

KAWASAKI STEEL TECHNICAL REPORT

No.38 ( April 1998 )

*Ironmaking Technology  
and Tubular Products Technology*

---

Development of Manufacturing Technology for High Alloy Steel  
Seamless Pipe by Mannesmann Process

Nobuhiko Morioka, Hiromu Oka, Tetsuo Simizu

---

Synopsis :

Kawasaki Steel has developed manufacturing technology for high alloy steel seamless pipe by Mannesmann process. Main features of the technology are, as follows: (1) Application of appropriate billet heating temperature and controlling of deformation speed in piercing high alloy steel billets. (2) Improvement of rolling technology in Mannesmann piercer with disk shoes. (3) Development of MAP system and a bulge gauge, and controlling of the bulge width of the shell rolled in mandrel mill. (4) Development of technology for increasing the life of piercing plugs and shoes, and furthermore, the life of rolls of mandrel mill, hot stretch reducer and sizing mill. Through these manufacturing technologies, high quality seamless pipes of high alloy steels have been manufactured with high productivity in small- and medium-diameter seamless pipe mills at Kawasaki Steel.

(c)JFE Steel Corporation, 2003

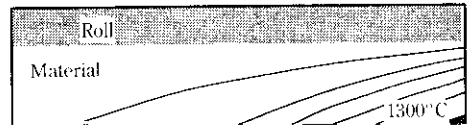
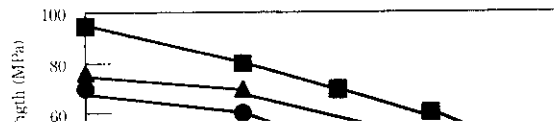
**The body can be viewed from the next page.**

