

“Martin Air Cannon”



“For Cement Industry”



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Martin Typhoon Air Cannon



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NEW PATENTED DESIGN OFFERS:



- Twice the Force Output
at
- Half the Size
with
- One-Step Maintenance

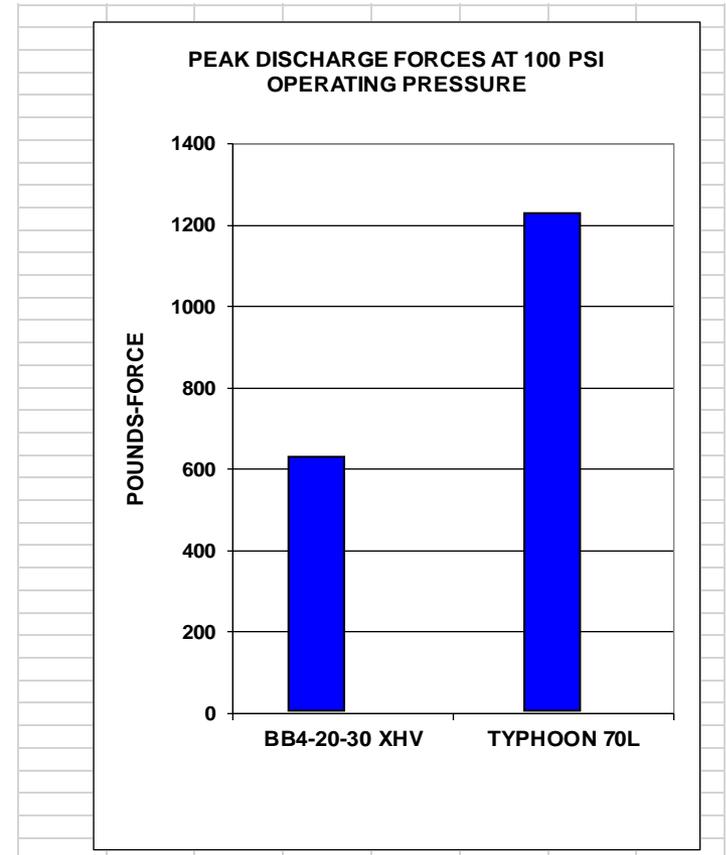
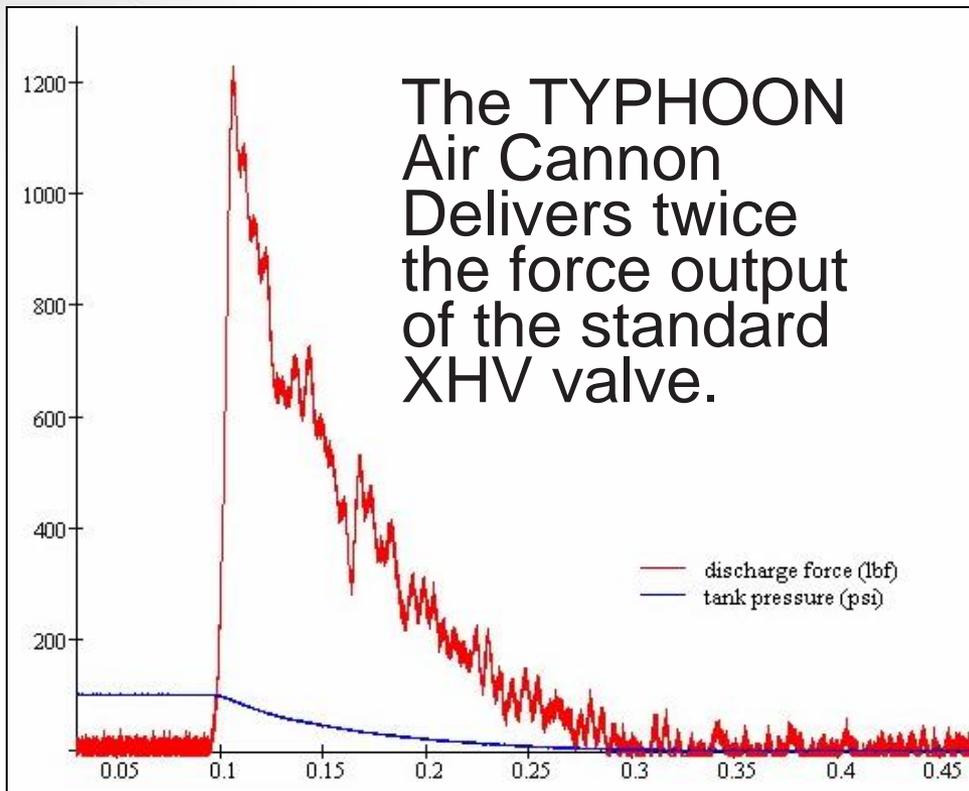


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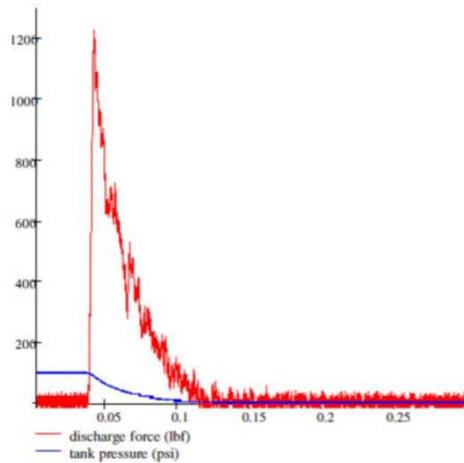


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ENHANCED PERFORMANCE



70 liter Hurricane



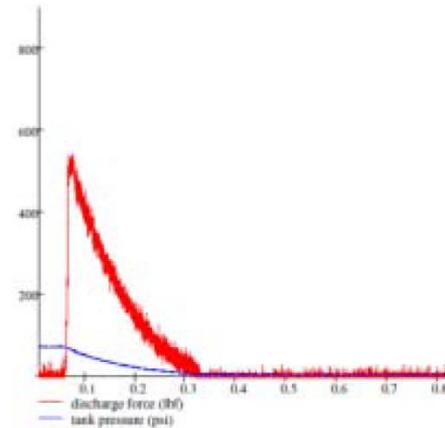
max(Tps) = 102.91 max. tank pressure,
min(Tps) = -0.55 min. tank pressure,
max(Fp) = 1227.3 peak discharge force

