

***Abstract:***

*Main equipment installed in steel works of JFE Steel*

operation.

## 2.2 Equipment Inspection and Detailed Diagnosis Efforts

In addition to adoption of monitoring sensors, various types of inspections and detailed diagnosis, as shown in **Fig. 2**, are now carried out to know accurate the conditions of the equipment. Crack diagnosis such as ultrasonic testing, magnetic particle testing, and phased array ultrasonic testing makes up more than half of the works. Others are detailed diagnosis by frequency analysis and self-correlation processing based on vibration waveforms of equipment which showed abnormal data by online monitoring sensors, JFE Steel also diagnosis the displacement, stress, and torque diagnosis, and ferromagnetism (oil analysis)<sup>2)</sup>, etc.

Using JFE Steel's "Scan-WALKER™"<sup>3)</sup> to identify the location of local corrosion of byproduct gas piping

ment area.

## 3. Status of Development of Condition Monitoring Technologies

The condition monitoring technologies included in this special issue are technologies were developed to correspond the deterioration modes of equipment shown in **Table 1** to applicate for non opening inspec-

FY2007 as the baseline. Downtime has been reduced by approximately one-half by the development and expanded use of condition monitoring technologies

damage prediction technology, and others have been developed and are in use with actual equipment, contrib-

#### **4. Results of Condition Monitoring**

**Figure 3** shows the number of inspections, including the number of monitoring sensors, and the trend in the ratio of downtime hours using the second half of