclaimed by the clinker are sent to the cement proportioning station by belt conveyer.

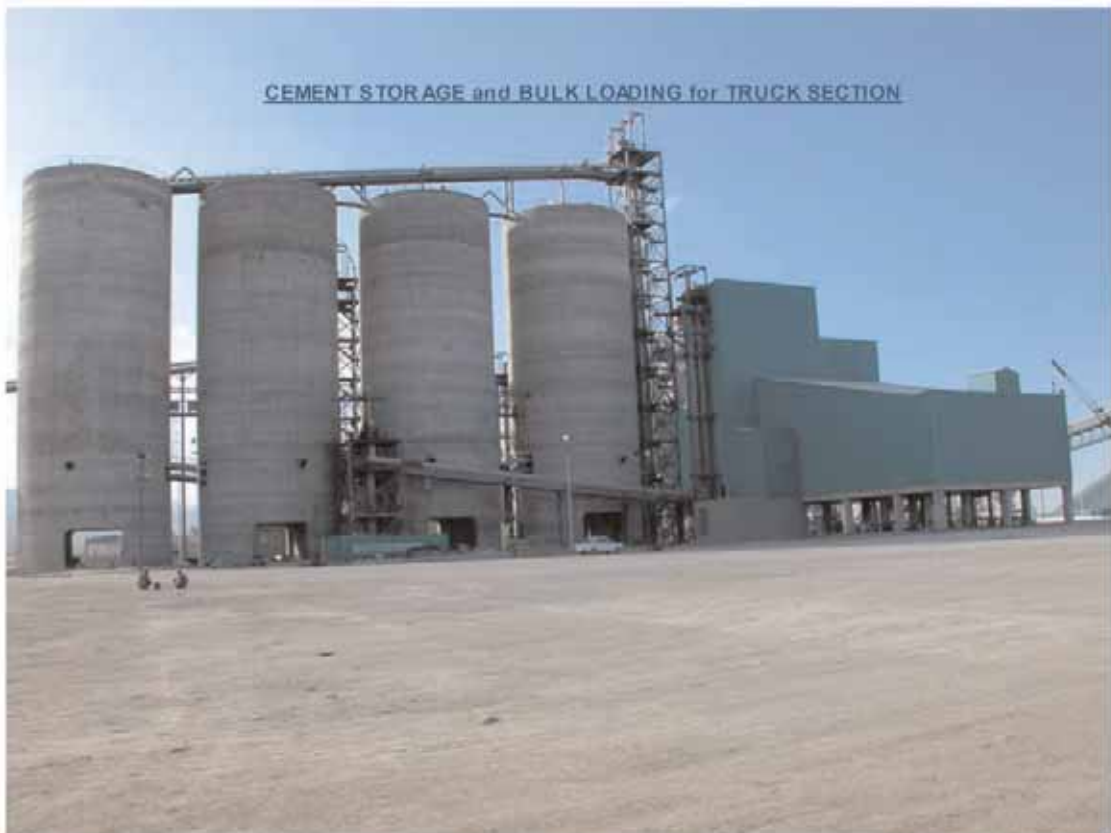
b. Cement mill,

Proportioned clinker and gypsum are conveyed via belt conveyer into ball mill. Materials ground by ball mill are transported to a separator by high efficiency bucket elevator. The coarse particles separated return to ball mill for regrinding while the fine product is collected by the high efficiency bag filter behind the separator and then conveyed to cement silo via an air slide and bucket elevator.



c. Cement silos

Cement silos are used to store the cement. These silos are installed with dedusting system, necessary accessories, and fluidization and extraction system.



3. CEMENT PACKING, LOADING And BULK CEMENT LOADING

The cement from extraction systems under the cement silo are delivered to the buffer bin by air slide and the bucket elevator and vibrating screen, before being fed into each packer. The bagged cement can be loaded directly.



www.ostimyatirim.com.tr

The logo for Ostim Yatırım features a stylized 'O' composed of two interlocking loops, one red and one black. To the right of this symbol, the words 'ostim' and 'yatırım' are stacked vertically in a bold, black, sans-serif font.

**ostim
yatırım**

your reliable project partner