320 liter XHV 2448

4"XHV 2448 standard QEV operation (GCC current operation)



70 psi Standard QEV 2448 "duplicates current performance when the air supply is 70psi"



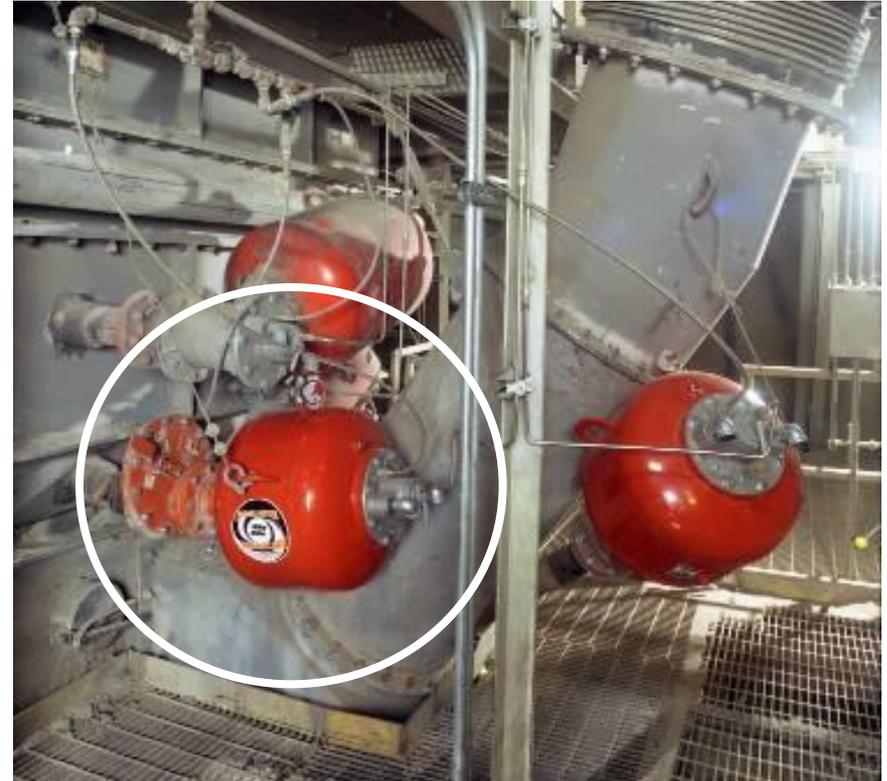
max(Tps) = 72.45 max. tank pressure,
min(Tps) = -1.99 min. tank pressure,
max(Fp) = 540.91 peak discharge force

*These numbers would show even lower if we duplicated the long line runs.

A SMALLER, LIGHTER AIR CANNON



- Overall dimensions = 20" x 20" x 30"
- Allows Air Cannons to fit into tight spaces
- Weight = 52Kgs



Air Cannon Nozzle Technology



“ Smart Series Nozzle”
for Extreme Temperature
applications



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Extreme Temperature Application

Cement Preheater Towers & Clinker Coolers



Typical Tower Application

Typical Cooler Application



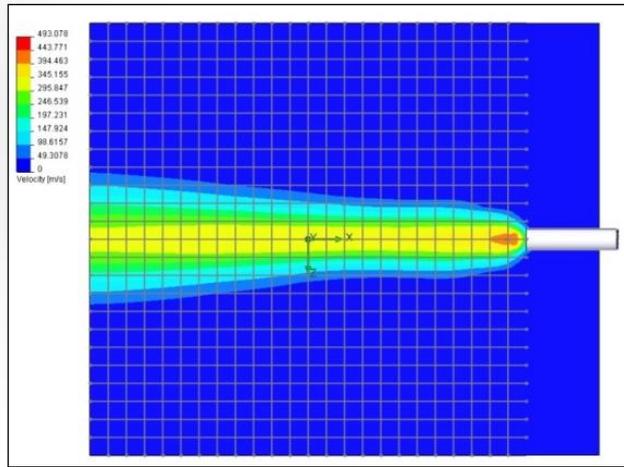
Standard High Temperature Nozzles



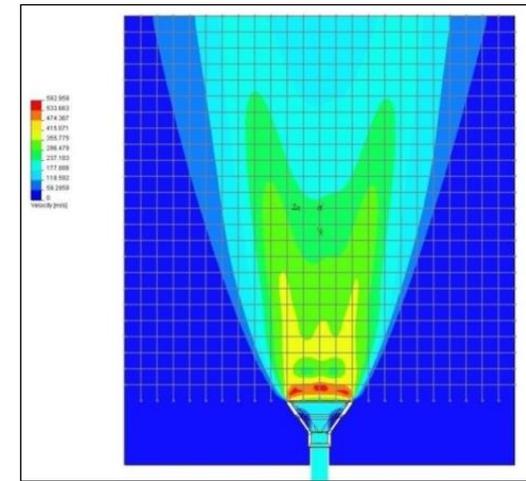
SS Pipe Nozzles

Cast Alloy Fan Nozzles

CFD Simulation & Physical tests



Standard Pipe Nozzle



Standard Fan nozzle



Old Technology: Standard Fan Nozzle



- Most Popular Nozzle for Cement Applications



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Standard Fan Nozzle Installation

