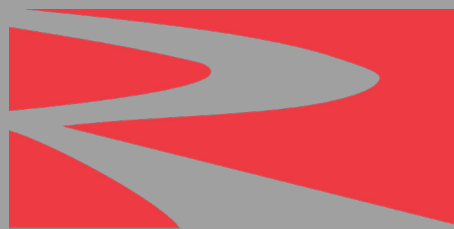


# Coke Ovens



**RESCO**<sup>®</sup>  
PRODUCTS, INC.

[www.RescoProducts.com](http://www.RescoProducts.com)

# Coke Oven Products

Resco Products is a full line refractory manufacturer headquartered in Pittsburgh, PA. With 9 operating plants and 2 mines in North America we are strategically located to serve our customer base. Resco has a well established reputation in the Steel industry, and we offer a multitude of products for the coke ovens.

<b>PATCHING:</b>	JAMB Sprays - Phosphate Bonded
	Trowel Patch and Mortars
	Gunite - Conventional & Fused Silica/Fine and Coarse
	Castables for JAMBS and General Battery Top Repairs
	Dry Vibratables for Floor Leveling
<b>SEALANTS:</b>	Coke Oven Lid Seal
	Coke Oven Door Seal
	High Density Ceramic Rope
	Drop Sleeve Gaskets
	Grouting Materials
	Silica Dust
	Cold Joint Seal for Goos Necks
<b>EQUIPMENT:</b>	JAMB Spray Vessels
	Door Seal Pumps
	Gunite Machines - Rotary and Pressure Vessels
	High Pressure Grout Pumps
<b>PRECAST SHAPES:</b>	Door Plugs
	Charge Hole Castings
	Flue Castings
	Fused Silica Wall Shapes
<b>PRESSED SHAPES:</b>	Fused Silica Complete WALL Design - Original & Modules
	Fire Clay Brick
	High Density Wharf Brick
	Insulating Fire Brick



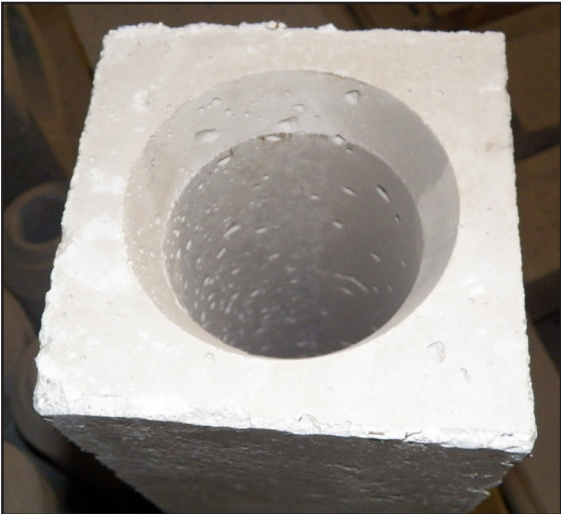
# Coke Oven Shapes



**Precast Door Plugs**



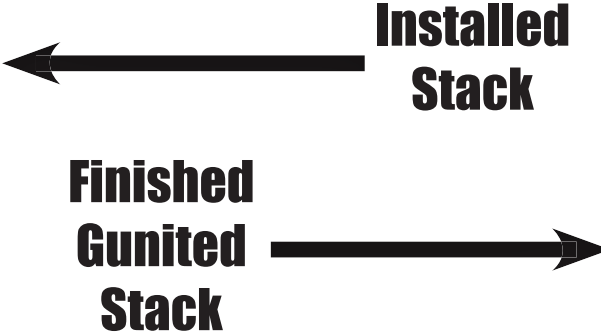
**Cast Charge Hole Frame**



**Cast Inspection Hole**



**Cast Standpipe Base**



# Coke Oven Services/Equipment

- OVEN SURVEYS
- CERAMIC WELDING:  
WALL,. ROOF,  
FLOOR, GAS GUN, TIE-IN
- GUNITE
- JAMB CASTING
- OVEN DUSTING
- FLUE CLEAN OUT
- REGENERATORS CLEAN OUT
- HIGH PRESSURE GROUTING:  
BATTERY TOP, GAS GUNS,  
GAS RISORS, DOOR FRAMES
- END FLUE PANEL PATCH
- END FLUE REPLACEMENT
- CHARGE HOLE CASTING  
RE-SET/REPLACEMENT
- FLUE CASTING RE-SET/RE  
PLACEMENT
- WHARF REPAIR

