

Techniques for Long Life Casters

to Continuous Caster Roll*



Synopsis:

The purpose of caster roll investigations is to improve productivity and to contribute to energy and resources saving by means of prolongation of caster roll lives. The experimental results show that thermal cracking is well

idation and collapse of laths.⁷⁾

For protection against high temperature steam oxidation, on the other hand, in order to form oxide layers of

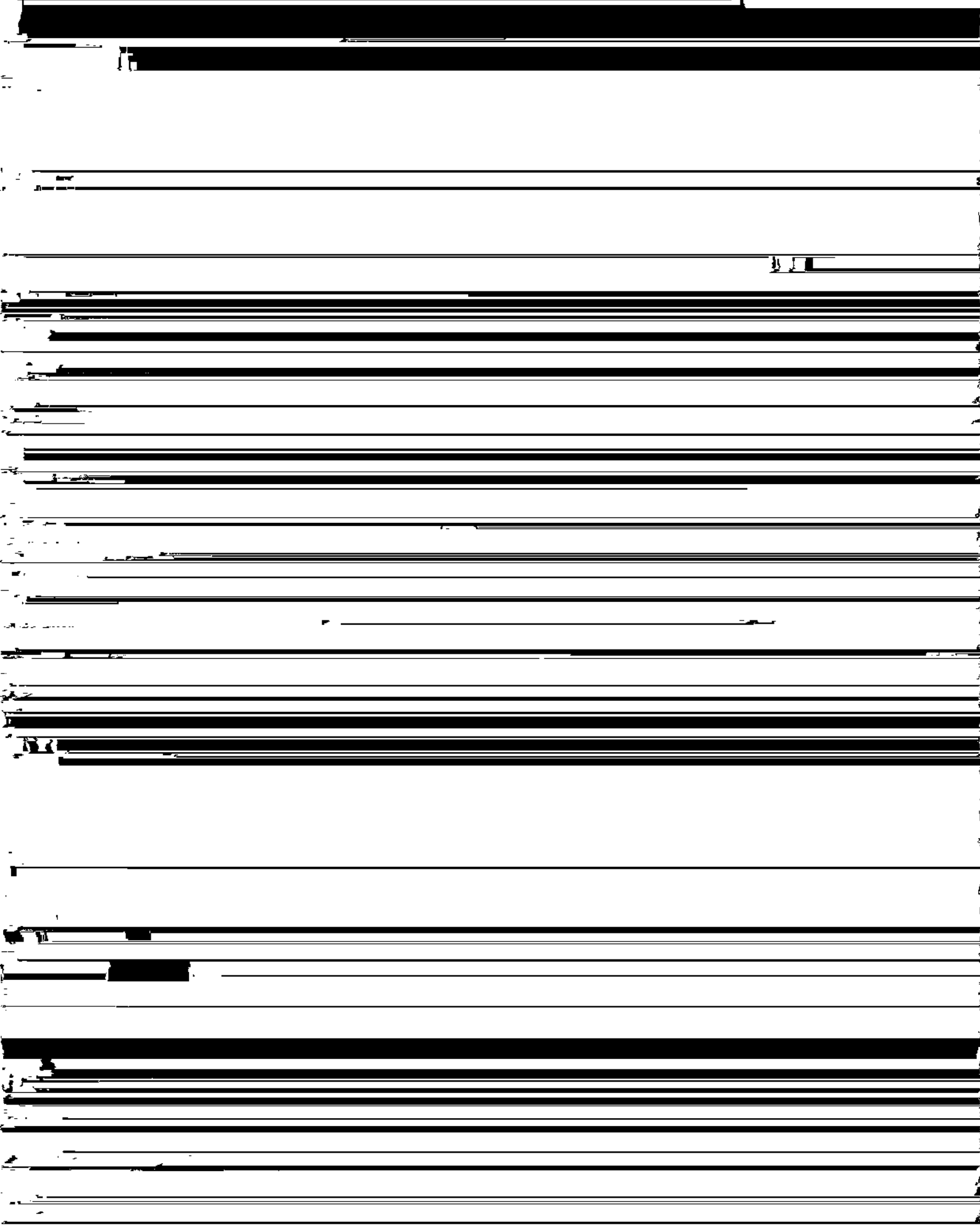
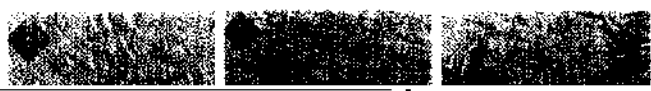
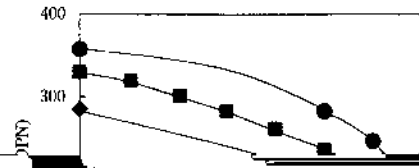
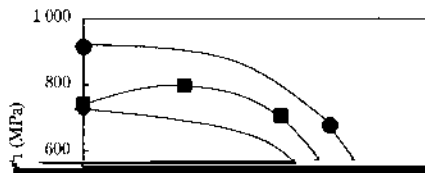


Table 2 Room temperature properties of overlay materials

Name	A_{c1} (°C)	α^* ($\times 10^{-6}/^{\circ}\text{C}$)	λ (W/mK)	YS (MPa)	TS (MPa)	El (%)	RA (%)	Hardness (DPN)
W 240	555	11.5	21.3	721	825	17.5	58.0	283
Super KBS	650	10.9	25.3	925	1122	12.5	33.5	361
W 630	620	11.9	17.1	734	989	14.8	33.7	329



ingly. Due to the number of repetitions, the thermocouples eventually broke, and thereafter the temperature was maintained by controlling the current and voltage.

The test results orderly arranged using the thermal crack resistance parameter (P_{HIC}) are shown in Fig. 5. The result is the same even incorporating various proportions of each alloy and composition is observed in the

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tion in steam. However, the increase of oxidation is mitigated with W630. In order to investigate this behavior, the microstructures after the test at 700°C were investigated.

In W 240, it is presumed that the microstructure was in the state of quenched α structure due to the reversely transformed γ being sharply cooled and

Materials with their Cr content being increased as W630 show superior steam oxidation resistance performance by being used at temperatures in the medium range below 500°C even if the Ni content is high.

5. Evaluation in Production Facilities

had not reached the range of γ single phase and was

The newly developed alloys were used on an indus-

Super KBS is of the $\alpha' + \alpha$ structure. From the facts that the presence of block units and carbides was

performance was evaluated compared with those of the conventional material. Figure 9 shows a



that of W 240.

6 Conclusion

On the basis of the analysis results of the mechanism