

SHINTO LANCE

SHINTO LANCE PIPE
SHINTO HEAVY-COATED LANCE
SHINTO POWER LANCE



SHINTO INDUSTRIAL CO., LTD.

SHINTO LANCE: An Array of Superior Features

Shinto Lance Pipe (calorized pipe)

Pages 2-3

Shinto Lance Pipe is the most popular lance pipe in the steelmaking industry worldwide, and has established a reputation for quality and performance through years of use. Let us help you slash production cost and improve facility operating costs.

Usage

- ◆ Oxygen injection for steelmaking (cutting, melting, refining)
- ◆ Injection of carbon powder and other materials
- ◆ Ladle cleaning (high temperature)
- ◆ Tundish cleaning (high temperature)
- ◆ Tapping (blast furnace, ladle, tundish)

Shinto Heavy-coated Lance

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Developed as an extension of the Shinto Lance Pipe, the heavy-coated lance uses advanced heat-insulating materials. It offers excellent performance for use in the manufacture of stainless and alloy steel in electric arc furnaces, ladle furnaces, VAD and VOD.

Usage

- ◆ Oxygen/argon injection in EAF, LF, VOD and VAD
- ◆ Pre-treatment of hot metal (de-sulfur, de-phosphorous)

Shinto Power Lance

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The Shinto Power Lance is a self-combustible pipe consisting of a steel pipe and steel wires. The heat of combustion (3,000 to 4,000°C) provides simple cutting of materials such as iron, non-ferrous metals, concrete, and refractories.

Usage

- ◆ Stainless steel and heat-resistant steel cutting
- ◆ Non-ferrous metal (brass, copper, aluminum, etc.) cutting
- ◆ Ingot case cutting
- ◆ Blast furnace shell cutting
- ◆ Ladle and tundish cleaning (normal temperature)
- ◆ Slag and refractory material cutting
- ◆ Concrete and sheet pile cutting
- ◆ Ladle and tundish nozzle cleaning

Calorizing Q&A

What is Calorizing?

Calorizing is a treatment which modifies the material surface through an aluminum diffusion process. Gasified aluminum diffuses to form ferro-aluminum alloy layer on the surface of steel material.

Why isn't the calorized layer removed?

The calorized layer, which is a layer of ferro-aluminum alloy formed through diffused aluminum, is not removed like other types of plating (see photo 1 page 6).

What are the characteristics of the calorized material?

The key characteristics is resistance to oxidation at high temperature. Calorized material is essential in products used at high temperature, including lance pipes, boiler parts, and heat exchanger tubes. In addition to oxidation resistance, the calorized material is also highly resistant to carburization, stress corrosion cracking (SCC) and abrasive wear.

SHINTO LANCE PIPE <For Steelm

Lower pipe consumption to increase profitability !!!

Characteristics

SHINTO LANCE PIPE provides the following advantages:

Long Life!!

With a calorized layer and a ceramic coating on its inner and outer surfaces, the Shinto lance pipe lasts five to seven times longer than mild steel pipe in oxygen injection.

Time Savings!!

Longer life means that replacement is not needed as often, which also shortens the tap-time in the oxygen enrichment operation.

