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Development of New Skid Buttons with Ceramic Composite Metal for Slab Reheating Furnace

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Synopsis :

In the reheating furnace of the walking beam type, skid marks caused by skid buttons should be minimal for stabilizing slab quality and reheat performance. Not strong enough at high temperatures, the conventional cobalt-based heat resistance alloy develops compressive deformation after a short period of operation, entailing a gradual increase in skid marks. In reconstructing the slab reheating furnace of Mizushima hot strip mill from the old pusher type with hot skids to the walking beam type,

鋼片加熱炉用セラミック複合材製スキッドボタンの開発*

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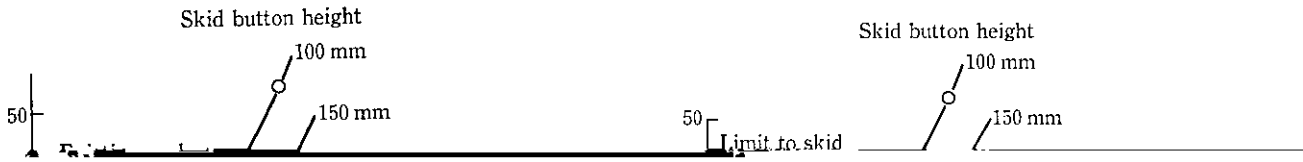
要旨

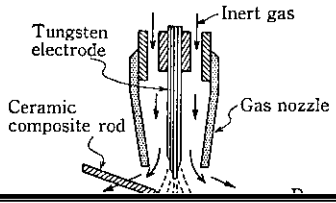
$\bar{t}_s$: Average temperature along the slab

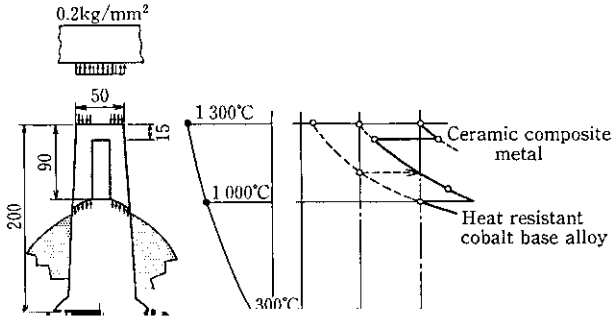

Skid button height
100 mm
150 mm
50
50
Limit to skid
Skid button height
100 mm
150 mm

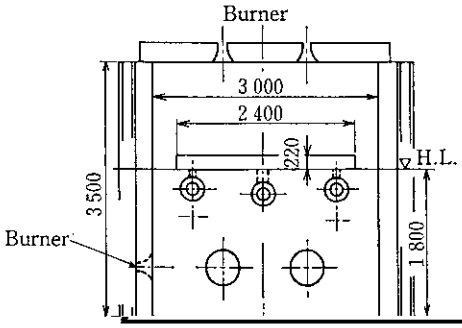
折って判明した。そのときは、ボタンの屈曲を例にして考えると

Table 1 Comparison of material characteristics between conventional and ceramic composite metal

	Conventional metal	Ceramic composite metal
	Cobalt alloy (<0.15% C\	




0.2kg/mm²
50
15
90
200
1 300℃
1 000℃
300℃
Ceramic composite metal
Heat resistant cobalt base alloy

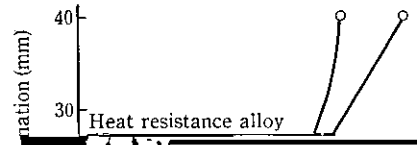

Burner
3 000
2 400
220
H.L.
3 500
1 800
Burner

タン形状を採用した場合とほとんど差がないことが分る。

水島製鉄所熱間圧延工場の加熱炉の場合は，移動ビームの接触時

ームのみに新ボタン形状を採用しても，移動ビームによって生ずる

4.1 新スキッドボタンの採用範囲[12)]



Slab size : 215 mm t × 1 200 mm W × 11 800 mm L

No.1 furnace (Pusher type)	No.3 furnace (Walking beam type)