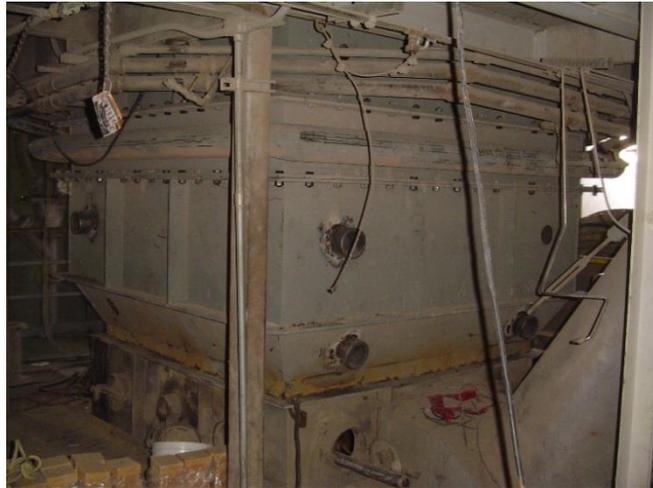
Typical Tower Application



Typical Cooler Application



Standard Fan Nozzle Installations



Damaged Nozzle





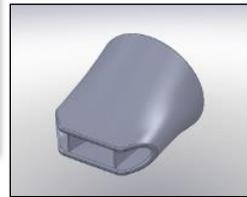
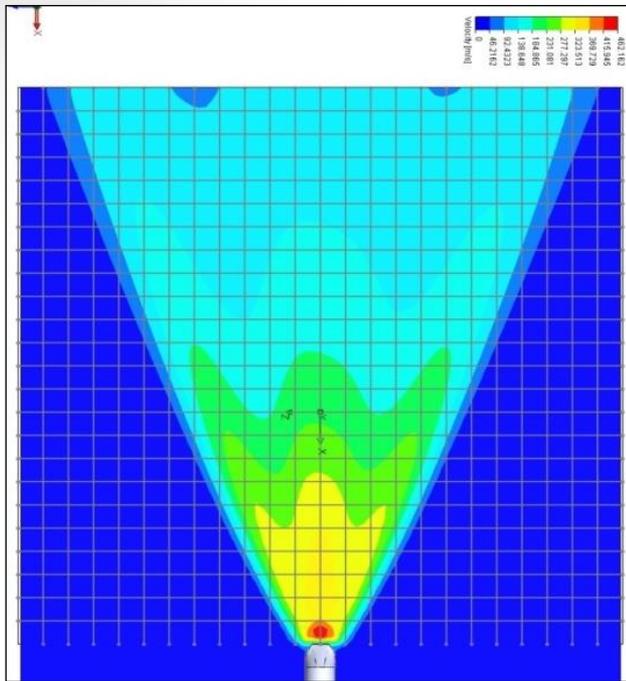
Smart Seiries Nozzle “Concept”

- 1.) Easy Installation (like a pipe nozzle)
- 2.) Wide Area of Influence (like a fan nozzle)
- 3.) Limit/Eliminate Damage to surrounding refractory
- 4.) No entry required into the tower/cooler
- 5.) Eliminate improper alignment
- 6.) Easy Change out / Replacement

CFD Simulation & Physical tests



New "Round Fan" prototype



Directs the air flow

New “Round Fan” Nozzle



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Standard vs. Round

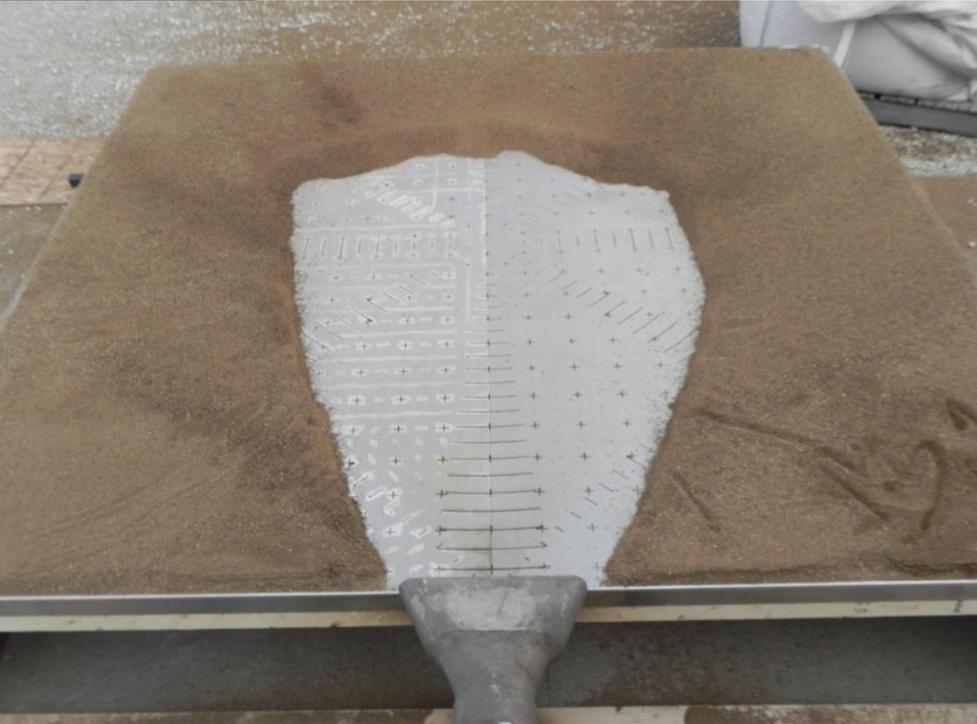


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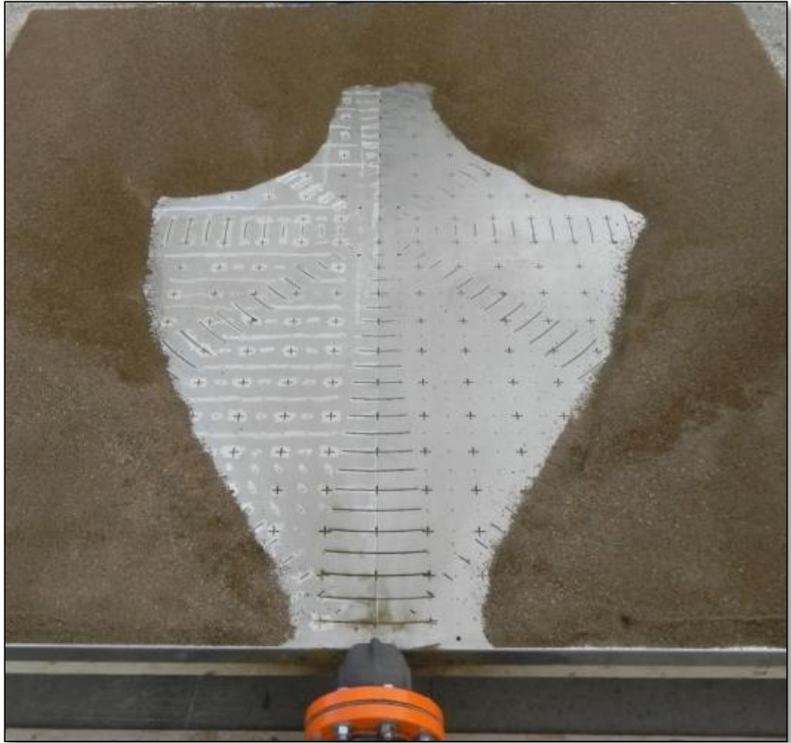


