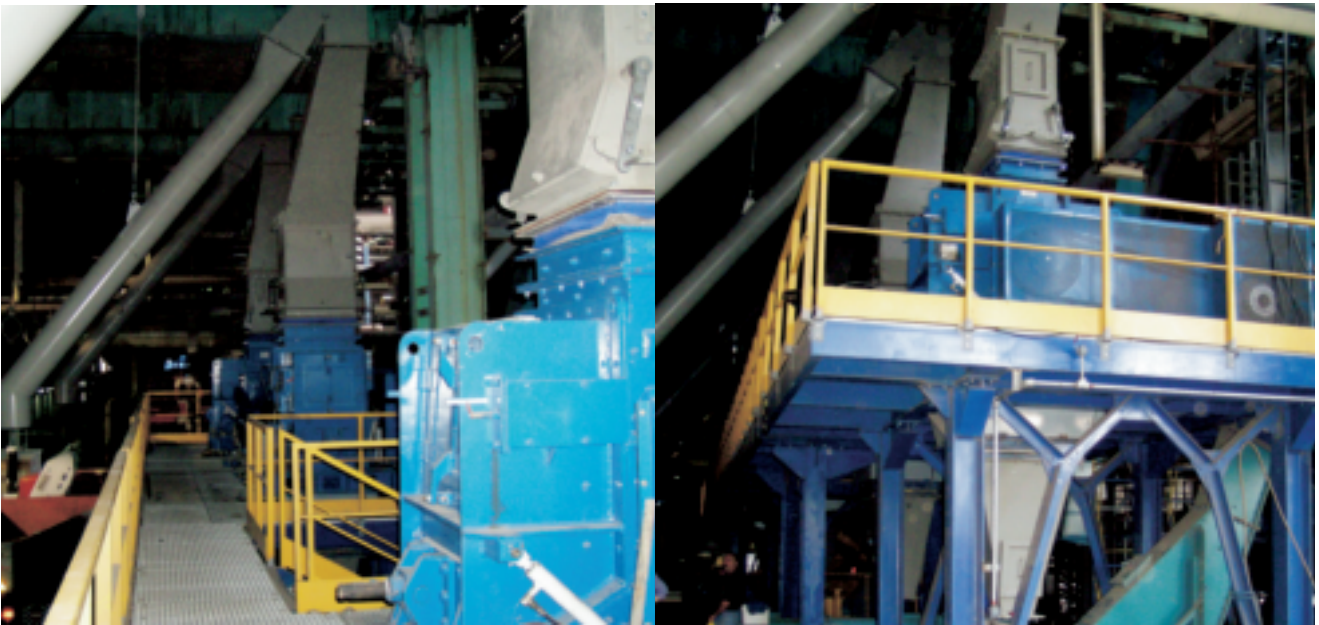


## TECHNICAL REFERENCE NOTE

### COAL EXTRACTION, CRUSHING AND METERING SYSTEM FOR A CIRCULATING FLUIDIZED BED BOILER POWER STATION MUNICIPALITY OF PORTOSCUSO (CA) - ITALY



LAY-OUT n. 5 Coal extraction crushing and metering system lines

**CLIENT:** ENELPOWER S.p.A.

#### **SCOPE:**

The supply concerns a "turn key plant" including the erections, of five lines of a "coal extraction, crushing and metering system" as part of a feeding system for a new CFB (Circulating Fluidized Bed) boiler, for upgrading the existing Section 2 of the Sulcis thermoelectric power station.

The supply concerns also new internal linings of AISI 304 stainless steel plates for each of the five 320 tons capacity coal daily bunkers and the installation of vibrating pneumatic systems (shakers) on the outside walls of each bunker.

The CFB boiler have a nominal electrical power output of 330 MW, a steam net capacity of about 1,026 t/h, and will be designed to be fed exclusively with coal. The final grain size at the outlet crushing mills was < 6 mm, with a mean distribution particles diameters between 0,8 and 1,2 mm and the maximum capacity was 50 t/h.



Fig. 1 - Sulcis Power Plant

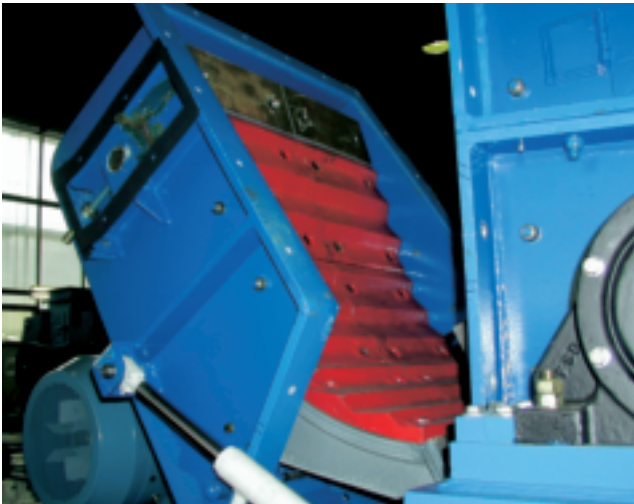


Fig. 2 - Coal hammer mill - Grinding walls



Fig. 3 - The conveyor apron feeder

## SUPPLY COMPOSITION

### ENGINEERING

- Base and detailed (civil, mechanical, electrical, instrumentation)

### MECHANIC

- N°5 slide gate valve
- N°5 conveyors feeder dust tight faired
- N°5 reversible coal hammer mill
- N°5 support steel structure for hammer mill
- Ducts, hoppers for coal conveying system
- N°5 expansion joints
- N°5 new internal Stainless Steel AISI 304 lining of daily coal bunkers
- Vibrating pneumatic system consisting in n°2 shakers for each bunker

### ELECTRIC - INSTRUMENTATION

- N°1 Power Motor Control Center
- N°1MV/LV distribution Transformer
- N°5 Inverters for conveyors feeder motors

## DESCRIPTION

The plant will be designed to work 100% on coal, mixed in variable proportions.

Coal handling from the exit five daily bunkers to the hammer mills outlet occurs exclusively by means of the conveyors and gravity.

The conveyor feeders extracts the "set-point" coal quantity from the daily coal bunker to the crushing hammer mill; the final coal grain size at the mill outlet will be transported by each chain conveyor's lines to the steam boiler.

An inverter controls the conveyor electrical motor velocity and the flow rate of coal to send to the crushing mill. Each hammer mill has a maximum capacity of 50 t/h; the casing shall be fitted with an opening hydraulic system such as to allow easy and rapid access to the internal components in the event of maintenance or replacement of worn parts.

The grinding walls are made in wear-resistant material HARDOX 400.

The pre-crushed coal is fed via the inlet chute to the

rotor where it is grasped by the beater heads and is thrown against the grinding wall. Each crusher is equipped with two grinding faces allowing also a reversible operation.

The two grinding faces have two adjusting points each to ensure an optimum gap adjustment between rotor and grinding wall.

Due to the high moisture content of the coal, a steam heating system of the grinding wall is installed, to avoid the clogging of the coal at the grinding wall.



Fig. 4 - One of the n. Coal daily bunkers



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