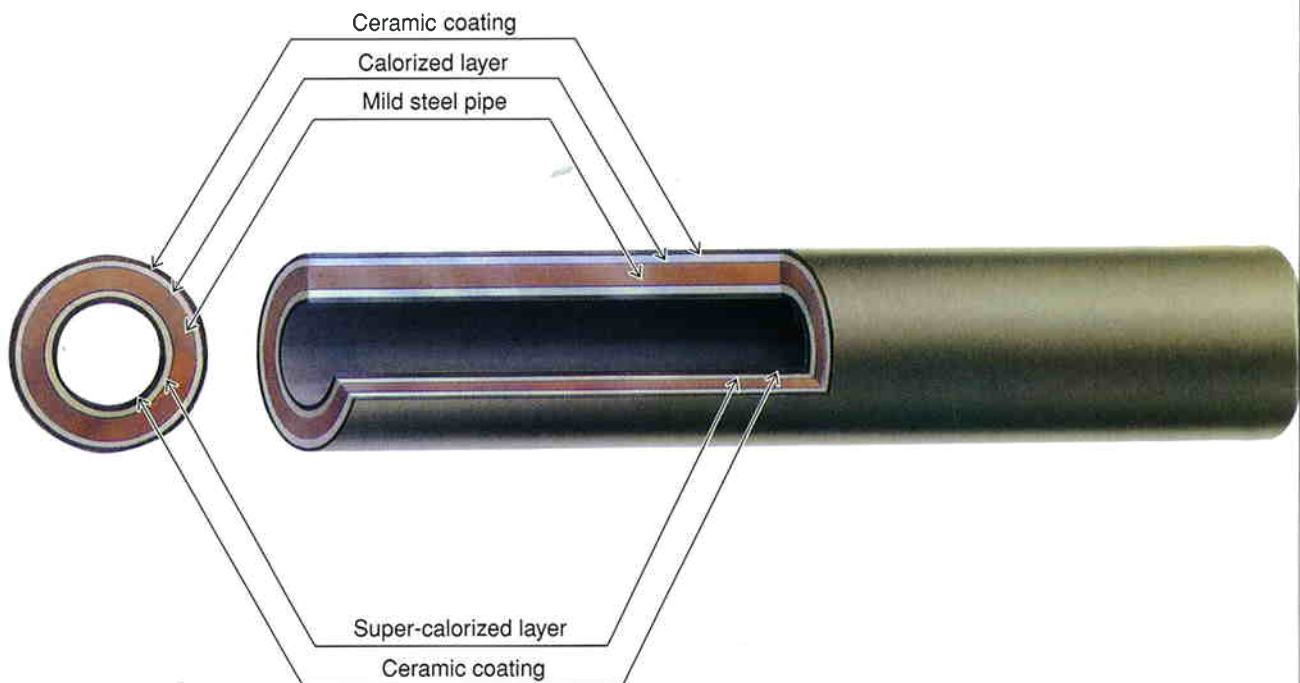
Cost savings!!

A Shorter tap-time means lower cost.

Higher productivity!!

Enhanced productivity means a sharp decrease in production costs.

Construction



1) Standard Type of connection

Type	Connections
P/E Type (Plain End)	<p>↓ 200mm No Ceramic Coating</p>  <p>Plain End Plain End</p>
T/C Type (Threaded/Coupled)	<p>↓ 200mm No Ceramic Coating</p>  <p>↑ Threaded End Threaded Coupling ↑</p>
UT/C Type (Un-Threaded/Coupled)	<p>↓ 200mm No Ceramic Coating</p>  <p>Plain End Un-Threaded Coupling ↑</p>

2) Standard sizes and specifications

Size (N.B)	Length (mm)	Packing (pcs/bundle)	Memo
1/8" (6A)	5,500 2,750	300	P/E type only. Without ceramic coating.
1/4" (8A)	5,500 2,750	300	
3/8" (10A)	5,500 2,750	300	
1/2" (15A)	5,500 2,750	300	
3/4" (20A)	5,500 2,750	200	
1" (25A)	5,500 2,750	150	
1-1/4" (32A)	5,500 2,750	100	
1-1/2" (40A)	5,500 2,750	50	

Other sizes also available. Please contact your vendor or manufacturer for details.

3) Standard package

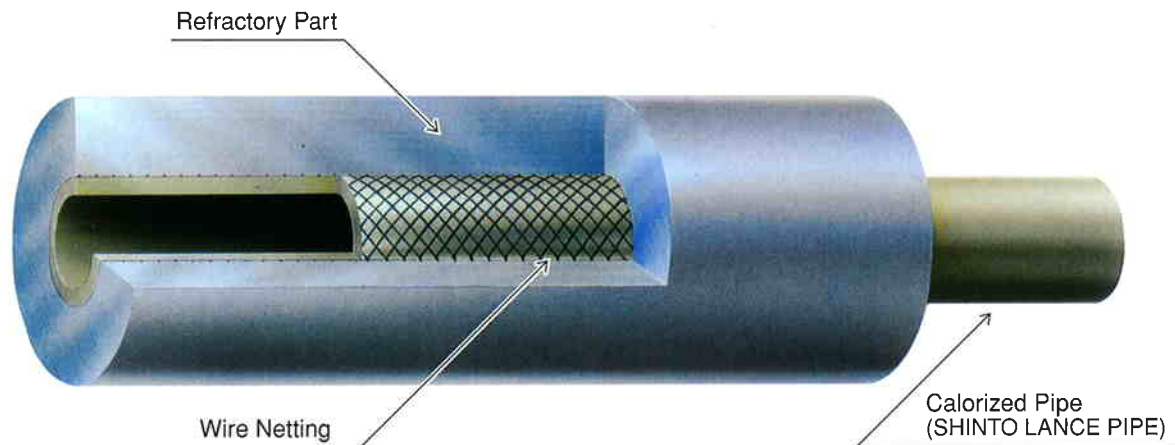


For export: Seaworthy packing, wrapped in shrink film.

