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Technology to Prolong the Life of Rolling Bearings Used in  
Steelmaking Plants

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Synopsis :

There are a great number of rotary machines, of which typical examples are guide rolls at continuous casting machine and process rolls at rolling mill in steelmaking plants. Bearing damage reflects directly on the downtime of equipment, and is also one of the most significant issues of mechanical parts for plant management. Though loading conditions and surrounding environment upon each bearing variously depend on each process line, so that several patterns of damages can be discovered among those bearings. To reduce equipment failure, analyses on the damages of rolling bearings occurred in the steelmaking plants and countermeasures for its causes are carried out. Several typical technologies to prolong spherical roller bearing life and to improve other types of rolling bearing are described.

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**The body can be viewed from the next page.**

# Technology to Prolong the Life of Rolling Bearings Used in Steelmaking Plants\*



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## *Synopsis:*

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shaft expansion and contraction, etc., poor lubrication with the result that edge loads are generated mainly

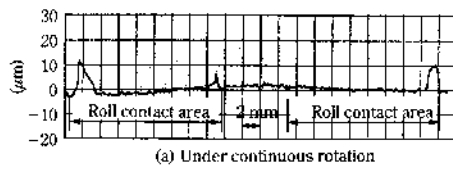
tion in sealed bearings. In terms of the types of bearing, example, **Photo 1** shows damage to an asymmetric roller

cylindrical roller bearings and deep groove ball bearings and skinned over assumed that the

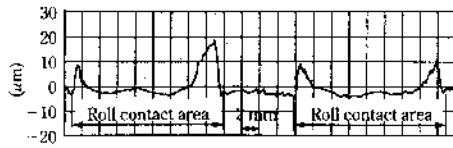
Table 1 Rules on the selection about spherical roller bearing

present, except at two constant-velocity points, due to the difference in the peripheral velocity between the rollers and the raceways of the inner and outer rings

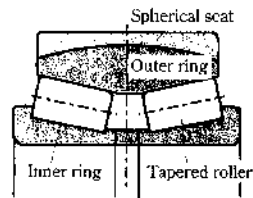
Magnitude of radial load ( $C_{or}/Pr$ )



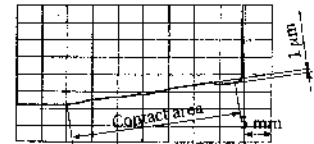
(a) Under continuous rotation



(b) With suspend



(a) Overview



(b) Wear profile of developed at outer race way

Fig. 9 Double row tapered roller bearing with spherical seat

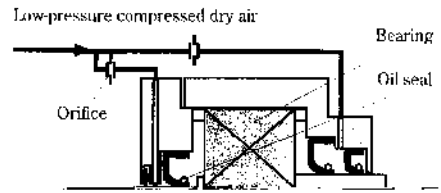
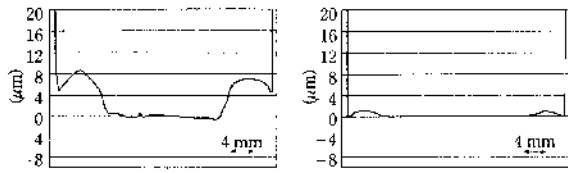


Figure 11 shows the bus lines of the outer rings of a

Table 2 Result of process analysis





although more than seven years have passed since the adoption of roller bearings.

The authors would like to thank those concerned at