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Area of Influence



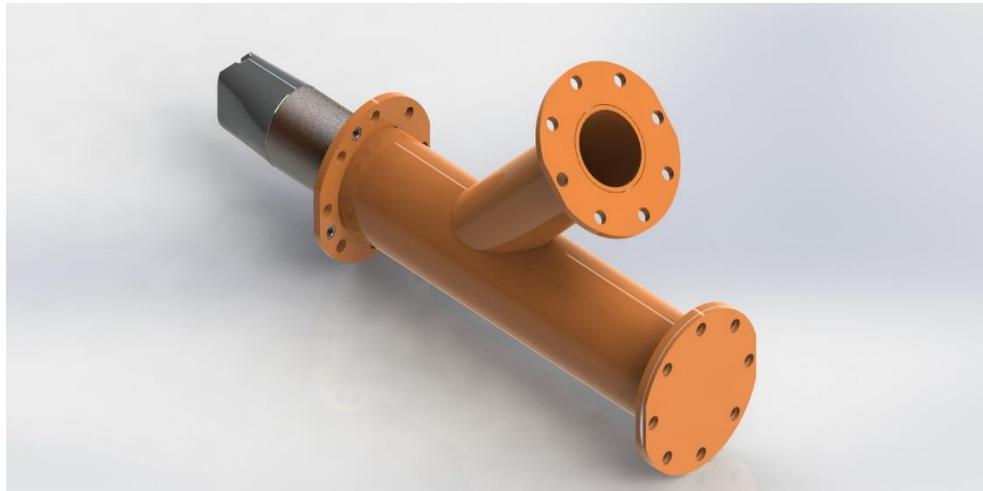
Standard Fan



Round Fan



Y-pipe Version



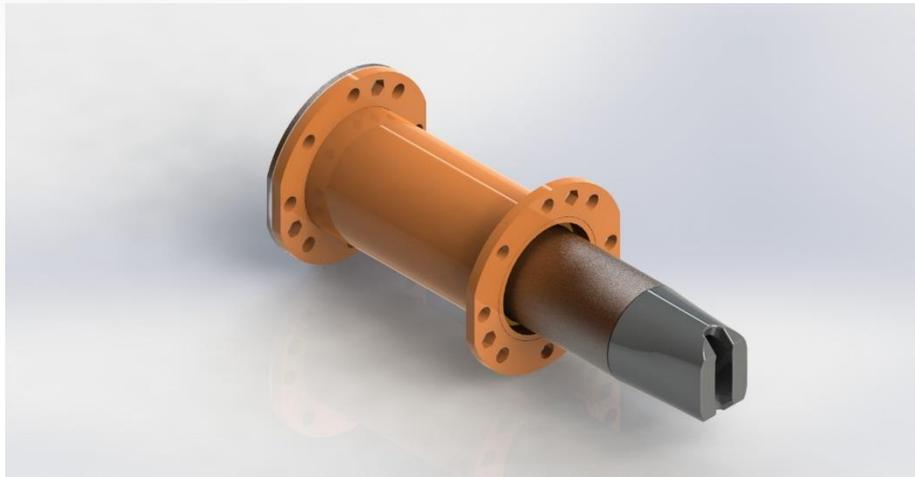
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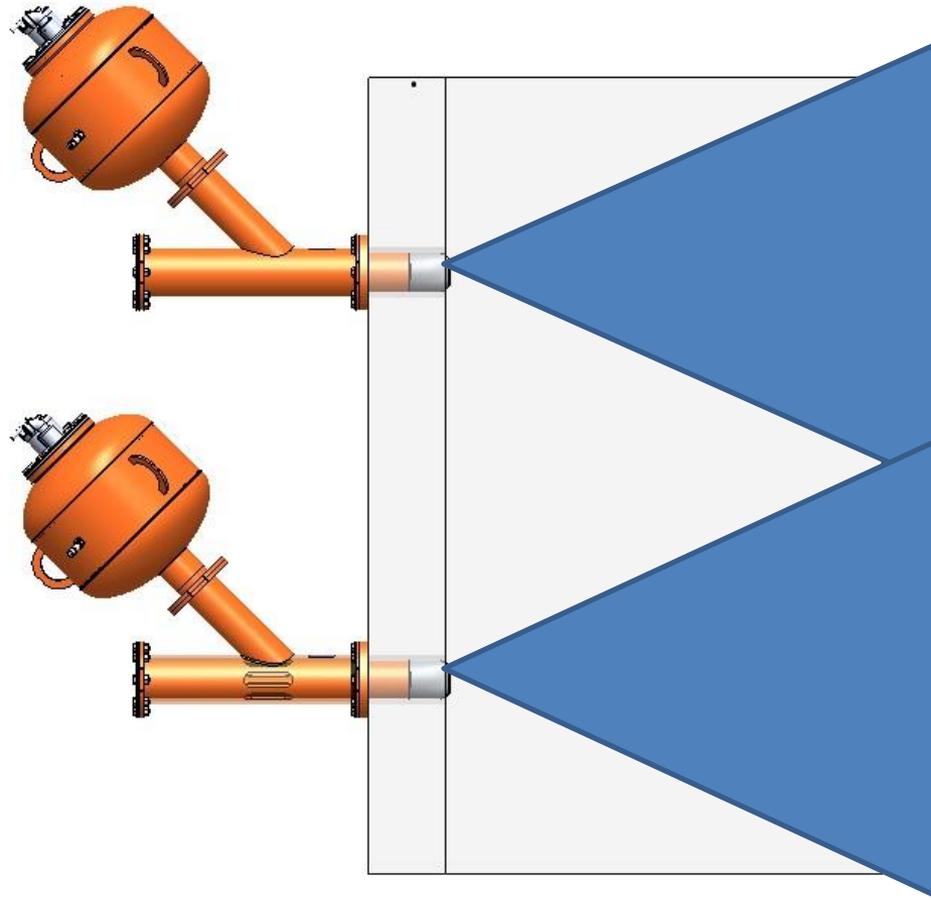


