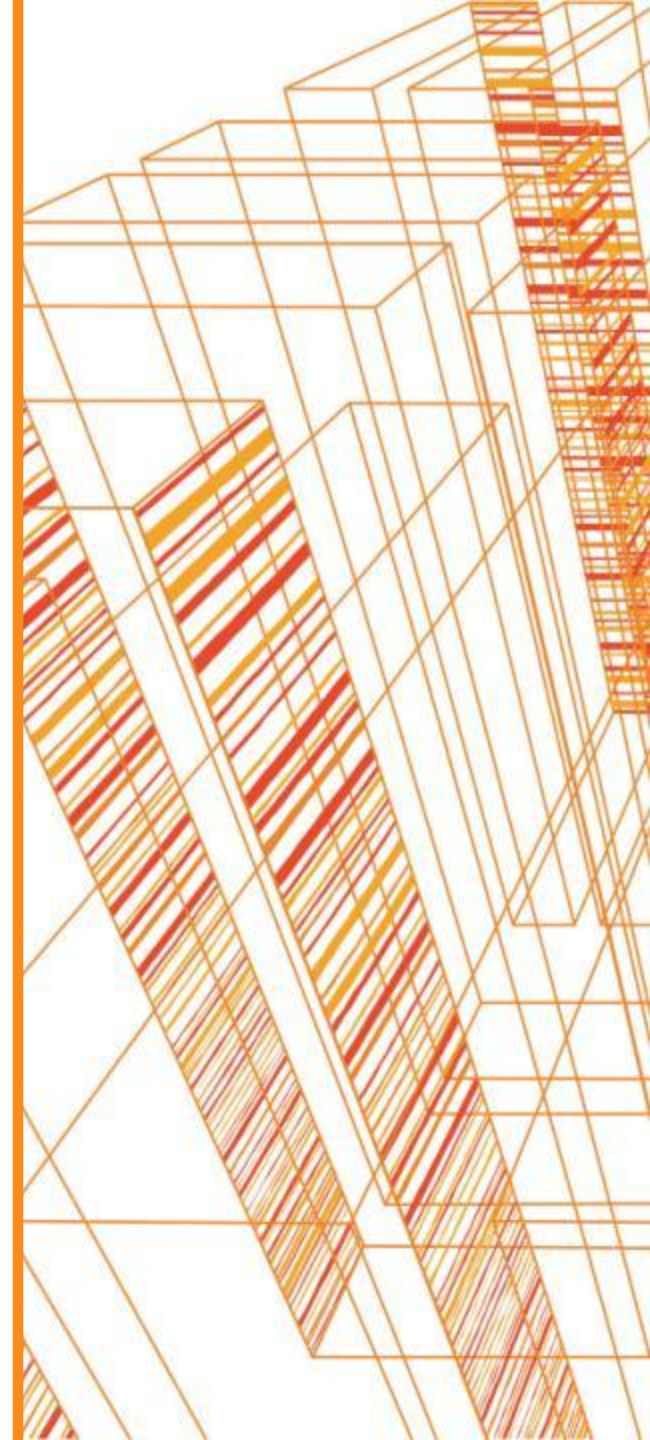


Functional Operational Description of 48 Ton per Hour Pre Reduction Kiln and equipment

**Highveld Steel
EMALAHLENI (WITBANK), SOUTH
AFRICA**

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Introduction

- ❑ Operational description.
- ❑ Specification - 48 tons per hour pre-reduction kiln.
- ❑ General Arrangement Drawing.
- ❑ Photographs.



Operational Description

Manufacturer

- ❑ LURGY.

Situated

- ❑ Highveld Steel, Witbank, Mpumalanga.

Operation Description

The Rotary Kiln is a cylindrical vessel 60 metres long and having a diameter of 4 metres. It sits at an angle of 3,5 per cent and rotates to allow progression of material. It is supported at two roller stations and is driven by a electric motor / gearbox via a pinion and girth gear.

A smaller “inching” donkey drive unit enables the kiln to be slowly rotated in the event of electrical faults or outages.

Iron ore mix is charged into the kiln through a chute and the pulverised fuel via two screw feeders. The PF is ignited by a “Pillard” burner and the mix is maintained at a temperature of 1000 degrees centigrade throughout the entire length of the kiln.

The final mix is discharged into a chute in readiness for the iron making process. Waste gas produced in the kiln is channelled to the conditioning and post combustion towers respectively. Gas remaining is passed through a electrostatic precipitator and finally vented to atmosphere via a waste gas stack.