Weld Powders

Jamb Sprays

Mortars

Gunites

Castables

Sealants

Equipment

Services

## Application Equipment



← DOOR SPRAY  
BUGGY

ROTARY DRY  
GUNITE  
MACHINE



PRESSURIZED DRY  
GUNITE MACHINE



PRESSURIZED JAMB  
SPRAY VESSEL

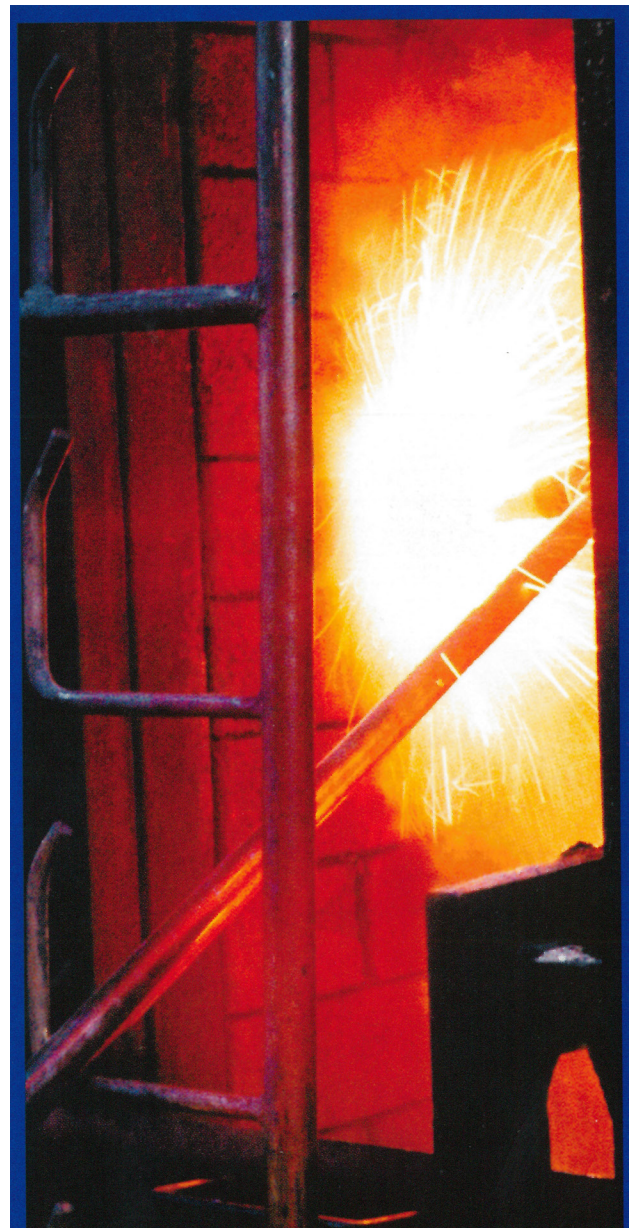
# Coke Oven

## Ceramic Welding

A Ceramic Welding service for the repair of refractory brickwork and monolithic linings of coke ovens and other furnaces.

### Ceramic Welding

- The RESCO Ceramic Welding system has been in use commercially for more than 3 decades.
- Numerous contracts have been serviced in North America.
- Repairs are carried out to damaged refractory brickwork or furnace linings.
- Resco Ceramic Welding powders can be custom made to suit a wide range of refractory appliances.
- Refractory brickwork is maintained at or near the oven or furnace temperature.
- Disruptions to production are kept to a minimum.
- Coke oven battery or furnace life can be extended.
- Chimney emissions can be reduced.



