KAWASAKI STEEL TECHNICAL REPORT
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Burden Distribution Model Experiment in Ferro-Manganese Smelting Furnace with Cardan Type Bell-less Top

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Synopsis :
Cardan type bell-less top with double hoppers located vertically on the furnace axis was applied to ferromanganese smelting furnace(SF) for the sake of good burden-distribution controllability and its durability against high top gas temperature. The burden distribution characteristics were examined with a small scale model apparatus before the start of operation to understand the new system. In the model tests, a similarity condition was firstly investigated, and then ten proper tilting angles of the distributing chute for SF operation were determined within the range of 8° to 26(and the burden distribution characteristics of the apparatus were clarified as that the burden movement in the layer surface toward the furnace center was small and the size segregation scarcely occurred at the time of changing. The results were also confirmed in the test at the furnace filling. The application of results of the model experiment and filling test contributed to stable SF operation.

The body can be viewed from the next page.

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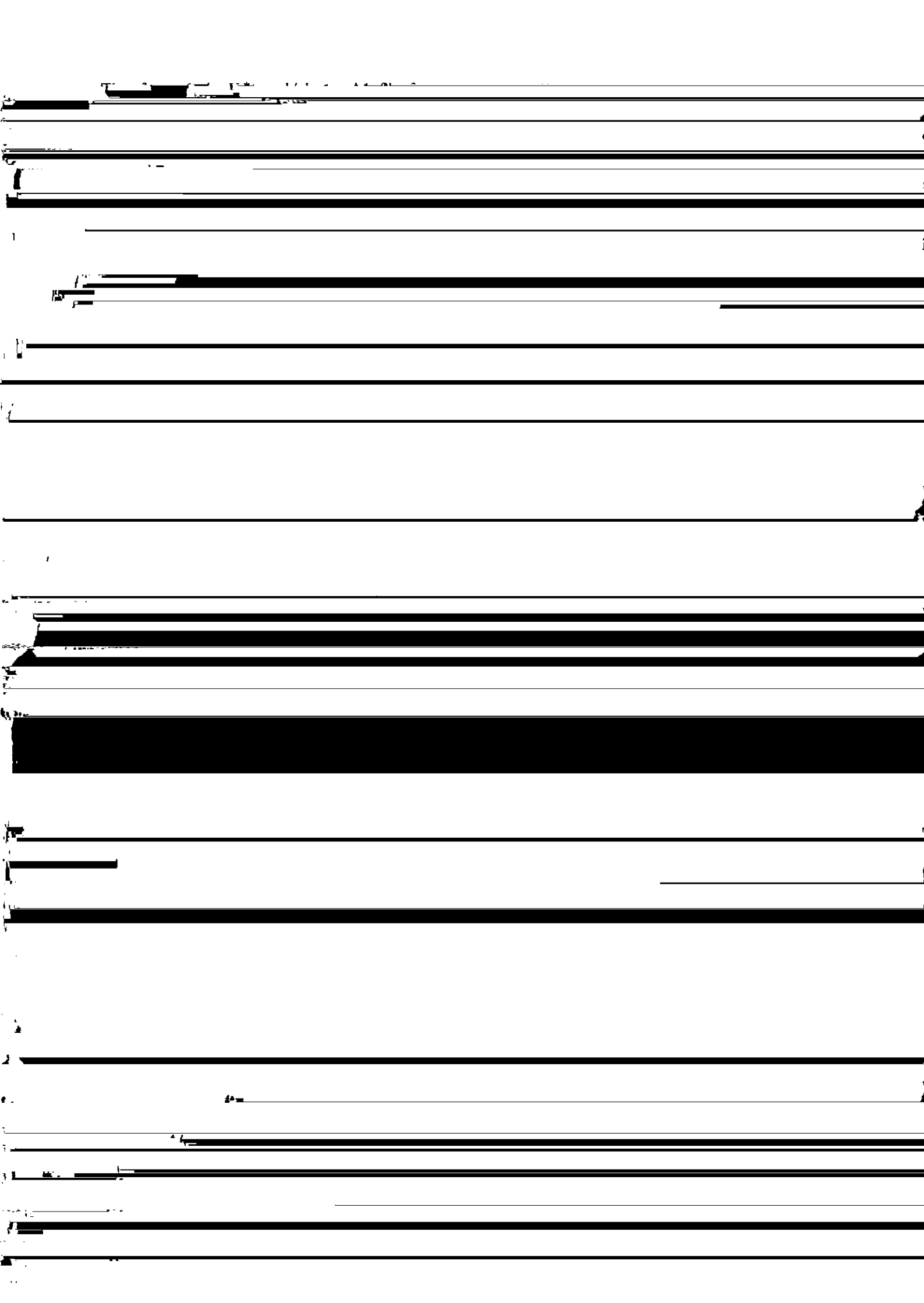
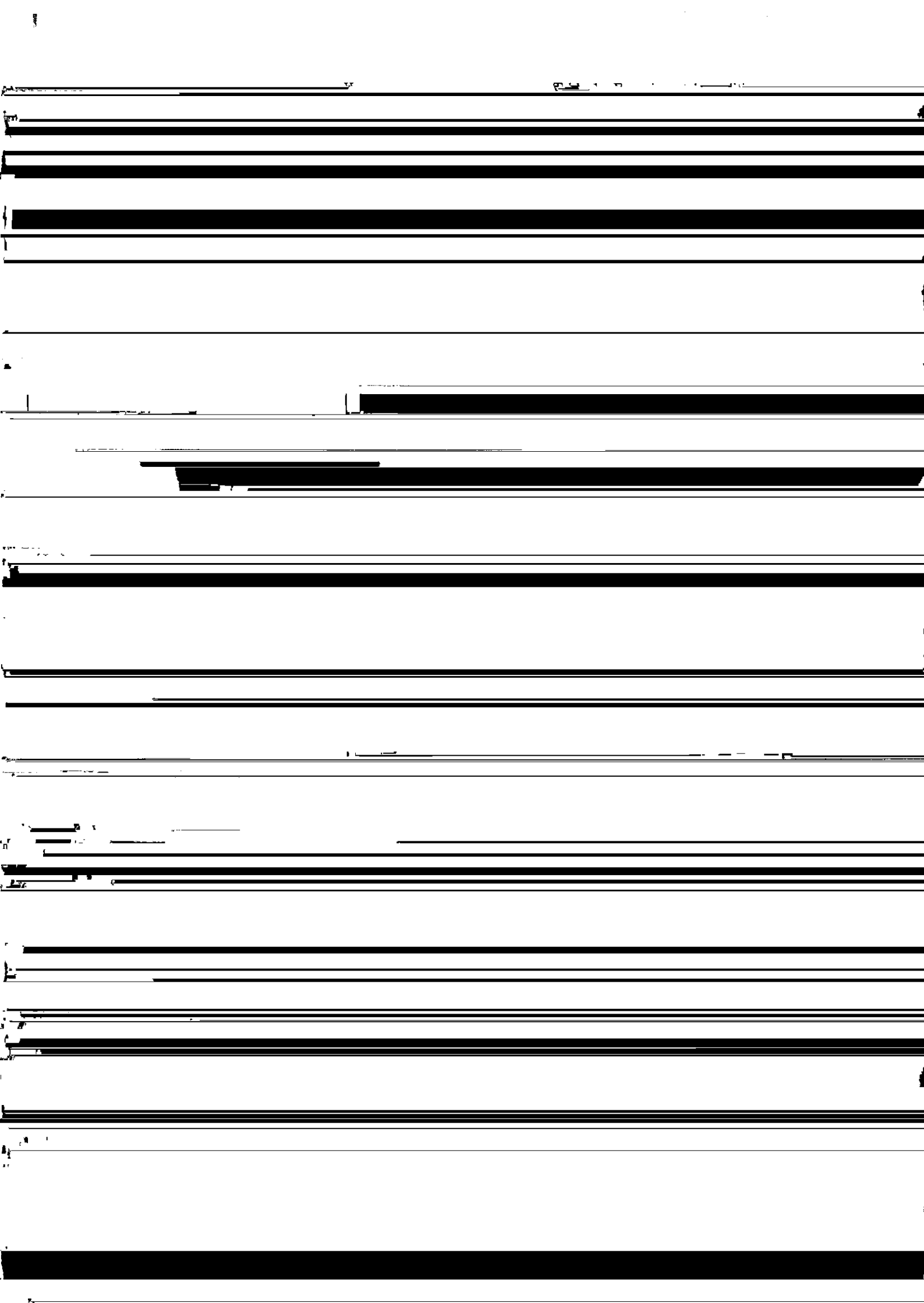
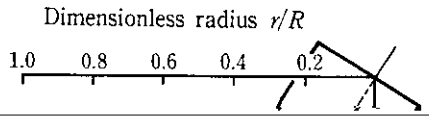
Synopsis:

