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Steel Pipe

Totalized System for Iron and Steel Analysis at an Integrated Steelworks

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Totalized System for Iron and Steel Analysis at an Integrated Steelworks*



Synopsis:

A modern analytical computer system for iron and steel products has been established as a part of totalized steel-making information system at the Mizushima Works. The modernization of the analytical system is aimed at auto-

(1) Analytical Operations

Measurement frequency and speed during 24-h operation must be very high.

(2) Analysis Techniques

management, receiving and recording of analysis samples and management of daily and monthly reports must be computerized.

Effective utilization of analytical instruments and

Analytical instruments must be adaptable to the computer system and use techniques capable of coping with on-line analysis.

(3) General Purpose Adaptability

labor and the reduced cost of analysis are the principal merits of the computer system. Automatic analysis is more efficient and rapid than the former labor-intensive system, but it must suit the analytical conditions.

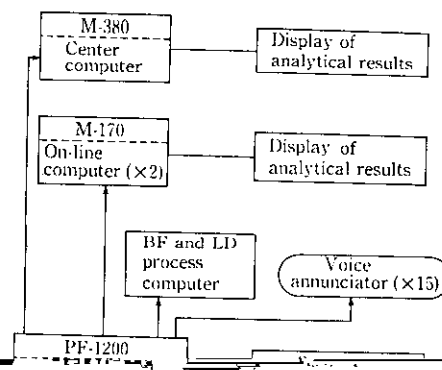
Common techniques or those capable of being shared must be used so that analytical instruments and labor can be effectively utilized.

(4) Automatic Analysis Management

samples and their means of analysis. Thus the sample preparation apparatus, analytical instruments the transfer apparatus connecting them was also automated. It is also possible to operate the apparatus and instruments

Table 1 Specifications of analytical instrument

Item	Specification
Emission spectrometer	
Type	Vacuum quantometer GVM-100, GVM-1000 and GVM1016
Range of wavelengths	165.0 nm~450 nm
Excitation sources	HPSG-400 and SD-400
Analytical elements	21~32
X-ray fluorescent analyzer	
Type	Vacuum spectrometer VXQ-150 and VXQ-150A



duplex system.

- (2) Optical transmission is adopted for communications between the analytical process computer and the front end processor because of its high transmission speed (13.4 MBPS) and to ensure easy maintenance. Transmission is in a total duplex communication system and information can be transmitted in the

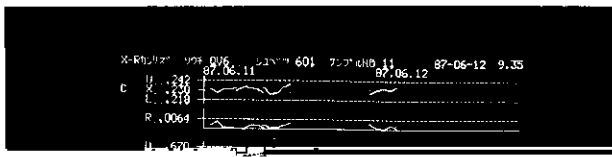
3.3 Software Features

The processing functions of this system are basically divided into information gathering by the analytical process computer and analysis operation functions by the analytical computers.

(3) Three ports were installed for the connection to

Processing functions related to control

Table 3 Function of analysis operation



Item	Function
Analytical instrument	Start, stop, reset, recycle, maintenance
Automatic analysis	Sample set, polishing, grinding, sam-

(2) Operation of CRT Display Devices

Because analysis is conducted on-line, the highest priority was given to speed and the prevention of

Transfer method: Belt conveyor

Waiting samples: 4 samples maximum (1 sample on the side of each of 3 crushers

was adopted. When a classification code is entered on the keyboard and the return key is depressed,

(3) X-ray Fluorescent Analyzer
press)

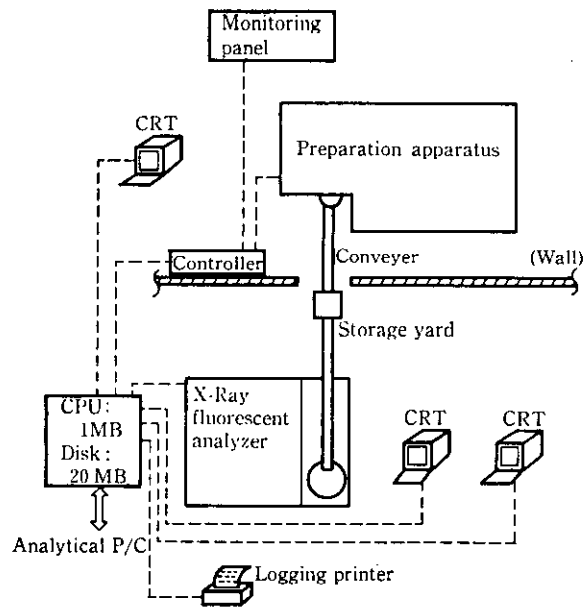


Fig. 5 Schematic diagram of the full automatic analysis system for pig iron