# Development of Manufacturing Technology for High Alloy Steel Seamless Pipe by Mannesmann Process\*

## Synopsis:

Kawasaki Steel Technical Report No. 38, April 1998, pp. 1-11





1350

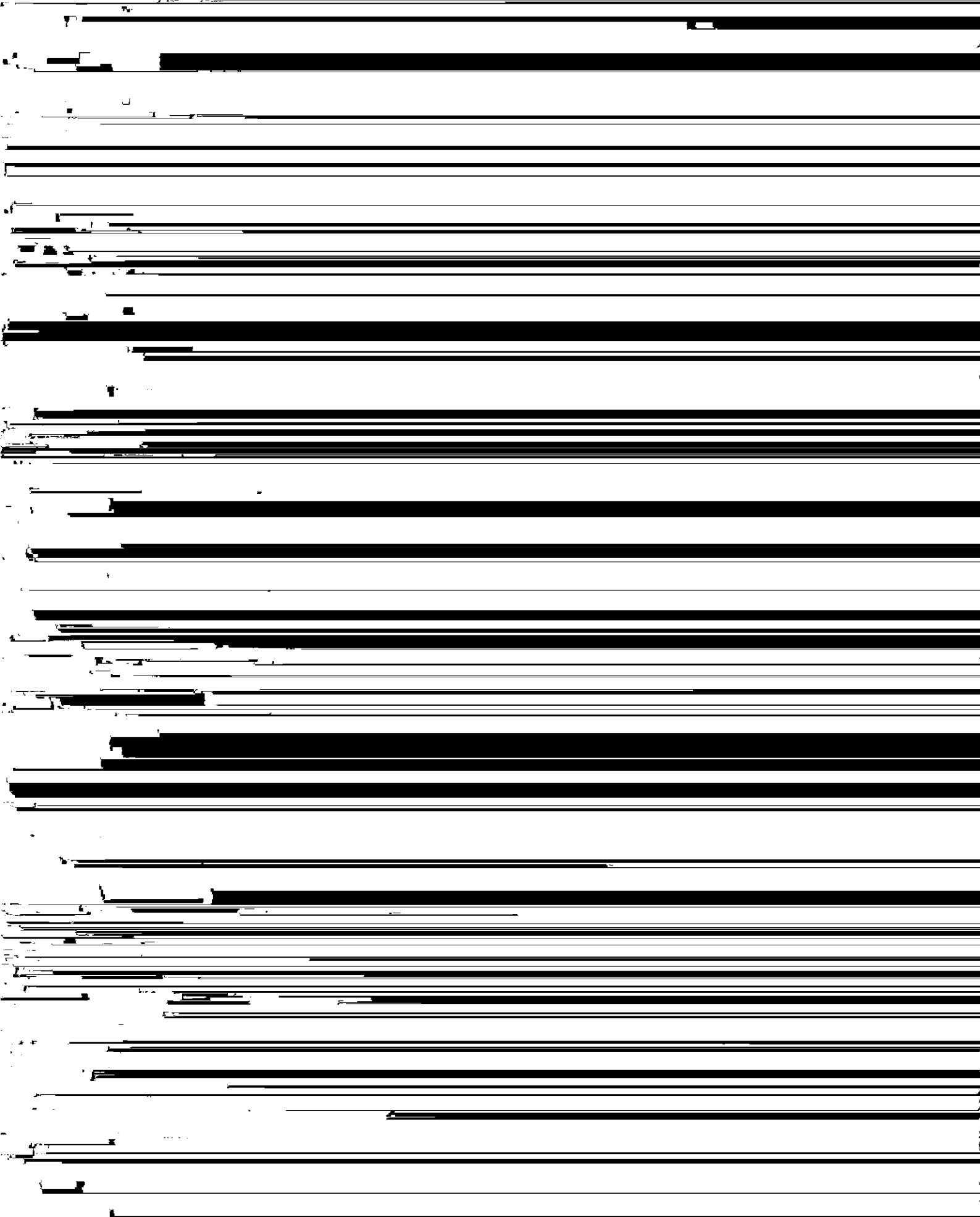
13%Cr steel

Roll

X

L

Plug





[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]

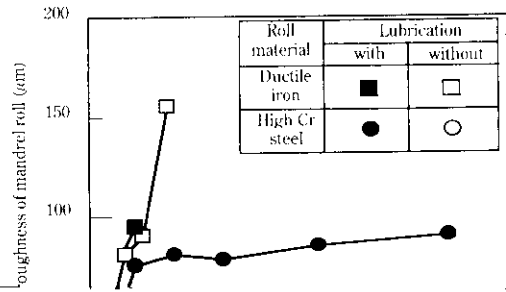
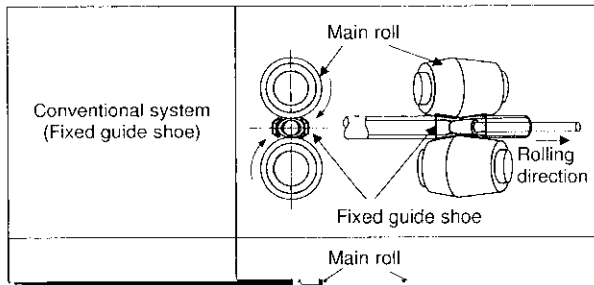
[Redacted text]

[Redacted text]

[Redacted text]

[Redacted text]







[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

has increased dramatically, making it possible to pro-

*ISIJ*, 6(1993), 370

11) N. Morioka, T. Kasuya, and T. Shimizu: 34th Mechanical

## References

- 1) D. A. Baudoin, D. K. Barbin, and J. Skogsberg: CORROSION 95, (1995) Paper No. 639
- 2) Y. Sodani, T. Udagawa, and Y. Mihara: *CAMP-ISIJ*, 6(1993), 374
- 3) H. Asahi, T. Kawakami, T. Sakamoto, M. Ueno, A. Takahasi, and T. Shimizu: *ISIJ*, 6(1993), 374
- 4) H. Oka, T. Kasuya, N. Morioka, A. Yorifuji, and T. Shimizu: *ISIJ*, 6(1993), 390, 800
- 5) T. Imae, K. Yamamoto, and H. Oka: *Journal of the JSTP*, 34(1993)390, 806
- 6) H. Oka, F. Murase, N. Konya, Y. Funyuu, K. Yamamoto, and T. Imae: *Tetsu-to-Hagane*, 72(1986)4, S404
- 7) A. Yorifuji, I. Toyooka, and T. Kanayama: *Kawasaki Steel Giho*, 29(1997)2, 64
- 8) H. Oka, T. Kasuya, N. Morioka, A. Yorifuji, and T. Shimizu: *ISIJ*, 6(1993), 390, 800