

---

AE

Development of Diagnosis for Roller Bearings by Acoustic Emission

(Noriaki Inoue) (Shigeto Nishimoto) (Yoshiki  
Fujimoto) (Syunji Harada)

---

:

(1)AE AE (2)AE  
(3) AE AE

---

Synopsis :

A diagnostic technique through monitoring acoustic emission(AE) was developed for the purpose of predicting problems associated with roller bearings. In the course of the experiments for this developmental work, it has been found and confirmed that (1) flaking produces AE while it is in progress, (2) AE, as an intermittent signal, has a bearing-rotational-speed-dependent characteristic period according to the position of flaking such as at the inner race, outer race or roller, and (3) AE produced by axial hits of the rollers against the rib is greater in amplitude and longer in duration than AE caused by flaking. Based on the above findings, a diagnostic system capable of detecting bearing problems and analyzing such problems was developed. This system is currently applied to the roller bearings which were adopted on the backup rolls for the plate mill of the Mizushima Works to improve the rolling thickness accuracy.

(c)JFE Steel Corporation, 2003

# Development of Diagnosis for Roller Bearings by Acoustic Emission

## 要旨

予知保全の要請を目的として、アコースティック・エミ

る落ちは大型軸受で顕著に現れ、軸受の回転数に応じて周期的に発

Table 2 Test conditions for investigation of AE phenomenon  
in each flaking element of NU1906 bearing\*1

発生

扱う必要がある。

### 3 実験計画

Test number	Load (kgf)	Revolution (rpm)	Flaking element		
			Inner ring	Roller	Outer ring

Table 5 Characteristic frequency in test bearing and in actual rolling mill BUR bearing

Condition	Envelope detection waveforms
-----------	------------------------------

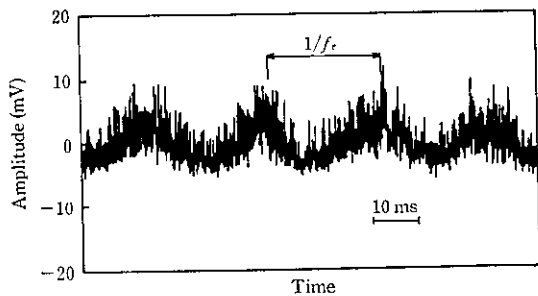


Fig. 5 AE envelope detection waveforms on rib contact (test ⑬)

