

# NEW KSB Construction Method

Krosaki Harima Corp. has developed " New KSB Construction Method " that greatly improved workability.

### Characteristics of KSB Construction Method

- ◎KSB<sup>1</sup> is a precast block for heating furnace skid pipes.
- ◎Construction man-hours can be reduced by 30 to 50% compared with conventional casting construction. It neither require formers nor curing time.
- ◎EXEL306S has excellent insulating functions and save energy.
- ◎Compared with conventional monolithic casted structure, segment type KSB is less likely to have cracks due to expansion joint.

### Characteristics of New KSB Construction Method

- ◎By adopting stud gun welding, welding is easy and no skilled welder is required.
- ◎By making H-shape with tongue and groove, each block holds together. Therefore, welding only the top and bottom is sufficient, and the construction time is shortened compared to individual block welding.

<sup>1</sup> K.S.B (Abbreviation of Japanese word, Kantan Sekou Block=Easy Installation Block)

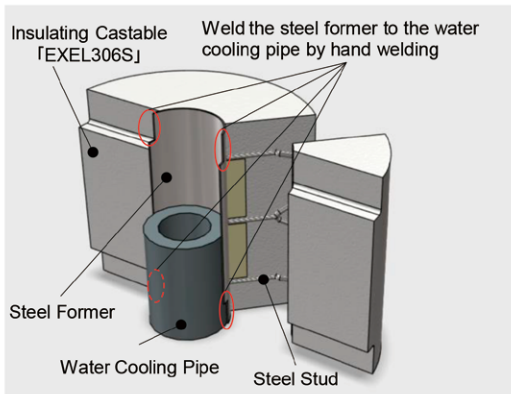


Fig. 1 KSB Structure

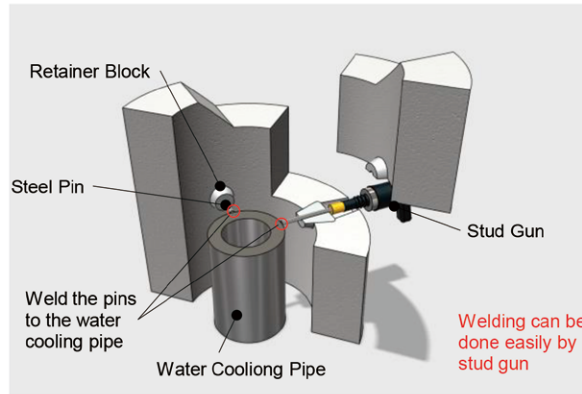
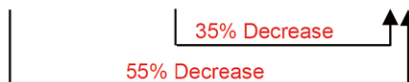


Fig. 2 New KSB Structure

### ■ Construction Time and Man-Hours

The Case to the constructing 10 pieces of the skid post						
Items	Casting method		KSB method (12pcs./post)		New KSB method (12pcs./post)	
	Time	Man-hours	Time	Man-hours	Time	Man-hours
Hardware construction	11 hr	7.4 M-h	8 hr	5.5 M-h	<b>6.5 hr</b>	<b>4.4 M-h</b>
	Stud cutting, Stud welding		Stud cutting, Surface polishing, Stud welding			
Refractory construction	46 hr	6.9 M-h	6 hr	4.4 M-h	<b>3 hr</b>	<b>2.1 M-h</b>
	Setting the frame, Casting, Curing, etc		Block construction, etc			
<b>Total</b>	<b>57 hr</b>	<b>14.3 M-h</b>	<b>14 hr</b>	<b>9.9 M-h</b>	<b>9.5 hr</b>	<b>6.5 M-h</b>



### ■ Typical Properties

Product	EXEL306S	
Chemical Composition (%)	Al <sub>2</sub> O <sub>3</sub>	87
	CaO	12
Bulk Density	110°C	1.36
	1300°C	1.18
Modulus of rupture(MPa)	110°C	1.7
	1300°C	3.0
Permanent Linear Change (%)	110°C	0.4
	1300°C	0.4
Thermal Conductivity (W/m·K)	at 800°C	0.39

Note: Above data is typical value and shall not be used as guaranteed value.



Fig. 3 Appearance of Stud gun Welding

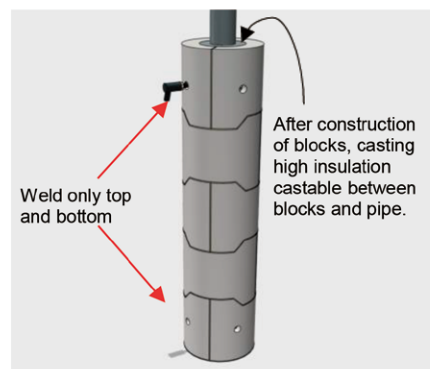


Fig. 4 Image after Construction of New KSB