Inline Version

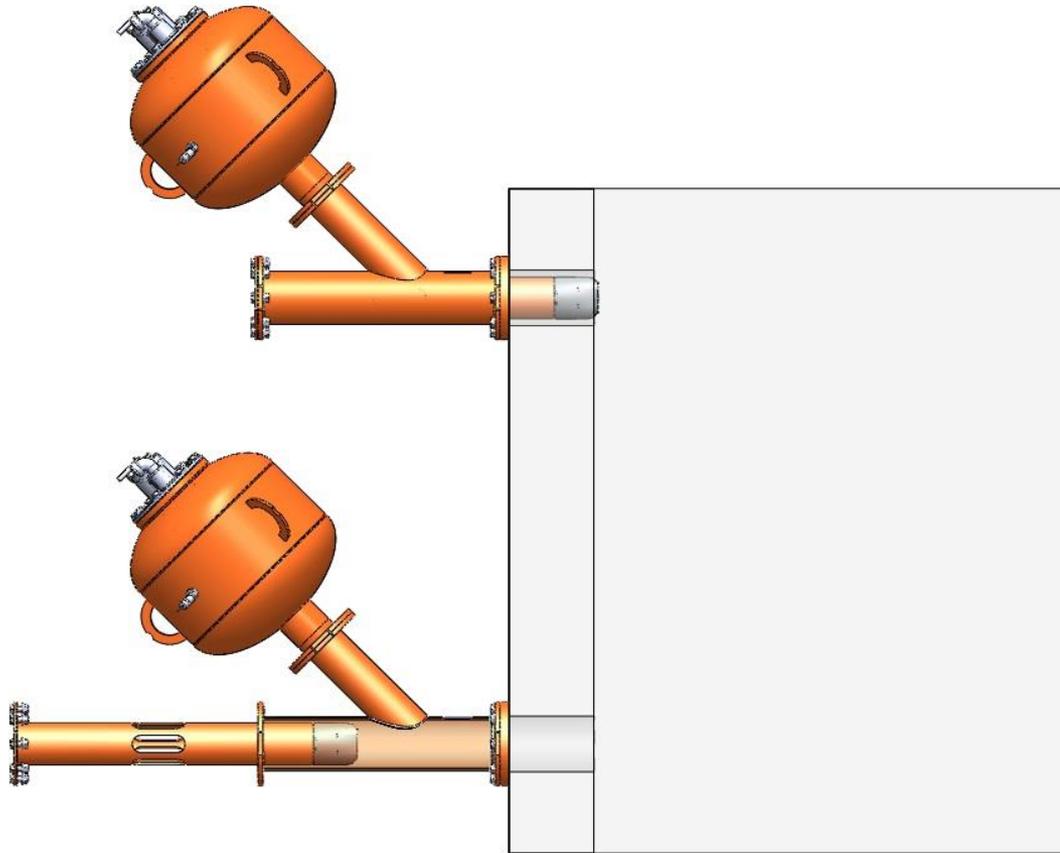


Used for limited space installations

Smart Series Nozzle



Smart Series Nozzle



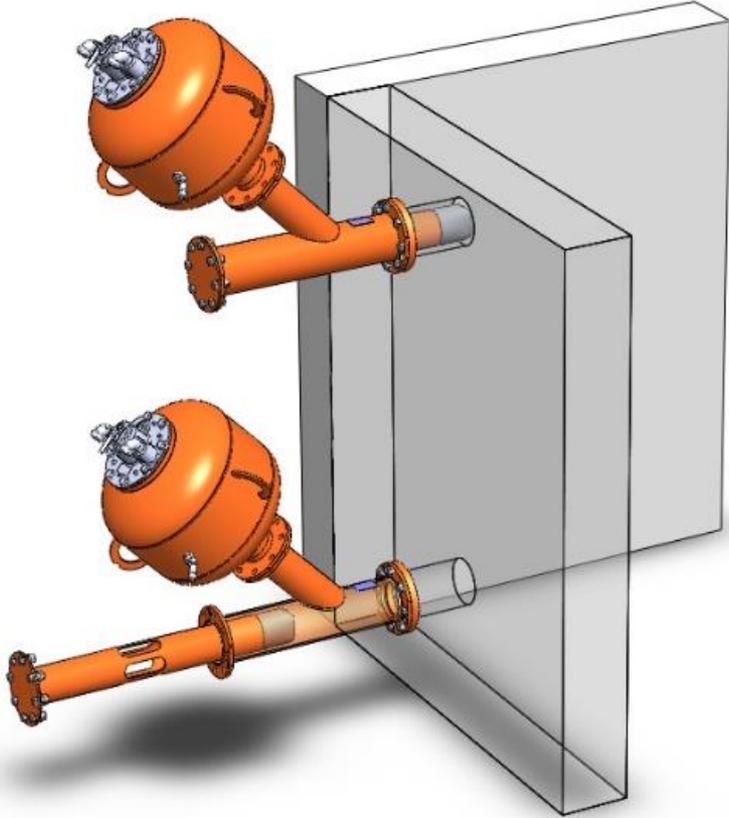
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Quick Change Nozzle