Pre-reduction Kiln and Equipment Specification

Kiln Drive Specification

1 Kiln Double Main Drive

- Electric Motor – 70 KW – 525V -
- Gearbox – 17”/24”/32” – ratio 140 :1 – Reonold Croft

2 Kiln Emergency Drive

- Electric Motor - 15 KW – 525 V
- Gearbox – 8/10 – Double DEDN – Helical gearbox - Crofts

Pre-reduction Kiln and Equipment Specification

Firing Fan, Raw Materials Screw Feeders and Waste Gas Stack Specification

2 Firing Fan Specifications

-  Pulverized Coal Pillard Burner Block

3 Raw Materials 2 Screw Feeders Specifications

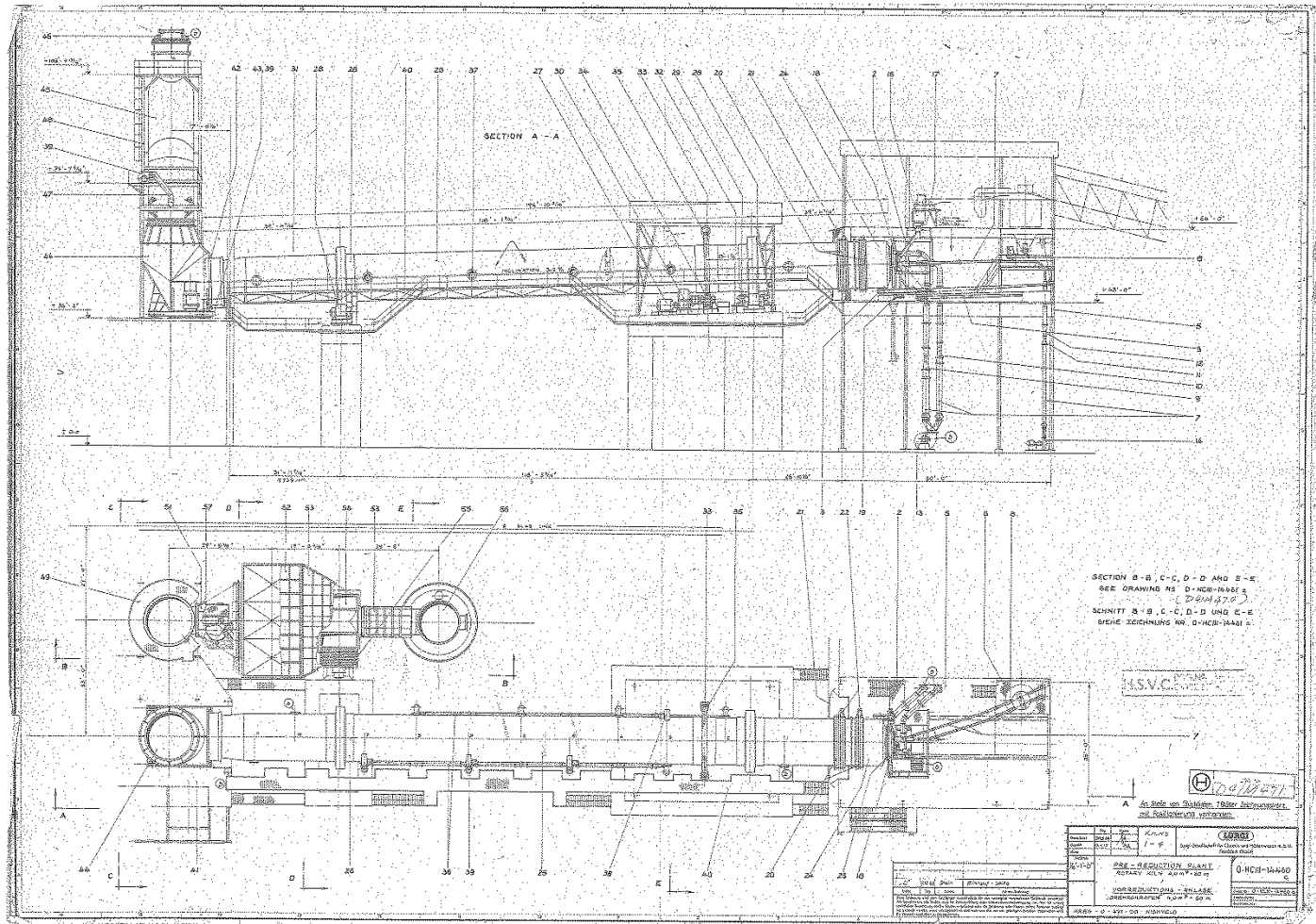
-  Electric Motor/ Gearbox – 5.5 KW – 1400 RPM – ratio 4:52 - SEW

4 Waste Gas Fan

-  Electric Motor – 400 HP – TYPE 2881-4....10 - S



Drawing G.A. Layout





Photograph





Environmental compliance

- The prospective bidder must determine all environmental legal responsibilities, in line with the prevailing legislation as may be amended from time to time, relating to the processes and activities to be undertaken by the prospective bidder and, if successful, to ensure full environmental compliance with such identified responsibilities. All planned processes and activities including any identified environmental responsibilities in relation thereto, will be made clear to Highveld in writing, as part of the bid process, to ensure a transparent relationship and agreement on the environmental compliance requirements. The prospective bidder must lead any discussions with the relevant environmental authorities and obtain the required environmental authorisations relating to the various environmental compliance requirements. The prospective bidder will carry all costs associated with such authorisations and discussions. Any supporting information required from Highveld relating to environmental concerns and compliance requirements must be identified by the prospective bidder and, if available, will henceforth be supplied by Highveld and not be unreasonably withheld, to support the drive of the prospective bidder towards environmental compliance.