SHINTO HEAVY-COATED LANCE

For Stainless Steel/Alloy Steel !!!

Construction



1) Specifications

1. Pipe

SHINTO LANCE PIPE (calorized)

2. Refractory

Offers higher resistance against spalling, and offers enhanced durability without exfoliation in molten steel.

Chemical composition (Refractory)

Component	Rate(wt%)
Al ₂ O ₃	66~76
SiO ₂	21~26
TiO ₂	1~3
Fe ₂ O ₃	<0.5
Na ₂ O+K ₂ O	2~4
CaO	<0.5
MgO	<0.5
T.C	—
S.G.	2.1

Other refractories available for specific steelmaking requirements. Please contact your vendor or manufacturer for details.

2) Standard sizes

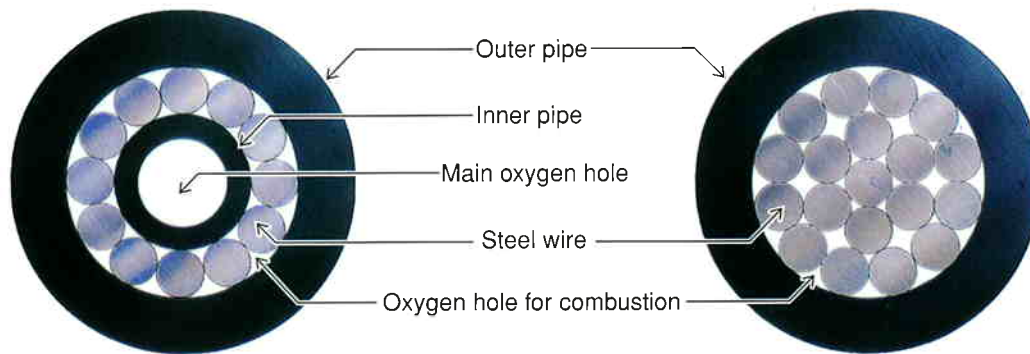
PIPE		Refractory(mm)			Net Weight (kgs/p)	CONNECTION
O.D.(N.B.)	Length(mm)	O.D.(φ)	Thickness	Length		
1/2" (15A)	2,750	36	7.3	2,600	6.3	P/E T/C
		42	10.3	2,600	7.8	
		48	13.3	2,600	9.3	
3/4" (20A)	2,750	42	7.6	2,600	8.3	
		48	10.6	2,600	10.7	
		60	16.6	2,600	16.2	
1" (25A)	2,750	48	7.4	2,600	10.4	
		60	13.4	2,600	16.0	
		75	20.9	2,600	24.6	
1-1/4" (32A)	2,750	60	8.9	2,600	14.5	
		75	16.4	2,600	23.2	
		100	28.9	2,600	42.0	
1-1/2" (40A)	2,750	75	13.2	2,600	21.8	
		100	25.7	2,600	40.6	
		120	35.7	2,600	59.4	

Other sizes and type of connection also available. Please contact your vendor or manufacturer for details.

SHINTO POWER LANCE

Self-Combustible pipe for powerful, rapid cutting !!!

Construction



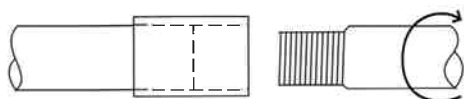
1) Standard sizes and specifications

TYPE	CROSS SECTION	OUTER PIPE	INNER PIPE	STEEL WIRE	LENGTH (mm)	NET WEIGHT (kg/Pc)	OXYGEN WORKING PRESSURE (Kg/cm ²)	CONNECTION ※1
		O.D. x THICKNESS (mm) x (mm)	I.D. x THICKNESS (mm) x (mm)	DIA x QUANTITY (mm) x (Pcs)				
PL7-6		12.7 x 1.6	—	3.15 x 6	1,800	1.40	5-7	UT/C
PL8-6		13.8 x 2.3	—	3.15 x 6	2,750	2.70	6-8	T/C UT/C
PL10-1		17.3 x 2.3	7.0 x 1.0	2.6 x 12	3,000	4.50	7-10	T/C UT/C
PL10-3		17.3 x 2.3	—	2.6 x 19	3,000	5.02	8-12	T/C
PL15-1		21.7 x 2.8	9.0 x 1.0	3.15 x 13	2,750	6.00	10-13	T/C
PL20-1		27.2 x 3.4	13.8 x 2.3	3.0 x 18	2,750	9.00	12-15	T/C

Other sizes also available. Please contact your vendor or manufacturer for details.