Quick Change Nozzle Installation



New Nozzle Installation



Final Installation





Final Installation



Removal & Inspection

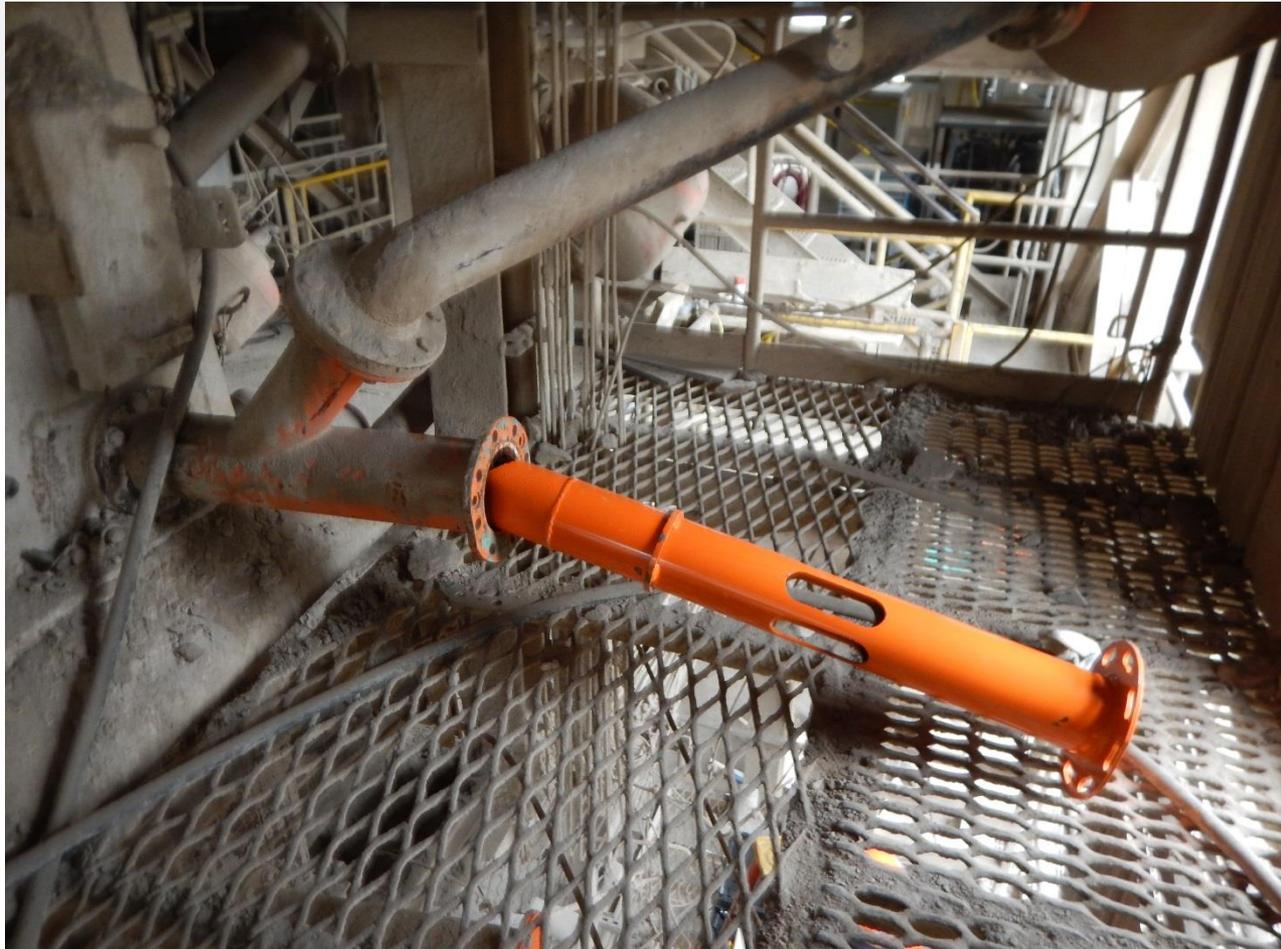


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Replacement



New Martin Smart Series Nozzle



- 1.) Easy Installation (like a pipe nozzle)
- 2.) Wide Area of Influence (like a fan nozzle)
- 3.) Limit/Eliminate Damage to surrounding refractory
- 4.) No entry required into the tower/cooler
- 5.) Eliminate improper alignment
- 6.) Easy Change out / Replacement
- 7.) Can be used with any air cannon.

Martin Core Drill

NO Entry Required. NO Outage. NO Loss of Production

The ONLY technology to safely install Air Cannons and Nozzles while in production



**Absolutely No Excuses
100% Money Back
GUARANTEED!**

Martin Core Drill:

Benefits:

- ✓ Safer Installation
- ✓ Install While in Production
- ✓ 8-Bolt Pattern Ensures Quick & Easy Installation
- ✓ Factory-Direct Technician Available
- ✓ Works with Martin® Smart Series Nozzles