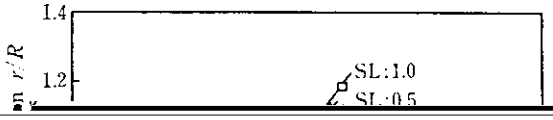
tions, including in-furnace sampling, were also conduct

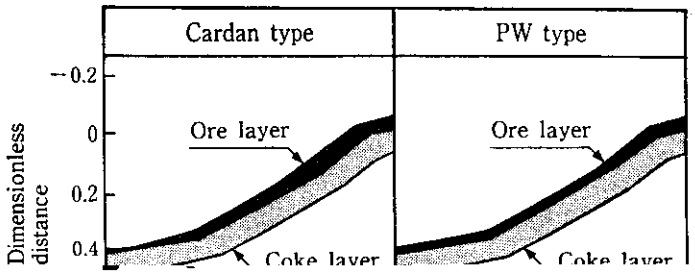
good durability under high ton gas temperature






Dimensionless radius r/R
1.0
0.8
0.6
0.4
0.2

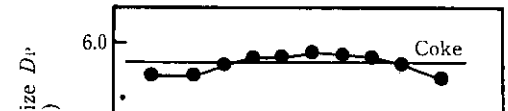

1.4
1.2
SL:1.0
SL:0.5



Dimensionless radius

Fig. 8 Distribution of burden materials at furnace top

be similar, in terms of burden falling position, to the pattern in high-coke-rate operation at No. 6 blast furnace of Chiba Works, which is equipped with a PW bell-less



Run 1	Run 2	Run 3

3	87654321	987654321