※1 Connection

1. T/C (threaded and coupled)



2. UT/C (unthreaded and coupling supplied separately)



Insert pipe into coupling and hammer to force-fit.



Using Shinto Lance Pipe in E.A.F.



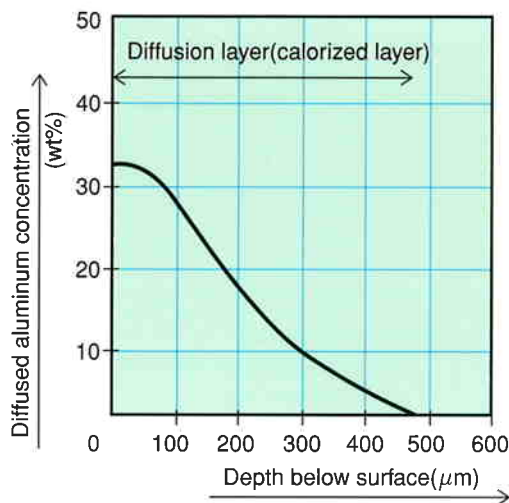
Shinto Lance Pipe



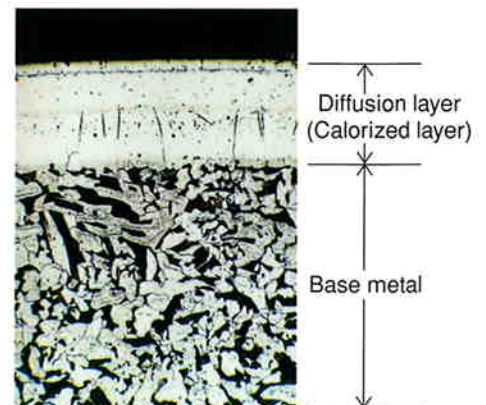
Shinto Power Lance



Shinto Heavy Coated Lance



(Photo1) Cross-sectional Microstructure



Cross-sectional microstructure and diffused Aluminum concentration diagram of calorized mild steel.

Accessories

For Shinto Lance Pipe

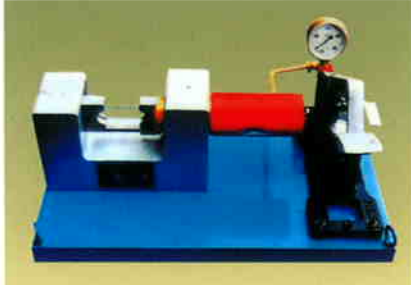
1) Lance holder



No oxygen leakage!
Compact, light-weight design!
Easy to handle!

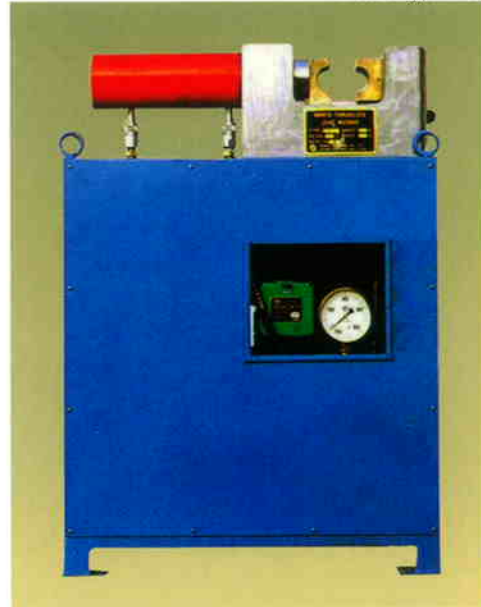
2) Crimping machine

Manual type:H-30



Adapts to all lance sizes on site or in the shop.

Electric type:E-35



Provides a tight connection quickly and easily.

For Shinto Power Lance

1) Lance holder



No oxygen leakage!
Compact, light-weight design!
Easy to handle!

For more details on accessories, please contact your vendor or manufacturer.



Iwaki works

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<Agency>