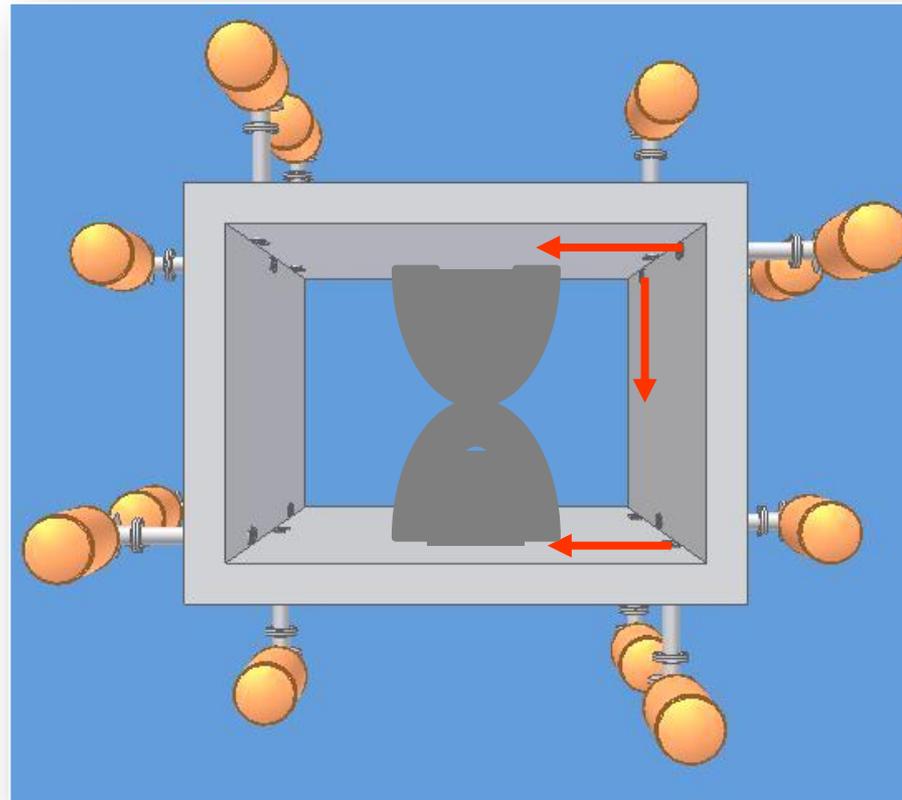


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Cleaning riser duct walls

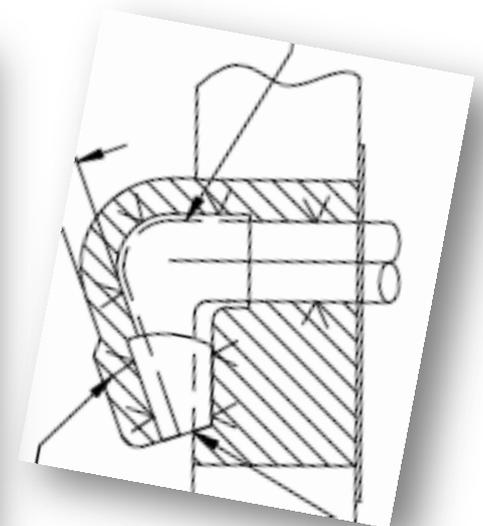


*Top View
(Looking Down the Riser Duct)*

OLD TECHNOLOGY: 90° Cast Alloy Nozzles



- Installed from inside the preheater
- Anchors welded to the nozzle
- Refractory attached to the anchors



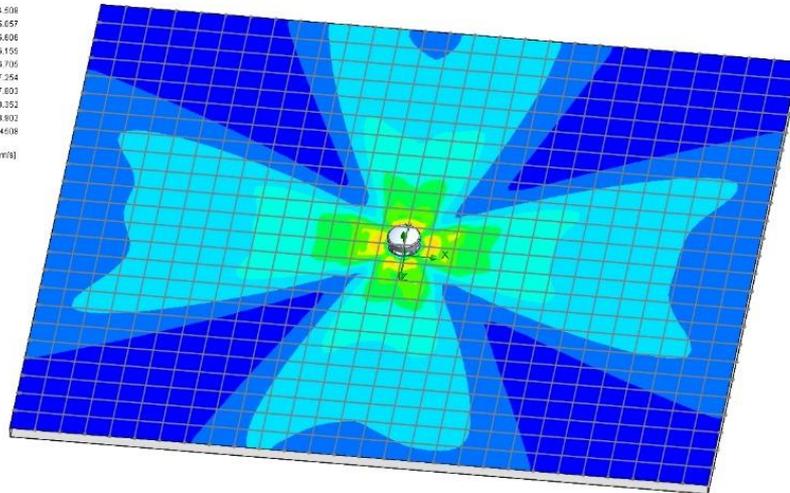
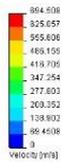
OLD TECHNOLOGY: 90° Cast Alloy Nozzles



Martin® Retractable 360° Nozzle

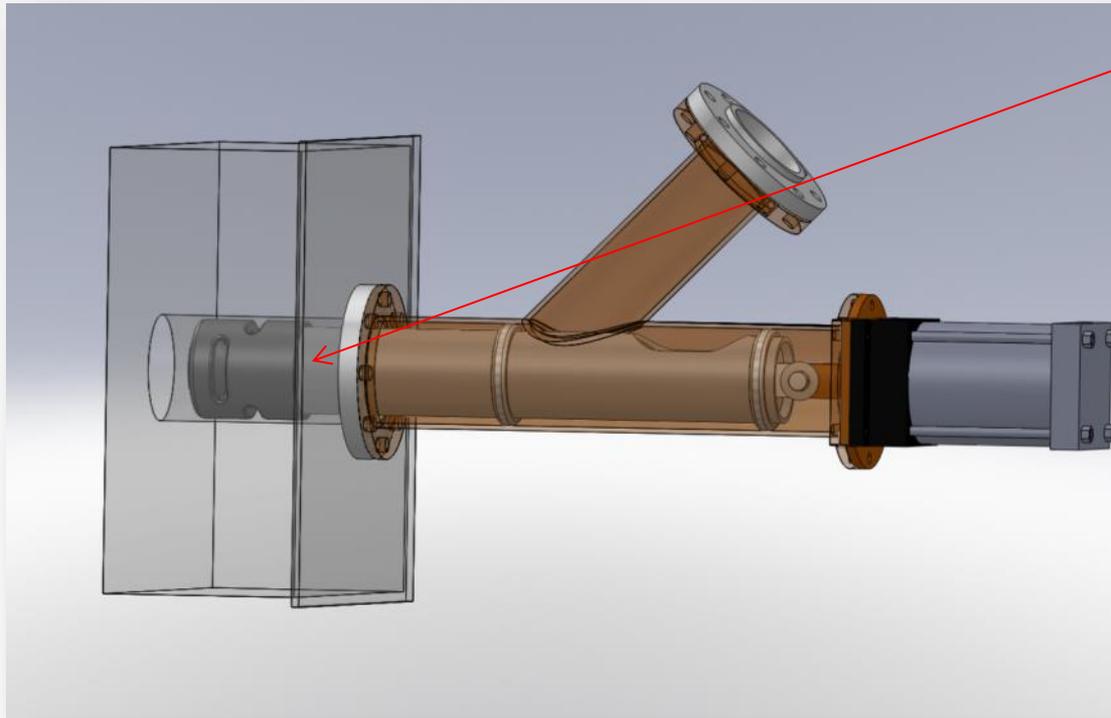


CFD Simulation & Physical tests





NEW TECHNOLOGY: Retractable Nozzle (360 Degree)



- When retracted, nozzle is recessed into refractory to protect the nozzle.