# Coke Oven

## The Process

- Precisely graded refractory material of similar chemical and physical properties to that of the refractory to be repaired is blended to an exact formulation with specific metallic oxidants

- The ceramic welding powder is conveyed in compressed air and mixed with oxygen before passing through a lance to the repair area

- The powder ignites when it comes into contact with the hot refractory substrate

- The exothermic reaction of the metallic constituents raises the temperature to 3540 - 3720 degrees Fahrenheit. \*

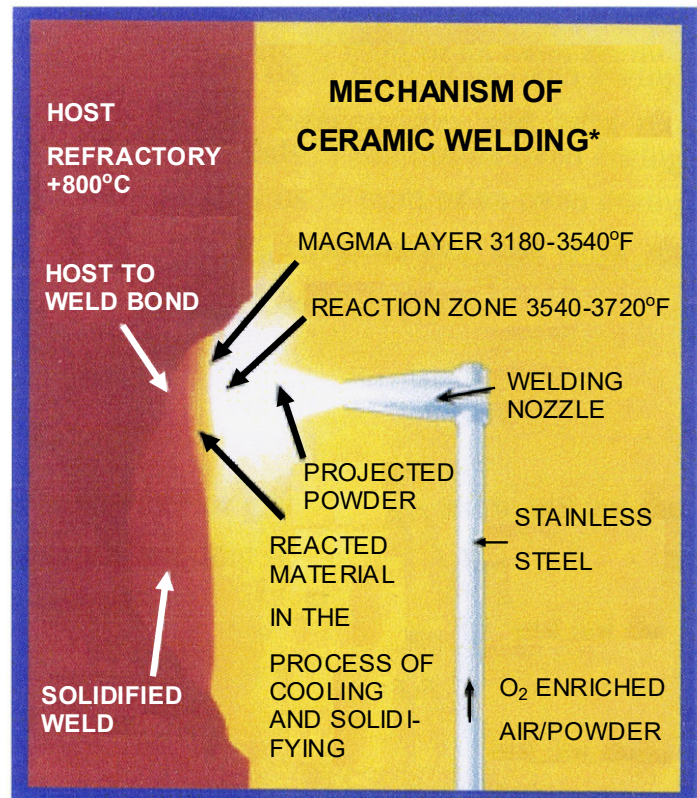
- This heat is sufficient to flux the ceramic welding material and fuse it to the partially melted substrate

- The repair is then carried out by depositing ceramic weld until the correct profile is restored

- The ceramic weld develops similar crystalline characteristics to the host brickwork providing a long lasting repair



From left to right: damaged wall prior to repair, welding in progress, finished repair.



\*These figures relate to Silica Type 'S' ceramic welding powder

Weld Powders

Jamb Sprays

Mortars

Gunites

Castables

Sealants

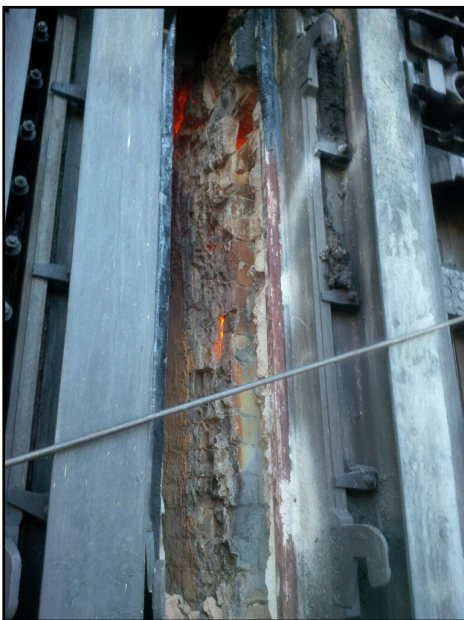
Equipment

Services

# Coke Oven

## Patching Products/Sealants

JAMB Sprays	JAMB Coat P 99 (Premix) & JAMB Coat P Dry
Trowel Patching	LadleLock 70 JP & REF Bond-F
Mortar	LadleLock 3000
Gunite-Conventional	HM28 LI CO & HM28 LIF CO (Fine Grain)
Gunite-Fused Silica	RescoGun FS-CF (Cement Free), RescoGun FS-CF Fine
Castables	JAMBS - Unicrete 50 Flowz TL0877 & Unicrete 60 Flowz Battery Top & General - Unicrete 50 Flowz TL0877
Floor Leveling/Patch	R 60 DV (Dry Vibratable)



**Missing Flue:  
To be repaired**

**Repaired area with  
RescoGun FS-CF**



## Sealants

Charge Hole Lids	Lid Seal Lid Seal G (Silica) Lid Seal LW (Low Density)
Doors	Door Seal
Grouting	Super Grout 85
Goose Necks	Cold Joint Seal
Oven Dusting	CO Dust

# Coke Oven

## The Equipment

Weld Powders

Jamb Sprays

Mortars

Gunites

Castables

Sealants

Equipment

Services

- RESCO currently has two models of ceramic welding machines available.
- The SP150 is a pneumatically operated, trolley mounted machine which has a proven track record.
- The SP100 is a smaller version of the SP150, which is ideal where access is limited.
- Both machines can apply up to 220 pounds of ceramic welding powder per hour.
- Refractory cleaning is achieved by using pneumatic tools or grit blasting techniques.
- The majority of repairs are carried out using standard stainless steel lances. For special applications, water cooled lances are used.



