



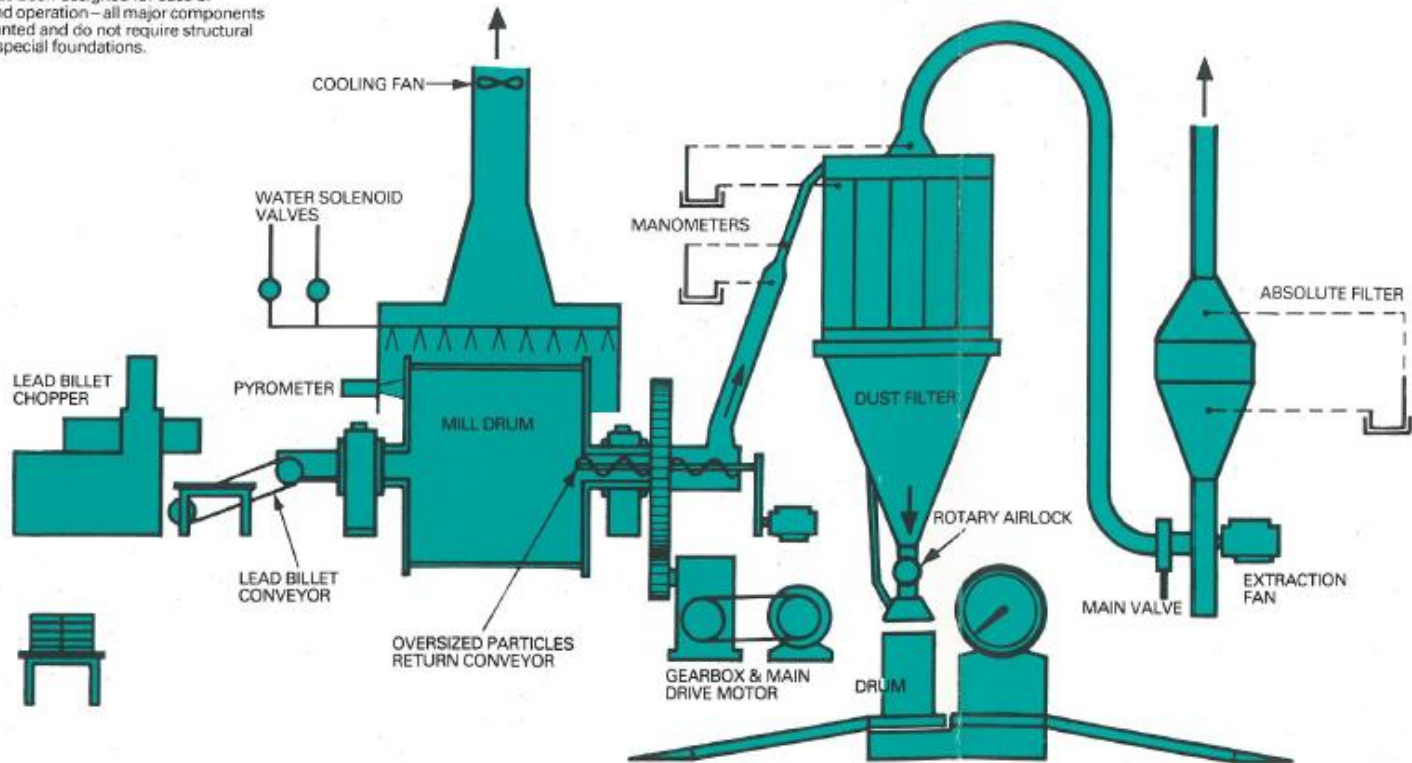
TYPE 8 LEAD OXIDE MILL

The Type 8 is a compact, semi-automatic mill for the production of consistent high quality battery lead oxide.

Capable of producing 50 tonnes of 60% lead oxide per week, working a continuous 7 day operation. Alternatively, for smaller producers the Type 8 can be run for shorter periods. No scrap lead oxide is produced during the start-up.

Installation is easy

The Type 8 has been designed for ease of installation and operation—all major components are floor mounted and do not require structural steelwork or special foundations.



PLANT OPERATION

Mill Charging

The operator feeds lead billets into a chopper where they are cut to a suitable size (approximately 12.5 kg) for the mill. Cut pieces are stored on the lead billet conveyor before being fed automatically to the mill drum through the hollow mill trunnion.

The Mill

The mill drum is driven by an electric motor through suitable gearing and as the drum rotates the pieces of lead are ground into fine oxide powder. The drum is enclosed in a sheet metal casing, the upper half of which is fitted with a flanged hood to accommodate the mill cooling fan ducting.

Oxide Classification and Collection

An extraction fan draws air through the mill drum and carries fine oxide particles to a filter unit through a classification tube. Oversize particles fall down this tube and are returned to the mill drum by a screw conveyor for further grinding. The filter unit has five compartments each containing four filter bags on which oxide is deposited. Each compartment is shaken in sequence at regular intervals to remove the oxide powder, which falls into the filter unit collection hopper. From the collection hopper the oxide powder is fed through a rotary valve into a storage drum placed on a weighing machine. The weight of oxide powder required in each drum can be controlled automatically. When the pre-determined weight is reached, the rotary valve closes and visible and audible warning signals alert the operator. As an alternative, arrangements can be made for oxide to be transferred from the collection hopper to a bunkering system.

Control Equipment

All electrical control equipment except for the lead billet chopper is centralised in one panel for ease of operation. Control of the mill temperature is by radiation pyrometer which senses the drum surface temperature and initiates cooling air and water spray, as required. The load of the mill drum is maintained by an ammeter monitoring the mill motor current which by operating about a pre-set limit, controls the rate of feed of the lead billet conveyor. Temperature of the mill drum and filter unit, together with the mill motor current, are displayed and recorded on the panel to assist in the safe and efficient operation of the plant.

Environmental Features

In keeping with Chloride Technical's policy of designing plant that is not only efficient but also environmentally safe, the Type 8 can be operated in complete safety. For example, to prevent escape of oxide the air pressure in the whole system is kept below atmospheric pressure and any fine oxide entrained in the air leaving the filter unit is trapped in the absolute filter unit, the emission to atmosphere being less than 5 grammes per 50 tonnes of oxide produced. The mill drum is fitted with an acoustic enclosure to reduce noise emission.

Engineering Services Needed

Electrical power—40 kW total connected load
Water—200 litres per hour
Compressed air—Up to 650 litres per minute of clean, dry, free air compressed to 5.6 kgf./cm²

Labour Requirement

The combination of control and warning systems described above enables the plant to be operated with minimum attention by one person.

Output

- * 50 tonnes per 168 hour week at 60% PbO.
- * PbO content may be varied within the range of 55/65% with an accuracy of ±3%.
- * Particle size is less than 53 microns for at least 80% of the product and less than 150 microns for at least 98% of the product.