

Linder Test



General Features

Linder test apparatus examines the probability of crushing of pellets during direct reduction test. Linder test has been considered as one of the most important laboratory-scale tests. Pellets lose their oxygen during the reduction test and turn to sponge iron. One of the problems in reducing process is that pellets might be crushed. In order to solve the problem, multiple standards stating test's procedure and the condition of pellet's crushing meticulously have been imposed. Linder test machine is capable of performing the test based on ISO11257 (Linder), ISO TC 120 / SC3 / 428E (Jumbo-Miderex) and ISO13930 Standards.

System Features

This machine can be divided into four parts including:

- electricity panel
- gas panel
- furnace
- computer system

Electricity panel : In the electricity panel section, all sensors are registered and all the processors are operated. The whole system is run via an electrical board. One of the features of the board is its connection to the LAN network and the possibility to install a sim card and a GPS on it to operate it remotely.

Gas Panel : The main task of the gas panel is to control the required pressure and to measure the flow rate of a variety of gases using mass control with a precision of 1% and to mix them.

To observe the gas flow, there is a glass tube rotameter installed. In accordance with the standard, the pressure of the flow of gases is a particular amount that is

registered and recorded by a pressure gauge in every pressure line and can be observed on the software.

Gases used during the reduction are flammable and dangerous. For further safety of the machine, the gas panel is sealed with a cover that prevents contamination of laboratory air in case of a leakage and the alarm goes off.

Furnace: The task of the furnace is heating pellets in accordance with the standards and the Thermal simulation of the reaction. It is heated with an element and the inner space is divided into three parts for better heating, which are controlled separately. The reactor is located in the center of the furnace and rotates at a constant speed. Pellets in pre-determined amounts are poured into it. A Thermocouple is installed in the center of the furnace for more exact monitoring of the heating atmosphere. The furnace door is opened and closed pneumatically.

Computer System: All the data and commands are available on the computers. One of the advantages of this machine is the calibration of all parts and accessories with high precision. Also, it is possible to adjust the target amounts onto the client's computer and conduct the favored tests at customer's request or for non-Standard tests.

Considering the significance of quality, steel strength and market competition, the Linder testing apparatus outputs are of great importance. With reports and graphs provided by this machine, a large amount of waste can be avoided in steel industries.