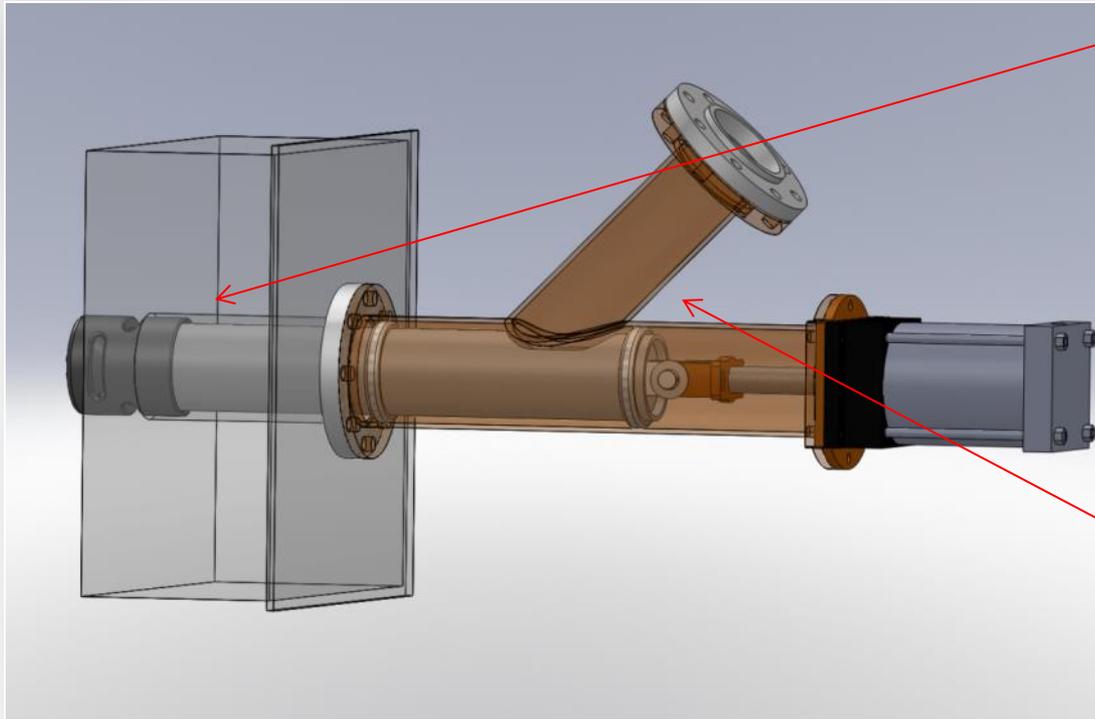


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NEW TECHNOLOGY: Retractable Nozzle (360 Degree)



- Extended position projects nozzle beyond refractory to prevent damage
- When extended, nozzle provides 360 degree blast pattern
- Discharge port aligns with cannon discharge



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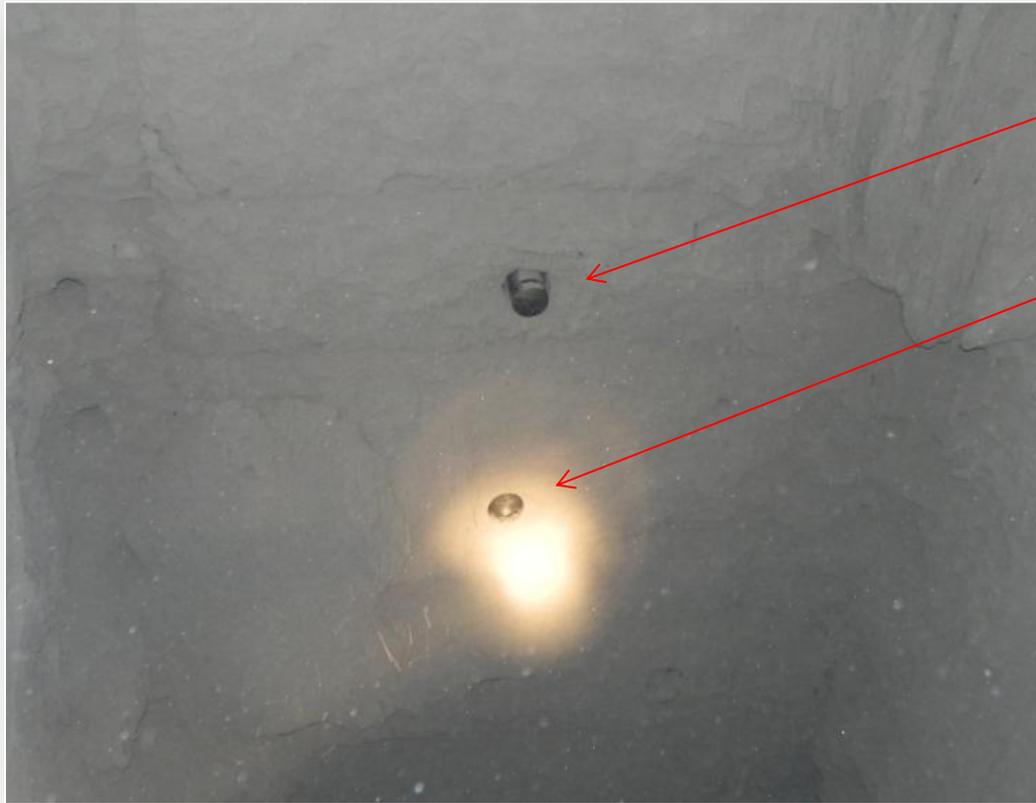


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Retractable Nozzle Installed



Retractable Nozzle Installed



- Extended through the refractory
- Recessed into refractory

Inside view of the riser duct

Martin® Thermo Safety Shield



for Extreme Temperature applications



ABC's of Efficiency for High-Temperature Processes

- A. Production ***MUST*** Go On.
- B. Air Cannon ***MUST*** Work or Personnel Must Fix.
- C. Personnel ***MUST*** be Protected When Performing Maintenance.

Therefore:

Martin® Thermo Safety Shield
MUST be installed



Closed Position
For Air Cannon Inspection and
Maintenance.



Open Position
For Normal Air Cannon Operation

Questions





Thanking For Your Patience



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