**SP150 Ceramic Welding Machine**



## Ceramic Welding Powder

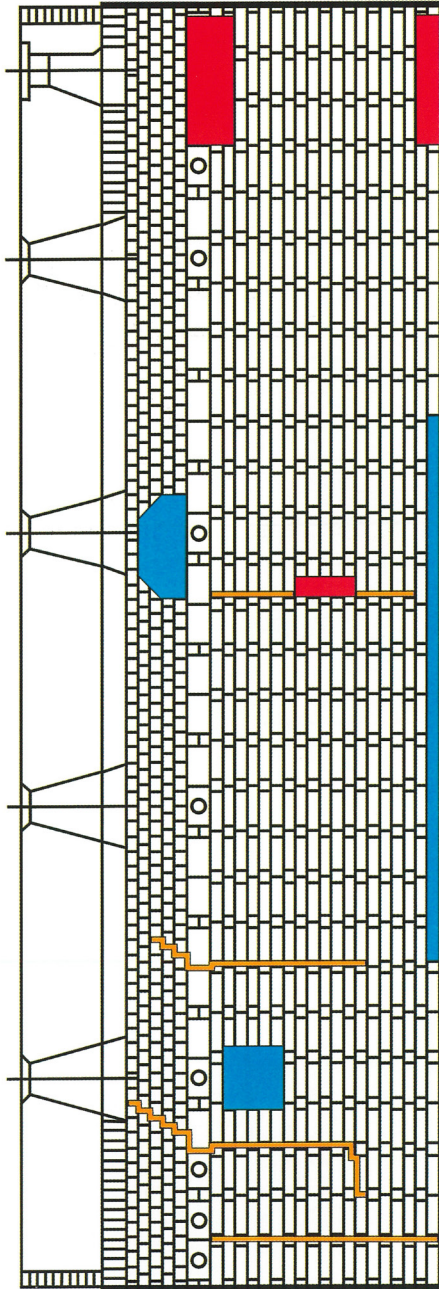
RESCO ceramic welding powders for use in coke oven repairs include:

- Silica Type "S" is suitable for the majority of coke oven repairs.
- Fireclay Type "D" is used for fire brick or chamotte applications.
- Al-SiL Type "L" is a higher alumina version of Type D
- Type "FS" is a silica based material with a high resistance to thermal shock.
- Ceramic welding powders can be custom made to suit a wide range of refractory applications.



# Coke Oven

## Typical Repairs



- HOLE TO FLUE
- SPALL
- CRACKS/OPEN JOINTS

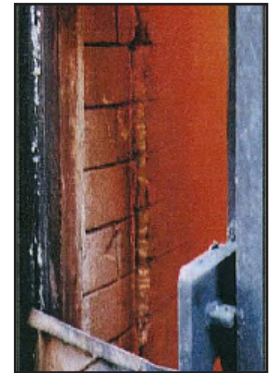
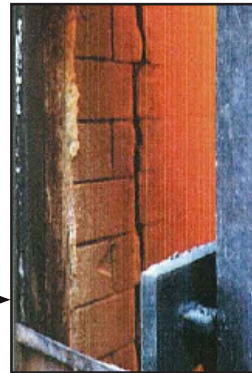


Severe damage to oven wall caused by a defective ram head, shown before and after repair.



Welding damaged roof blocks and undercut using a water cooled lance.

Severe crack to oven wall shown before cleaning, after cleaning, during welding and completed



# Ceramic Welding Expert

Thomas Gisewhite



ES Silica  
Weld Powder

Fireclay  
Weld Powder

Silica  
Weld Powder

Thomas Gisewhite

*Manager Coke Division*

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Edited 2019

