Manufacturing Process and Properties

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Synopsis:

At present in Kawasaki Steel Corp., commercial grade stainless steels such as type 430 or 304 are produced by the K-BOP–CC–tandem hot rolling mill–sendzimir cold rolling mill or tandem cold rolling mill processes. We developed an SS-VOD process in 1977, and various new ferritic stainless steels, such as ultra low carbon and nitrogen high chromium ferritic stainless steels, are produced by this process. They are extremely improved in wet and dry corrosion resistance, weldability, and press formability. Various

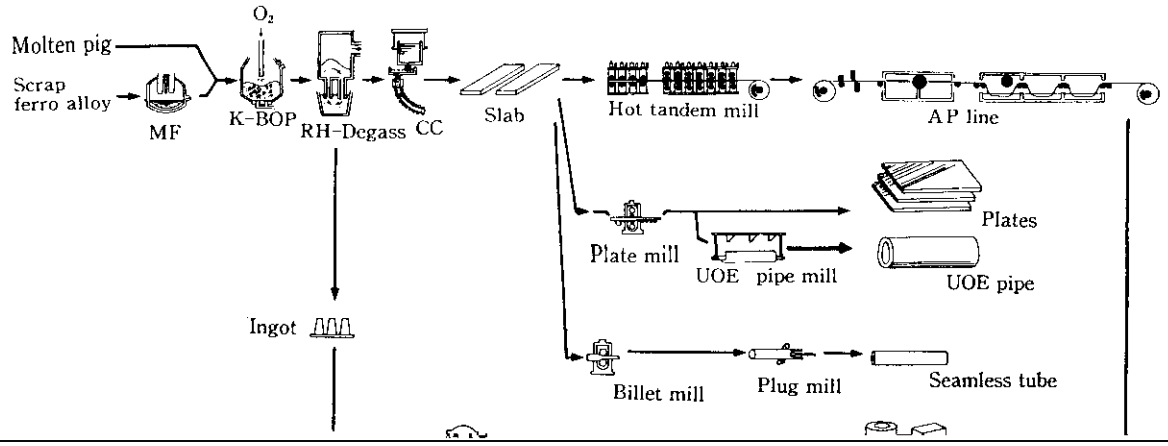

Molten pig
Scrap
ferro alloy
MF
O_2
K-BOP
RH-Degass
CC
Slab
Hot tandem mill
AP line
Plates
Plate mill
UOE pipe mill
UOE pipe
Ingot
Billet mill
Plug mill
Seamless tube

Table 1 List of stainless steels developed by Kawasaki Steel

(%)

Referred designation of JIS	Designation of developed steels	C	Si	Mn	Cr	Ni	Mo	Cu	others	Improved properties
					11.50					

2.2 Rolling Process

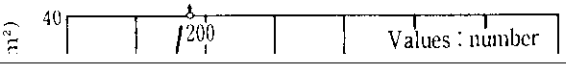
3 Product Properties

3.1 Ferritic Stainless Steels

[redacted]

Chiba Works as part of into[redacted] 420. This steel grade has long been used in durable con[redacted]

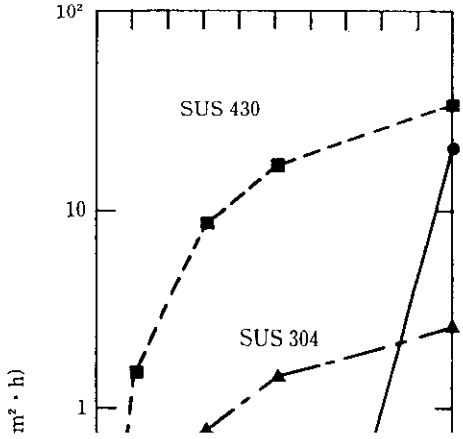
Decarburization of chromium stainless steel not only



ices at more than 1 000°C were developed for use in exhaust gas cleanup equipment, especially thermal reac-

Table 3 Corrosion resistance of R 430 CuN[a)]

			Pitting


10^2
SUS 430
10
SUS 304
1
m² · h)

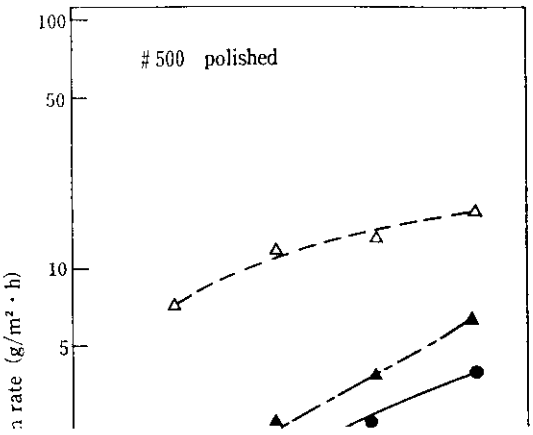
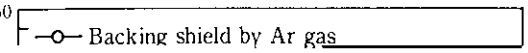
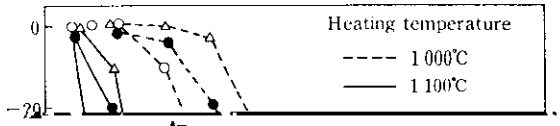

100
500 polished
50
10
5
rate (g/m² · h)

Table 5 Corrosion resistance in organic acid[18]

100.00 (g/m²·h)



high carbon contents and there had been a problem in



conductive materials such as Nb_3Sn by precipitation.[26]

RXM 15 was developed as a steel with better high-temperature oxidation resistance and strength than R 409

12) T. Kawasaki, S. Sato, Y. Ono, and N. Ohashi: *Kawasaki Steel Giho*, **8**(1976)4, 1
13) Y. Ono, S. Sato, T. Kawasaki, Y. Oka and N. Ohashi: *Kawa-*
20) K. Yoshioka, N. Kinoshita, Y. Ono, M. Kobayashi, R. Hasegawa, and Y. Ryomoto: *Kawasaki Steel Giho*, **12**(1980)2, 159
21) K. Yoshioka, S. Suzuki, F. Ishida, and T. Horiuchi: *Kawasaki*
15) Y. Ono: *Kinzoku Zairyo (Metals in Engineering)*, 17(1977)6, 18
23) Y. Sone, H. Kurahashi, K. Wada and Y. Nakai: *Kawasaki Steel*