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Steel Structure, and Continuous Casting of Steel

High Speed Continuous Casting Technology for Surface Defects Free Stainless Steel Strand -Construction and Operation of the Chiba NO.4 Continuous Center-

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Synopsis :

At Kawasaki Steel Chiba Works, as part of a modernization program aimed at creating an "urban steel works", No. 4 continuous caster was constructed as a replacement for Chiba's super annuated No. 1 continuous caster. The new caster is used exclusively for speciality steels, centering on stainless, and has functioned smoothly since the start of its operation in July 1994, realizing an improvement in the quality of stainless and high-carbon steel slabs by the introduction of a vertical bending type machine, a larger tundish and other features, and promoting enhancement of productivity by the adoption of automatic equipment.

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**High Speed Continuous Casting Technology
for Surface Defects Free Stainless Steel Strand
— Construction and Operation**

of the Chiba No. 4 Continuous Caster —*

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of the vertical banding type was adopted and the size of the tundish was increased in order to ensure high slab quality. The layout of 4CCM, which is arranged in parallel with 3CCM, is shown in Fig. 3. An independent

descent, which is arranged in the long nozzle supporting device, to a positioning block installed in the lower part of ladle-sliding nozzle cassette. The automation of the ladle-long nozzle setting operation that had relied upon operators' visual judgment has been achieved by this

tundish preheater, one tundish tilting and deslagging technique.

ating cutter disc type was adopted as a means of completely removing torch-burr with no effect of the shanes

using CRTs. Furthermore, because the setting of casting conditions for each steel grade not only increases the

of the cleanliness of the molten steel at the two continuous casters is shown in Fig. 9.

The index of inclusions at 4CCM is 2/3 to 1/2 that of

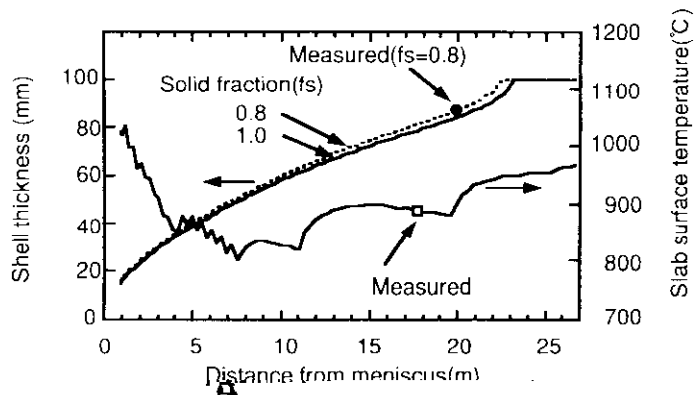
the centrifugal flow (CF) tundish^{1,2)}, one of Kawasaki Steel's unique techniques, was adopted as process equipment for the first time. Figure 12 shows the relationship

1CCM when a comparison is made with the same aluminum content. A comparison of the cleanliness of the

between the total oxygen content of molten steel in the

pin defects with the two casters is shown in Fig. 10. In

ascertained that the total oxygen content of molten steel



(SUS 304 Casting speed 1.6 m/min)

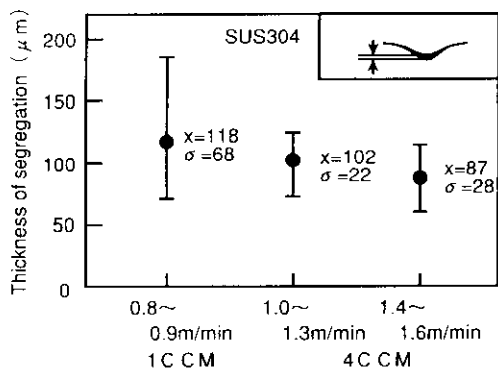


Fig. 14 Comparison of thickness of segregation between No. 4 CCM and No. 1 CCM

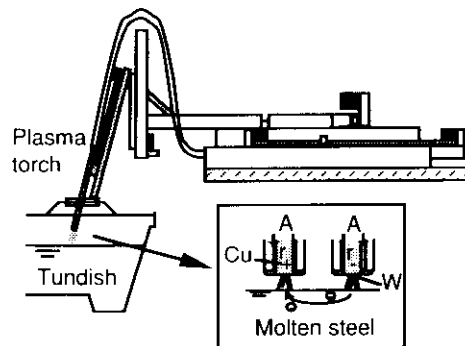


Fig. 15 Outline of the plasma heater

Table 3 Main specification of plasma heater

